ABSTRACT

Psychiatry is an unpopular career choice for medical students. This has resulted in a shortage of psychiatrists in many countries around the world and impacts negatively on the delivery of mental health services. Over the past decades there has been growing awareness of a recruitment crisis in psychiatry and concerns that psychiatrists may become ‘an endangered species’. Stigmatising views by medical students towards people with mental illness, psychiatry as a discipline, and psychiatrists as medical specialists play a significant role in the career decision making process and considerably detract students from choosing psychiatry as a career.

The body of work presented in this thesis explores, from an international perspective a number of salient issues of relevance in the attraction and recruitment of medical students to a career in psychiatry. The specific aims of the thesis are: i) to explore medical students’ attitudes and the role of stigma on psychiatry as a career choice; ii) to assess the impact of a psychiatry clerkship on students’ attitudes and stigma towards psychiatry; iii) to review the current status and role of psychiatry enrichment programs; and iv) to evaluate the long term effectiveness of an innovative enrichment program in psychiatry, the Claassen Institute of Psychiatry for Medical Students.

A number of different methods have been utilised to achieve these aims including extensive and systematic literature reviews that focus on: students’ attitudes towards psychiatry both as a discipline and career; the role of stigma in the career
decision making process; the impact of the psychiatry clerkship on students’ attitudes towards psychiatry; and psychiatry enrichment programs as a strategy to raise interest in, and attract students to psychiatry as a career.

Several studies have also been undertaken including an international survey of students career choices, attitudes and perceptions of stigma towards psychiatry; a study of the impact of the psychiatry clerkship on students’ attitudes towards psychiatry, and to psychiatry as a career choice; and the longitudinal evaluation of the Claassen Institute of Psychiatry for Medical Students, a psychiatry enrichment program that has been co-ordinated by the Candidate since 2008.

The main findings to arise from the various components of this research are as follows: i) students’ attitudes towards psychiatry are influenced by positive and negative factors, however interest in psychiatry as a career is low; ii) stigma has a negative impact on students’ perceptions of psychiatry and detracts them from considering psychiatry as a career; iii) psychiatry enrichment programs have the potential to increase interest in psychiatry and improve recruitment.

In conclusion, reducing stigma and overcoming the negative perceptions that students have towards psychiatry needs to be given serious attention across all stages of the medical school curriculum. Enrichment programs in psychiatry such as summer schools and institutes are a growing trend in medical schools and have the potential to play an important role in raising interest in psychiatry and attracting more students to consider it as career.
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On a more personal note, my children Albie, Laura and Edward have been consistently interested and supportive in my PhD endeavours over the years and I
hope that this academic pursuit will encourage them to follow the same pathway in
due course.
PREFACE

Introduction

This thesis is organised in the ‘series of papers’ format which is an accepted and approved method of thesis submission by the University of Western Australia (UWA). It has been chosen by the Candidate as the preferred method of submission for the following reasons:

- To enable a quicker communication of results within the relevant research community;
- To avoid delays in achieving publication of thesis results and improve the probability that the work will be published in a timely fashion;
- To use the feedback provided in the reviewers comments (of published papers) to strengthen the quality of the thesis;
- To demonstrate that the work presented is worthy of publication and of relevance to the intended audience; and
- To ease the process of thesis examination.

Throughout the course of candidature, seven papers of relevance to this PhD research have been published by the Candidate in peer reviewed journals, and one more is currently under review. In addition, a number of conference presentations have been given. The full reference, journal impact factor, current number of citations and a brief summary of each paper is provided below. The number of citations has been ascertained using Google Scholar and citations are current as of
31/03/2016. The published version of each paper is appended to the end of the thesis. A list of conference presentations is also provided.

**Structure of the thesis**

This thesis is divided into six chapters and is arranged as an integrated and comprehensive manuscript. Instead of including the published versions of the papers as individual chapters in the body of the thesis, the core content of the published papers is integrated into each chapter and supplemented with additional material to create a logical and continuous narrative. It was decided to structure the thesis in this way in order to: i) minimise duplication and repetition that inevitably occurs when publishing multiple papers on a similar topic; ii) produce a consistently formatted and referenced manuscript that will facilitate the reading process; iii) avoid the thesis becoming disjointed; and iv) enable the thesis ‘story’ to be told in a coherent, sequential and logical manner.

An overview of each chapter is provided below. The overview summarises the content of the chapter and relevant publications. Each published paper is referred to as Publication 1, Publication 2 etc and cited where appropriate throughout the manuscript.

**Chapter 1 – Background and rationale**

Chapter 1 describes the background to the problem of recruitment of medical students to a career in psychiatry and briefly discusses the main topics that make up the body of work presented in the thesis. This includes: i) the early literature of students’ attitudes and stigma towards psychiatry; ii) the impact of the psychiatry
clerkship; iii) the choice of psychiatry as a career by medical students and the implications of this on the psychiatric workforce; and iv) a brief introduction to the concept of psychiatry enrichment programs. The final part of the chapter provides a rationale for the work that has been undertaken, and the specific objectives and aims covered by the different components of the thesis.

Chapter 2 – Attitudes and stigma towards psychiatry: A review of literature

Chapter 2 discusses two major areas of importance to this thesis, firstly the attitudes of medical students towards psychiatry, and to psychiatry as a career and secondly, the role of stigma and how this affects recruitment to psychiatry. The first part of the chapter is a detailed systematic review of this literature (Publication 1). This is followed by a further review of literature that focuses on stigma, its role and influence in students’ attitudes towards psychiatry, and the negative impact it has on the decision making process. The final part of this chapter discusses several of the instruments that are commonly used to measure students’ attitudes in this literature.

Chapter 3 – Stigma and psychiatry as a career choice: An international study

Chapter 3 describes the aims, method and results of an international, multicentre study undertaken by the Candidate. The study surveyed students from six countries to determine the impact of stigma and attitudes towards psychiatry on career choices. The Candidate has co-authored a paper currently under review that is of relevance to this chapter. This paper is appended to the thesis.
Chapter 4 – Impact of the psychiatry clerkship

Chapter 4 discusses the impact of the psychiatry clerkship on students’ attitudes, stigma towards psychiatry, and to psychiatry as a career choice. The first part of the chapter is a systematic review of the relevant literature (Publication 2). The second part describes a study undertaken by the Candidate that assessed the impact of the psychiatry clerkship on attitudes and stigma towards psychiatry of medical students at UWA (Publication 3). The final section of the chapter summarises the findings from the first two parts and provides some concluding comments.

Chapter 5 – Enrichment programs in psychiatry

This chapter discusses enrichment programs in psychiatry and their role in attracting students to consider psychiatry as a career. The chapter is in several parts. The first part provides a literature review of current enrichment program initiatives including summer schools and psychiatry institutes (Publication 4). The second part describes the Claassen Institute of Psychiatry for Medical Students (the Institute), an innovative enrichment program that has been co-ordinated by the Candidate since 2008, and results of evaluation of the Institute (Publication 5). In addition, a description of how an enrichment program can be established and implemented is given. The final section of the chapter summarises the main findings and provides some concluding comments. Publications 6, an invited Commentary and Publication 7, an Editorial both discuss the topic of recruitment and enrichment programs and are of relevance to this chapter. These publications are all appended to the thesis.
Chapter 6 – General discussion and conclusion

The final chapter discusses the main findings that have arisen from the various components of the thesis and provides some additional discussion of challenges in this area of medical education research. Finally, directions for future research and concluding comments are made.
Publication 1


2014 Journal Impact Factor: 1.206
Citations (Google Scholar): 27

**Summary**

This paper is a systematic review of the literature between 1990 and 2012 of students’ attitudes towards psychiatry. It is the first published systematic review of this literature that has been undertaken. The review used a comprehensive search strategy to identify relevant papers for inclusion with 32 papers meeting the eligibility criteria and included in the review. The review concluded that students’ attitudes towards psychiatry were positive overall, however psychiatry as a career was an unpopular choice for many students.
Publication 2

Lyons Z. Impact of the psychiatry clerkship on medical student attitudes towards psychiatry, and to psychiatry as a career: a systematic review. Academic Psychiatry 2014; 38:35-42.

__________________________________________________________

2014 Journal Impact Factor: 1.206
Citations (Google Scholar): 12

Summary

This paper is a systematic review of literature published between 1990 and 2013. The paper reviews studies of the impact of the psychiatry clerkship on students’ attitudes towards psychiatry, and to psychiatry as a career. This is the first published systematic review of this literature that has been undertaken. The review used the same comprehensive search strategy to identify relevant papers for inclusion as Publication 1. In total, 26 papers that met the eligibility criteria were identified and included in the review. The review found that overall the clerkship had a positive effect on students’ attitudes, but the impact on psychiatry as a career choice was mixed.
Publication 3

Lyons Z, Janca A. Impact of a psychiatry clerkship on stigma, attitudes towards psychiatry, and psychiatry as a career choice. *BMC Medical Education* 2015; 15:34.

Summary

This paper reports the results of a study undertaken by the Candidate to assess the impact of the psychiatry clerkship on students’ attitudes and stigma towards psychiatry and psychiatry as a career. Students were surveyed before and after an eight week psychiatry clerkship. Results found that the clerkship had a small, but positive impact on students’ attitudes towards psychiatry and that there was a decrease in stigmatising views. There was also an increase in the number of students considering psychiatry as a career from seven at baseline to 17 post clerkship.
Publication 4


____________________________________________________________________

2014 Journal Impact Factor: 1.206
Citations (Google Scholar): 0

Summary

This is the first published literature review of enrichment programs. The review identified 11 programs that provided medical students with an enriched exposure to the discipline of psychiatry. Most of the programs were summer schools or psychiatry institutes. All programs aimed to increase interest in both the discipline of psychiatry and in psychiatry as a career. The review concluded that enrichment programs are becoming an increasingly common concept in psychiatry and are proving to be effective in increasing interest in psychiatry as a career.
**Publication 5**


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2014 Journal Impact Factor: 0.469  
Citations (Google Scholar): 2

**Summary**

This paper reports results of an evaluation of the Claassen Institute of Psychiatry for Medical Students from 2008 - 2014. The Claassen Institute is an innovative enrichment program, the first of its kind in Australia. Since 2008, 117 students have attended the Claassen Institute. It has been successful in increasing interest in psychiatry both as a discipline and as a career choice.
**Publication 6**

**Lyons Z, Janca A.** Towards protecting the endangered discipline of psychiatry.


---

**Summary**

This paper is an invited Commentary by the journal Editor. The Commentary was written in response to an Editorial that appeared in a previous issue of the journal that discussed concerns regarding the perceived demise of academic psychiatry. The Commentary suggested that innovative enrichment programs such as the Claassen Institute of Psychiatry for Medical Students have the potential to improve recruitment to psychiatry.
Publication 7


Summary
The authors were invited by the journal editor to submit an Editorial. The Candidate and co-author wrote the Editorial which focused on the shortcomings of the psychiatry clerkship to provide students with an insight to psychiatric rehabilitation. Similarly to the Commentary described above, the Editorial then discussed how programs such as the Claassen Institute of Psychiatry for Medical Students can improve interest in psychiatry as a career.

Paper under review


Summary
This paper explores the factor structure of the MICA-2 (medical student version), an instrument that has been developed to measure attitudes and stigma among medical students. Confirmatory factor analysis was undertaken to test three models of varying degrees of complexity. A hierarchal model was found to be the best fit for the data and provided significant improvement in model fit compared to the other models.
Conferences and presentations

Lyons Z. Future proofing psychiatry: Evaluation of the Claassen Institute of Psychiatry for Medical Students. OTTAWA, Perth. March 20\textsuperscript{th} - 23\textsuperscript{rd} 2016. Oral presentation.

Lyons Z. The Claassen Institute of Psychiatry for Medical Students: An innovative program to improve recruitment to psychiatry. Teaching and Learning Forum. UWA UniClub, 29\textsuperscript{th} - 30\textsuperscript{th} January 2015. Oral presentation.

Lyons Z. The Claassen Institute of Psychiatry for Medical Students: An innovative strategy to improve recruitment to psychiatry. RANZCP Congress. Perth, May 11\textsuperscript{th} - 15\textsuperscript{th} 2014. Oral presentation.

Lyons Z. Impact of the UWA Year 4 Psychiatry rotation on medical students attitudes to psychiatry. Teaching and Learning Forum, UWA UniClub, 30\textsuperscript{th} - 31\textsuperscript{st} January 2014. Oral presentation.

Lyons Z. Presentation to the Australian Health Minister’s Advisory Council (AHMAC), Health Workforce Principal Committee, Mental Health Workforce Advisory Committee. The Claassen Institute of Psychiatry for Medical Students. February 23\textsuperscript{rd} 2012, Melbourne. Oral presentation.

Lyons Z. Evaluation of an innovative approach to recruitment of medical students to psychiatry. 14\textsuperscript{th} Pacific Rim College of Psychiatrists Scientific Meeting, Brisbane, 28\textsuperscript{th} - 30\textsuperscript{th} October 2010. Oral presentation.
CHAPTER 1

BACKGROUND AND RATIONALE

1.1 Introduction

At the time that Johann Reil created psychiatry as a medical speciality in 1808 he argued that only the best physicians would have the skills required to become a psychiatrist [1]. Over the last 200 years psychiatry has established itself as a distinct discipline and profession, and major advances in the understanding, diagnosis, classification and treatment of mental disorders have been made. The inclusion of the discipline of psychiatry as a core part of medical curricula is now an accepted component of almost all medical courses [2]. Endorsement of this by the World Psychiatric Association and the World Federation for Medical Education in 1998 has seen the development of guidelines and recommendations for teaching and assessing psychiatry in medical schools in both undergraduate and graduate courses that describe the minimum standard of skills, knowledge and competencies that students should achieve during their training [2,3].

The teaching of psychiatry and behavioural science in most medical courses starts in the pre-clinical years, progressing to clinical clerkships in the later years. Despite the integration of psychiatry into the medical curriculum which enables medical students to gain knowledge and skills of relevance to the discipline, as an area of medical specialisation and career choice, psychiatry has been negatively regarded by students for decades [4-6]. This has resulted in low numbers of applicants to
postgraduate training and consequently, a shortage of psychiatrists to provide mental health services in many countries around the world [7-10]. Awareness of student negativity towards psychiatry as a career, and concerns of the implications it has on the recruitment of psychiatrists to the profession has led to extensive research into students’ attitudes towards psychiatry in an attempt to understand the contributing factors.

The remainder of this introductory chapter will provide a context for the thesis by discussing in brief the main topics that make up the body of work presented. This includes the extent that psychiatry is considered as a career choice by medical students and the implications of this on the psychiatric workforce; a summary of the early literature of students’ attitudes towards psychiatry and the impact of the psychiatry clerkship; and an introduction to the psychiatry enrichment program concept. The final part of the chapter provides a rationale for the work that has been undertaken, and the specific aims and objectives covered by the different components of the thesis.

1.2 The psychiatric workforce

The prevalence of common mental disorders in many countries is high [11-13] and predicted to rise in the coming years [14]. Mental illness is a major public health issue in both developed and developing countries around the world [15,16]. They are disabling and debilitating conditions that occur across all stages of the lifespan and impact negatively on quality of life; the ability to lead a productive and fulfilling life; and form meaningful family, social and personal relationships [17,18].
In many health systems, mental health services are provided by a number of allied mental health professionals including nurses, clinical psychologists, social workers and general practitioners. Psychiatrists play a fundamental role in the provision of these services and work collaboratively with allied teams to provide care for patients. Shortages of psychiatrists have been reported as a problem in a number of countries including Australia, the U.K., U.S., Denmark and Pakistan [5,8,19-22]. Rural areas [23,24] and some psychiatric subspecialties, for example, child and adolescent psychiatry [25,26] and old age psychiatry [27] are particularly badly affected by the ongoing shortage of trained specialists.

The need for psychiatrists differs from country to country and is determined in part by the demand for services, the structure of the mental health system, specific cultural factors, and the overall level of government funding and resourcing [7,28]. Changes in the role of psychiatry, and expectations of the responsibilities and specific tasks undertaken by psychiatrists also causes fluctuation in the number of psychiatrists needed [5]. In some jurisdictions involvement of the allied mental health professionals in patient care may shift some of the burden of care and blur the boundaries between the responsibilities of psychiatry and the allied mental health professionals [29,30]. Over time, modifications to the psychiatric classification system, diagnostic criteria and other societal and generational changes can also cause fluctuations in the need for psychiatric services.

Analysis of the mental health workforce in 58 low and middle income countries undertaken by the World Health Organisation found that there were substantial shortages of mental health professionals across the sector including psychiatrists,
nurses and psychosocial care providers [10]. In 2005 the shortage of psychiatrists was estimated to be about 11,000 and by 2015 it was predicted that this situation would worsen leading to a shortage of almost 16,000 psychiatrists. The report found that around 93% of low income countries and 59% of middle income countries experienced a needs based shortage of psychiatrists resulting in insufficient psychiatrists to treat the predicted mental health needs of the population in the countries included in the analysis [10].

In Australia, the 2012 Health Workforce report estimated that there is a ‘perceived current shortage’ in the existing psychiatric workforce, a situation that is predicted to worsen over the next 10-20 years if recent trends in supply and demand persist [19]. Analysis of workforce dynamics highlighted concerns for shortages in the future psychiatry workforce up to 2025, with an increase in the average age of the workforce and increasing reliance on Specialist International Medical Graduates identified as particular concerns. In a ‘no change’ scenario, the report estimated that by 2025 there would be a shortage of up to 452 psychiatrists [19].

Three key characteristics that will impact on psychiatrists currently in the workforce in coming years and contribute towards future shortages in Australia have been identified. Firstly, the psychiatric workforce is ageing with 62% of Australian psychiatrists practising in 2000 predicted to retire by 2025 [31]. Secondly, more than half of trainees are female and female psychiatrists, on average tend to work fewer hours compared with males, resulting in a need for greater numbers of trainees in order to maintain an equivalent number of full time positions [31]. Thirdly, psychiatrists are also predicted to reduce their number of work hours due
to lifestyle preferences, family considerations and personal health considerations [31,33].

The current and predicted shortage of psychiatrists has serious implications for the provision of a growing demand for mental health services [10]. This creates a sense of urgency in overcoming the current recruitment crisis and emphasises the importance of attracting more medical students to choose psychiatry as their career.

1.3 Psychiatry and the career decision making process

Psychiatry has not always been an unpopular career choice for medical students. Interest has fluctuated over the last 70 years or so with political and social influences, and advances in treatment and medication playing a role in shaping trends in the profession [34]. As an example, in the U.S. between 1945 and 1969 recruitment into psychiatry was at a high [6,34]. This was in part due to many mentally ill men returning from the war deemed as unfit for military work resulting in a high demand for psychiatric treatment and care. At the same time, medical school training in psychiatry was revitalised, the community mental health movement expanded, and major advances in psychotropic treatments were made. Government funding for neuropsychiatric research increased dramatically during the sixties and seventies and the discipline of psychiatry was seen as an opportunity for social change with greater emphasis on deinstitutionalisation and patients’ rights [34].
However, in the 1970’s, psychiatry as a career began to lose its popularity and concerns of a ‘recruitment crisis’ emerged [5,6,20,20,34]. In the U.S. this was in part due to disillusionment felt by the failure of psychiatry to bring about social change and a perception that the community mental health movement had not adequately achieved its goals and met the needs of mentally ill patients. Changes to psychology training that enabled psychologists to administer psychotherapy resulted in psychiatrists losing their exclusivity as providers of psychotherapy, and greater interest by medical students in generalist family practice training were further detractors from psychiatry [6,34-36]. Over the last 30 years or so the recruitment crisis has worsened in many countries and, despite the public health importance of psychiatry, the suggestion that psychiatrists may become an ‘endangered species’ has been made [29].

For medical students, choosing an area of medical specialisation is a dynamic and complex process. Determinants and predictors of speciality choice include the demographic profile of students; their experiences at medical school such as the influence of particular teaching academics, role models, mentors and the medical curriculum; factors to do with the speciality of interest such as the specific type of patient problem; the perceived fit of student personality to speciality; and lifestyle and controllable factors such as the ability to work part-time [37-40]. Other factors are the importance placed on specific work values relevant to the career under consideration. These include autonomy and personal growth; job security and earning potential; and the importance placed on prestige and status, achievement, and career advancement [41].
Students engage in a ‘rule in, rule out’ process as they gain exposure to each medical and clinical area throughout the years of medical school and beyond [42]. Evidence regarding when career choices are made is mixed. While some students will have made their choice prior to the commencement of medical training [43], some will make their decision during medical school [42], and for others the final decision will be made in the years following graduation [44,45]. Career choices delayed until graduation from medical school may increase exposure to other specialties, and hence competition and this combined with an already negative view of psychiatry may result in students rejecting psychiatry and choosing alternative career pathways [46-48]. For an unpopular speciality such as psychiatry, stability in early career choice adds an additional challenge to psychiatric educators attempting to influence students as they progress through medical school. The proportion of students opting for psychiatry in the early years is low, and this is further compounded by clinical clerkships failing to inspire students to consider it as a career.

1.4 Psychiatry as a career choice for medical students

Negativity towards psychiatry as a career by medical students has serious implications for the psychiatric workforce. Survey based studies to determine the level of interest in psychiatry and other areas of specialisation have been undertaken in different countries around the world and provide useful information regarding career intentions. These surveys usually ask students to list their ‘chosen’ or ‘definite’ career as well as those that they are seriously considering or have no interest in. A summary of these studies follows.
A U.K. study of students from four medical schools found that overall, psychiatry was rated as the ‘most interesting’ career choice by 4% of the sample [49]. A few years later, a study of 18 U.K. medical schools undertaken by the International Study of Student Career Choice in Psychiatry (ISoSCCiP) found that of 484 final year students who responded to the survey, 3% were ‘definitely’ choosing a career in psychiatry, and 17% were ‘seriously considering’ a psychiatry career [50]. In an Australian study that surveyed first year students from six different universities, Malhi and colleagues (2002) found that psychiatry was the least popular potential speciality with only 1.4% of respondents nominating psychiatry as their ‘chosen’ career and 14.5% as a ‘possible’ career [51]. This was replicated in a study of Year 2 students undertaken in 2011, with psychiatry nominated as a ‘chosen’ career or ‘strong possibility’ by around 15% of respondents [52].

Results of an international study also reported by the ISoSCCiP group, found that overall 4.5% of students from 20 different countries were definitely considering psychiatry as a career and a further 19% were seriously considering it [53]. While career decision making during medical school can fluctuate and students will change their minds over time [42,54], decisions made post-graduation are likely to be more stable. Goldacre and colleagues (2005) surveyed the early career choices of U.K. medical graduates one and three years after graduation from medical school [55]. Between 1974 and 1999 in the first year of qualification 4.1% of junior doctors who responded to the survey specified psychiatry as their eventual career choice. By the third year post graduation this had risen slightly to 4.9%. While the rates found in this study are similar to that of medical student studies there is greater
certainty that these respondents, who were already qualified doctors would follow through with their intentions. Fifty-three percent of third year doctors stated that they had ‘definitely’ decided to choose psychiatry as their career, and 38% were ‘probably’ decided on psychiatry [55].

Negativity to psychiatry as a career choice affects developed and developing countries alike. Much of the evidence has come from westernised high income countries with established mental health care systems, mainly the U.S., Australia, the U.K., and other European countries. However, in recent years a growing number of studies from underdeveloped and middle and low income countries have been undertaken that also shows psychiatry to be an unattractive career choice. Niaz and colleagues in 2003 found that among students in Karachi, Pakistan 20.5% of pre-clinical and 25.5% of clinical students reported that psychiatry ‘could’ be their choice of career [56]. However, five years later a study by Syed and colleagues (2008) found that only 7.6% of Year 3 students from a medical school in Pakistan nominated psychiatry as their ‘first choice’ career [57]. The variation is likely due to different wording of the career choice question in the two studies, and this is an important consideration in interpreting results from questionnaire based studies.

A study of medical students in Saudi Arabia found that only one student was thinking about psychiatry as a career [58]. Twenty-eight percent of respondents in this study said that psychiatry was socially unacceptable and 17% that psychiatry was not as important as surgery. The authors discussed that a major challenge is the perception that psychiatry was not regarded as a medical speciality, and at the
time of publication (1992) psychiatry was still in its early stages of development in Saudi Arabia. Many people with symptoms of mental illness would visit a traditional healer and medical students perceived that their medical training had no relevance to the practice of psychiatry. A further study of Saudi Arabian students undertaken some years later in 2010 found that overall, attitudes towards psychiatry were moderately positive and had improved after a six week hospital based clinical clerkship [59]. However, the authors concluded that modern medical education cannot easily overcome the deeply imprinted traditional beliefs around the aetiology and treatment of mental illness that impacts negatively on students’ perception of psychiatry.

In Africa, a Nigerian study found that only one student from a sample of 91 fifth and sixth year students reported psychiatry as a career choice [60], and similarly low numbers were found in a study of 94 final year Ghanaian students, with two students stating psychiatry as their chosen career and a further 11 considering it [61]. A study of fourth year students in China found that only 1.6% were considering a career in psychiatry [62] and in Papua New Guinea, Muga (2006) found that psychiatry was a very unpopular career choice with 28% of students believing that mental illness could be caused by sorcery and 22% believing that mental illness was contagious [63].

These studies are useful as they provide an estimation of the career intentions of students. However, the cross sectional design utilised in most of the surveys somewhat limits interpretation as views are reflected at one point in time and there is no certainty that the stated area of speciality will eventually be pursued,
especially if students are in the early years of medical training at the time of being surveyed. It is also difficult to assess the proportion of students from a particular medical school that would need to match into psychiatry in order to maintain the local psychiatric workforce and enable sufficient workforce growth to meet the mental health needs of the population.

1.5 Medical students’ attitudes towards psychiatry

Research into the attitudes of medical students to psychiatry dates back to the early 1960’s, for example, Welz (1962) [64] and Walton and colleagues (1963) [65]. The earlier literature was dominated by studies from the U.S. and focused on two areas. Firstly, individual personality types and traits as a means of determining the attitudes of students to different specialities, and particular traits that may be predictive of students interested in psychiatry as a career were studied. Walton (1969) correlated personality traits and interest in a career in psychiatry of fifth year students and found that students who were more positive towards psychiatry favoured abstract ideas and had the highest scores on the ‘thinking-introversion’ scale, a measure of reflectiveness [66]. Friedman and Slatt (1988) found that students interested in psychiatry tended to be more intuitive, feeling and perceptive [67]. Mowbray and colleagues (1990) however suggested that personality factors alone were not of sufficient strength to be used in the selection of students to psychiatry [68]. He proposed that a range of factors such as age, gender, academic ability, and the medical curriculum were also influential in career decision making. A review of this literature by Borges and Savickas (2002) concluded that specialities cannot be characterised by any unique pattern of
personality traits, and there was more variation in personality traits within specialties than between [69].

A move away from evaluation of personality type and traits led towards a greater focus on research that investigated the attitudes of students towards psychiatry, their experiences of psychiatry during medical school, their perceptions of the image of psychiatrists, and views towards psychiatry as a career choice. This was in an attempt to better understand how students think and feel towards psychiatry and to psychiatry as a career. A review of this literature by Eagle and Marcos published in 1980 identified a number of pre-medical school and medical school factors that were influential in students’ choice of psychiatry as a career [35]. The specific demographic, social and personality factors of students interested in psychiatry identified in their review considered a range of factors such as socio-economic status, religious preference, ideology and political viewpoints. The review concluded that students interested in psychiatry were more likely to be single; from metropolitan cities; more likely to be agnostic or non-religious; more ideologically liberal; more person-centric; less concerned with power, status, and prestige; less authoritarian; and to have lower self-esteem compared with students not interested in psychiatry. They were more likely to have majored in the humanities and social sciences, and have lower academic achievement than other students. Attitudes towards psychiatry gained during medical school were largely negative. Psychiatry was regarded as having low status and social attractiveness and psychiatrists were regarded as emotionally unstable, confused thinkers, and emotionally uninvolved in their relations with others [35].
Throughout the eighties, research to identify and assess students’ attitudes to psychiatry, and career intentions was ongoing with studies from the U.S. continuing to dominate the literature. Recurring themes of positive and negative perceptions of psychiatry began to emerge. Nielsen and Eaton (1981) found that students were mostly favourable towards psychiatry, but were concerned about its lack of scientific basis; the effectiveness of treatment for patients; the low status of psychiatrists and stigmatisation towards students interested in psychiatry [70]. Students felt that specialisation in psychiatry was not necessary as emotional disorders could be treated in other medical careers. Yager and colleagues (1982) found that students who nominated psychiatry as a first career choice expressed more positive views towards it compared with those not interested, specifically a greater willingness to engage in counselling for family members and self [71].

Scher and colleagues (1983) found that students interested in a psychiatry career had an appreciation of being able to treat patients holistically and were positive about the controllable lifestyle factors offered by psychiatry such as working hours [36]. Similar to Nielsen and Eaton, students not interested in psychiatry felt that it was a waste of medical training and that the practice of psychiatry could be undertaken by social workers and psychologists. Psychiatry was viewed as slow moving and working with patients regarded as depressing, frustrating and emotionally draining [36].

These earlier studies provided the foundation upon which a larger body of evidence has grown which now includes studies from around the world. The factors that attract students to, and detract them from psychiatry identified in these studies
endures to the present day. Chapter 2 provides a more detailed and systematic review of this literature.

1.6 Stigma and medical students

Throughout this early literature, stigma was identified as a source of negative views and attitudes towards psychiatry among medical students, and this has become a recurring and prominent theme in many studies. While the term stigma has not always been explicitly used in some of the earlier studies, stigma and the expression of a negative attitude towards psychiatry are closely related concepts and often used synonymously.

There are a number of ways that stigma impacts on medical students and their perceptions of psychiatry. As Balon (1999) points out, stigma attached to psychiatry both at a societal level and from other medical disciplines impacts negatively on the attraction of students to a career in psychiatry [72], and the evidence from many studies shows that this has remained relatively unchanged over the last 40 years. A 1983 U.S. study found that the negative and anti-psychiatry views of family, friends and non-psychiatry health professionals were a deterrent to students considering a career in psychiatry [36] and this has subsequently been reported by other studies published in the eighties and early nineties including Shelley (1986) [73], Scott (1986) [74] and Ney (1990) [75]. This may make it difficult for students interested in psychiatry to further consider it if they feel that their decision is not supported by people who are close to them. Nielsen and Eaton (1981) found that negative views towards psychiatry from peers
and non-psychiatry staff decreased student interest in, and respect for psychiatry. Interestingly, Nielsen and Eaton interpret negativity from these external sources as stigmatisation, one of the first researchers to specifically identify stigma, as opposed to a negative attitude as a deterring factor in the recruitment of students to psychiatry.

The perception that psychiatry has a low status within the medical profession and is a less respected specialty among other medical professionals has been consistently reported and frequently attributed as a reason for poor recruitment of students to a career in psychiatry [70,71,76-79]. Psychiatrists too have been negatively perceived by students in many of these studies. Brunh and Parsons in 1964 conducted a study that aimed to assess how medical students perceive the characteristics of four different medical specialists – a surgeon, internal medicine specialist, general practitioner and psychiatrist [80]. Pre-clinical and clinical students were asked to rate the negativeness or positiveness of ten different personality traits. Each specialist was then rated against the traits and an ‘image score’ for each was created. The psychiatrist was characterised as ‘interested in intellectual problems’, ‘emotionally unstable’, and a ‘confused thinker’, whereas surgeons were described as ‘domineering and arrogant’, ‘aggressive and full of energy’ and ‘mainly concerned with their own prestige’. General practitioners were found to be ‘deeply interested in people’, ‘extremely patient’, and as having a ‘friendly, pleasing personality’. The image scores for a psychiatrist among the pre-clinical students was slightly higher than for a surgeon and lower than for the internist and general practitioner. Among clinical students the image score for the
psychiatrist was the lowest of all the specialists [80]. These negative attitudes towards psychiatry and psychiatrists have persisted over time. Chapter 2 provides a more in-depth discussion of stigma as it relates to medical students and their perception of psychiatry.

1.7 The psychiatry clerkship

The psychiatry clerkship is a mandatory component of most medical curricula around the world and for many students is the first exposure they have to working with mentally unwell patients. While the length and structure of clerkships varies considerably between medical schools, its primary role is to teach students the knowledge, skills and attitudes needed to diagnose, treat, and manage common mental problems. Since the mid-sixties as clinical clerkships became a more established component of the medical curriculum, studies of the impact of the clerkship on students’ attitudes began to grow. As with the attitudes research, a mix of positive and negative factors were identified in these early studies. An overall positive post clerkship improvement in students’ attitudes was found in a number of studies [73,74,79,81-83]. Positive factors regarding psychiatry and psychiatry as a career included the ability to treat patients as individuals and form close relationships with them [74,79]; the intellectual challenge of psychiatry [79], and the belief that patients can be helped [83]. Negative factors included the view that psychiatry lacked objectivity and was unscientific [74,79]; did not allow for the use of clinical skills [74,79]; treatments were ineffective [74,79]; and patients were unlikeable and emotionally demanding [79]. Several studies found that there was an increase in the number of students considering a career in psychiatry post-
clerkship [73,79,83] although in some the numbers were low, and in one study did not reach significance [83].

Research into students’ attitudes towards psychiatry and the impact of the clerkship has grown substantially over the last 50 years, and the evidence base has expanded to include studies from around the world. Chapter 4 provides a more detailed and systematic review of this literature with a focus on studies from 1990 onwards.

1.8 Psychiatry enrichment programs

For some students the clerkship can be the starting point for considering psychiatry as a career, and high quality teaching and enthusiastic teachers play an important part in gaining this initial career interest. The challenge is to prevent deterioration in interest as students’ progress through the medical course and are exposed to other areas of potential specialisation. One way that may assist in this is to establish creative and innovative enrichment teaching programs and activities that are more specifically designed and targeted towards the promotion of psychiatry as an attractive, challenging and fulfilling career pathway [84,85]. Enrichment programs can be structured differently depending on the goals, aims and available resources. Some programs are implemented more formally at a departmental and/or faculty level, for example, the integration of psychiatry electives into the existing curriculum [86,87], or more commonly are established as an extracurricular summer school or institute [88,89]. Other enrichment activities include
student organized and led such as psychiatry student societies (PsychSocs), mental health interest groups, and coffee clubs [90].

Enrichment programs have the capacity to extend students understanding of psychiatry beyond what is possible during the psychiatry curriculum and clerkship. Results from the small number of programs that have been formally evaluated show that participating in an enrichment program increases students’ interest in psychiatry and consideration of psychiatry as a career [86,91,92]. Enrichment programs are an emerging concept in psychiatry and further research is needed to demonstrate their effectiveness to improve recruitment of students to a career in psychiatry. Chapter 5 of this thesis will discuss the enrichment program concept in greater detail.

1.9 Conclusion

Medical schools play an important part in the recruitment of future psychiatrists. Currently, they are failing to attract sufficient numbers of students to psychiatry and this is impacting negatively on the psychiatric workforce and the ability of the mental health system to meet a growing need and demand for services. Students’ attitudes towards psychiatry are a mix of positive and negative factors and the interplay between these determines the level of interest in the discipline and career. In particular, stigma has a negative influence that detracts students from considering psychiatry as a career. The clerkship provides the platform to deliver teaching in psychiatry for all students and for many their clerkship experiences are influential in later career decision making. While clerkships cover the core
requirements of the curriculum, for students who are thinking about, interested in or have decided on a career in psychiatry, participating in an innovative enrichment program has the potential to broaden their knowledge and extend interest in the discipline.

1.10 Study rationale

It is essential that a new generation of motivated and enthusiastic medical students choose psychiatry as their life long career to ensure that the profession remains sustainable into the future. Despite extensive research into the attitudes of students towards psychiatry and the impact of the clinical clerkship in psychiatry, interest in psychiatry as a career remains low.

Further research in to the following areas will improve understanding of these factors and enable appropriate interventions to be implemented:

- There is an extensive evidence base of studies of students’ attitudes towards psychiatry, and the impact of the psychiatry clerkship on attitudes. However, this literature has not been subject to systematic review. A systematic review would provide a clearer picture of positive and negative factors of psychiatry, including stigma that will enable targeted teaching interventions to be implemented;
- Gaining a greater understanding of stigma and its role in the recruitment of students to a career in psychiatry could enable psychiatric educators to target and implement stigma reduction interventions more effectively; and
• There are limited opportunities for students to maintain their interest in psychiatry beyond the clerkship. Innovative psychiatry enrichment programs have the potential to provide students with an extended view of psychiatry and promote it as a career, however few such programs, in particular summer schools and institutes have been established and evaluated. There is a need for this evidence base to be expanded in order to better understand if and how enrichment programs can improve recruitment to psychiatry.

1.11 Objective and aims

The overall objective of the work contained in this thesis is to explore in depth from an international perspective the salient issues involved in the attraction of medical students towards psychiatry as a career, and discuss strategies such as psychiatry enrichment programs that may improve interest, decrease stigma and increase recruitment into psychiatry. The specific aims of the study are as follows:

i. To explore medical students’ attitudes and the role of stigma on psychiatry as a career choice;

ii. To assess the impact of a psychiatry clerkship on students’ attitudes and stigma towards psychiatry;

iii. To review the current status and role of psychiatry enrichment programs; and,
iv. To evaluate the long term effectiveness of an innovative enrichment program, the Claassen Institute of Psychiatry for Medical Students, aimed to improve interest in, and increase recruitment to psychiatry.
CHAPTER 2

ATTITUDES AND STIGMA TOWARDS PSYCHIATRY: A REVIEW OF LITERATURE

2.1 Introduction

Over the past several decades, in an effort to understand what medical students think and feel about the discipline of psychiatry and psychiatry as a potential career choice, students’ attitudes have been assessed in many studies. For much of this time there has also been recognition of the impact of stigma in the formation of negative attitudes that students have towards people with mental illness, psychiatry as a discipline and as a career. A summary of earlier studies of attitudes and stigma was given in Chapter 1 of the thesis. This chapter will focus in greater detail on the more recent literature in these two areas. The first part will systematically review the literature of students’ attitudes towards psychiatry from 1990 to 2012. Publication 1 is integrated throughout this section of the chapter and the published version of the paper is appended. The second part of the chapter will provide a review of stigma as it relates to medical students. The final part of the chapter includes description and discussion of the validity of a number of questionnaires commonly used to measure students’ attitudes and stigma towards psychiatry and career choices.
2.2 A systematic review of attitudes towards psychiatry and as a career

In much of the literature the term ‘attitude’ is rarely defined. There is an implied assumption that its meaning is obvious and understood. However, providing a clear definition of attitude would be helpful for better comprehension of this literature and interpretation of specific study results.

2.2.1 Defining attitude

Eagly and Chaiken define attitude as, ‘A psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour’ [93]. Attitude is the way that a person evaluates different stimuli, or aspects of their experiences of the world, and is a preference to like or dislike something [94,95]. Stimuli are varied and include events, people, social issues, social groups, or objects [96]. An attitude is comprised of three components – affect, behaviour and cognition [94,96]. Affect refers to an emotional response, or how a person feels towards the stimuli and can be pleasurable, happy, unhappy, or sad. The behavioural component is a set of overt actions directed towards the stimuli and can be supportive, favourable or hostile, and expressed either verbally or nonverbally. The cognitive component comprises a set of beliefs, knowledge structures and thoughts that a person may have towards the stimuli and these can vary from favourable to unfavourable [96].

In the research of medical students and psychiatry, a variety of attitudes across different domains are usually assessed. These include attitudes towards psychiatry as a discipline; attitudes to psychiatry as a career; how psychiatry is taught at
medical school; working with patients with mental illness; and attitudes towards psychiatrists and others who work in the mental health workforce.

2.2.2 Review rationale

As discussed in Chapter 1, a review of the earlier studies into students attitudes towards psychiatry was published in 1980 [35]. Fifteen years later, in response to the decline in psychiatry as a career choice among U.S. students, a selected review of the attitudes literature was published by Sierles and Taylor (1995) [34]. This review, which was dominated by U.S. based studies included a historical perspective of the cyclical trends in recruitment in the U.S. and proposed a number of hypotheses to explain this. Since then the evidence base of this literature has grown substantially and now includes studies from around the world, however no further reviews have been published. Furthermore, while the reviews by Sierles and Taylor (1995) and Eagle and Marcos (1980) summarised literature current at the time, a systematic approach was not utilised [34,35]. Taking these limitations into consideration, and in order to provide an up to date critique of the attitudes literature, a systematic review was undertaken by the Candidate (Publication 1).

2.2.3 Review method

The U.K. Centre for Review and Dissemination Guidance for Undertaking Reviews in Health Care was used to provide guidance in conducting this review and search strategy [97]. The following electronic databases were searched: MEDLINE, EMBASE, Web of Science, ScienceDirect, AustHealth (Informit), CINAHL Plus (Ebsco), Global Health (Ovid), Health and Medical Complete (Proquest), and PsychInfo. In addition to an electronic database search, the reference lists of the studies
identified were hand searched. Finally, each available issue from key journals in the area were manually searched by accessing the archive on the journals website. These included Academic Psychiatry, Medical Education, Medical Teacher and Academic Teacher. Search words used were: medical student/s, attitude/s, psychiatry, and career.

2.2.4 Selection of papers and extraction of information

Studies were selected for the review if they met the following inclusion criteria: i) published in an English language, peer reviewed journal from 1990 -2011; ii) all the search words appearing in the title and/or abstract – as some of the papers were focussed on career choice and others attitudes towards psychiatry, the inclusion of either/or ‘career’ and ‘attitude’ was allowed; and iii) reporting primary research on the attitudes of medical students towards psychiatry and/or to psychiatry as a career. Studies were excluded if they had not specifically surveyed medical students, were focussed on some other speciality, or assessed the impact of a psychiatry clerkship.

A data extraction form was developed to collate the information derived from the selected studies. The following information was extracted from each paper: year of publication; country where the study was conducted; aim/s, sample size and response rate; year of course students were in when they participated in the research; and main results.

The electronic search identified 586 papers that had any one of the key search words in its title. An initial screening of these articles to identify those that met the
selection criteria was undertaken. This resulted in the identification of 159 papers that were read in full to determine whether they were suitable for inclusion in the review, and of these 32 were selected and analysed. Reasons for excluding papers at this stage included duplication, i.e. the same paper appearing in more than one database, not all the specified search words appearing in the title or abstract, and not published in the English language.

2.2.5 Summary of reviewed studies

All 32 studies were based on a cross sectional design. The aims, methods and main results of each study in the review are summarised in Table 2.1. A total of 12,144 students from 74 medical schools were surveyed across all studies. Response rates were generally high, most likely a reflection of the method where students were asked to complete the survey during contact time. Response rates ranged from 49% – 100%, with 13 studies reporting rates of over 85%. Response rate was not given in eight studies [51,56,72,98-102].
Table 2.1 Summary of reviewed studies of medical students’ attitudes to psychiatry

<table>
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<tr>
<th>Year, author, country</th>
<th>Aims and years surveyed</th>
<th>Response rate</th>
<th>Main findings</th>
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| 2011 Maric *et al*, Serbia [116] | To assess changes in attitudes to psychiatry as a career between Year 2 and Year 5 students. | Year 2: 97.5%  
Year 5: 81% | 15% of Year 2 and 16% of Year 5 students reported psychiatry as chosen career; Year 5 more negative than Year; demographic variables had little impact on career choice in either year. |
<p>| 2011 Budd <em>et al</em>, U.K. [49] | To explore students career choices and attitudes to psychiatry. Years 1, 3, 4 and 5 surveyed from four universities. | Ranged from 50-85% | Overall, 4% rated psychiatry as most interesting career choice; 131 rated psychiatry in top three choice; 69% of interested students female; job satisfaction and family friendly important career factors. |
| 2011 Curtis-Barton &amp; Eagles, U.K. [104] | To investigate career intentions of Year 1-5 students and factors that may discourage psychiatry as a career. | 51% | 4-7% (across years) chose psychiatry as ‘probably’ or ‘definitely’. Negative factors were scientific basis of psychiatry, no evidence base, patient prognosis and paperwork/bureaucracy. |
| 2010, Lingeswaran, India [109] | To assess attitudes of undergraduate students (years 1-4) and interns to psychiatry and mentally ill patients. | 96% | Overall negative views towards psychiatry and was least preferred career choice. Reported as unscientific, psychiatrists considered as poor role models, teaching low quality. |
| 2010, Pailhez <em>et al</em>, Spain and Colombia [102] | To assess the role of opinions of medical students on recruitment rates in two countries. | RR not given | 9.7% of students from Spain and 4.3% from Colombia said psychiatry was chosen career; overall positive views among all students. |</p>
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<th>Aims and years surveyed</th>
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| 2010 Aghukwa, Nigeria [60] | To determine attitudes towards psychiatry as a profession and career. Year 5 (pre clerkship) and Year 6 (post clerkship) students surveyed. | Year 5: 78.6%  
Year 6: 71.4% | One Year 5 (n = 84) and nil Year 6 (n = 35) students reported psychiatry as career choice; positive views on merits/efficacy of psychiatry, role of psychiatrists in both years; no differences between years; negative views in both years regarding psychiatry as a career, its status, and personal reward. |
| 2009 Kuhnigk et al, Germany [32] | To compare difference in attitudes of students from two universities studying PBL and traditional programme (TP). | Hamburg: 93%  
Duisburg-Essen: 86% | 5.7% of Hamburg and 5% of D-E students said psychiatry was 1st career choice; no differences between males and females in PBL, but higher scores for females in TP. |
<p>| 2009 Gowans et al, Canada [54] | To report on career choices of students entering graduate medical school. | 89.6% | 3.2% reported psychiatry as first career choice; 14.1% put psychiatry in top 3 choices; students interested in psychiatry more likely to have arts or arts/science background; have friends/family practicing medicine. |
| 2009 Laugharne et al, Ghana [61] | To assess attitudes of final year students and compare with U.S. and Spanish students. | 89.5% | 2.2% definitely considering psychiatry; positive factors were merits of, and research in psychiatry; negative - psychiatrists have low prestige. Ghana students views closer to those of Spanish students than U.S. |
| 2009 Aslam et al, Pakistan [105] | To determine characteristics of Year 3, 4 and final year students and interns interested in psychiatry. | 90% | Overall, 17% reported psychiatry as career choice, significantly more from private college than public; psychiatry rotation &gt;1 month and family member with psychiatric history more likely to report it as career. |
| 2008 Ndeti et al, Kenya [117] | To determine attitudes of students (all years 1-5) to psychiatry. | 58.2% | 75% favourable attitude to psychiatry, but only 14% considering as career; clinical students less favourable than students in early years. |</p>
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<td>2008 Khan et al, Pakistan [99]</td>
<td>To determine the attitude of final year students to psychiatry.</td>
<td>RR not given</td>
<td>Overall positive attitudes for all students; scores on attitudes towards psychiatric patients and illness higher; females more positive than males.</td>
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<td>2008 Syed et al, Pakistan [57]</td>
<td>To determine attitudes of Year 3 students to psychiatry career and compare with U.S. and Israeli studies.</td>
<td>60%</td>
<td>7.6% reported psychiatry as preferred choice or highly likely; no differences in gender, premedical education or family.</td>
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<td>2007 Gat et al, Israel [112]</td>
<td>To examine changes in attitudes to careers in Years 4-6. Results c/w same cohort (Year 1-3, pre-clinical), reported in earlier study.</td>
<td>69%</td>
<td>Psychiatry ranked as least attractive speciality; 5.5% said ‘high chance’ of considering psychiatry career; psychiatry perceived as attractive lifestyle; negative views regarding treatment efficacy, lack of scientific basis and low perception of professional skills; more females than males interested; interest declines as students’ progress to clinical years.</td>
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<tr>
<td>2006 Cutler et al, U.S. [113]</td>
<td>To compare perceptions of students interested in career in psychiatry vs non-interested students. Years 3 and 4 surveyed.</td>
<td>Year 3: 90% Year 4: 75%</td>
<td>49% of Year 3 seriously considered psychiatry career, 27% of Year 4’s. Interested students more likely to have personal exposure to psychiatry through friend/family and come from non-science background; intellectual content and quality of life issues rated as positive factors.</td>
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<tr>
<td>2005 Abramowitz &amp; Bentov-Gofrit, Israel [111]</td>
<td>To analyse attitudes towards psychiatry residency among pre-clinical students and compare with U.S. data.</td>
<td>70%</td>
<td>9.4% considered psychiatry as ‘chosen career’ and 22% as ‘strong possibility’, higher than U.S. study; psychiatry ranked most positive on intellectual challenge and least attractive on use of clinical skills; low scores on financial reward, prestige in medical community, ability to benefit patient, reliable scientific foundation.</td>
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<tr>
<td>Year, author, country</td>
<td>Aims and years surveyed</td>
<td>Response rate</td>
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<td>2005 Pailhez et al, Spain [100]</td>
<td>To compare attitudes and views towards psychiatry of Year 4 students with U.S. data.</td>
<td>RR not given</td>
<td>6% reported psychiatry as career choice; Spanish students more positive about overall merits and possible abuse/social criticism than U.S., e.g. did not think that psychiatrists abused their legal power; Spanish less likely to view treatment as effective; Spanish neutral about role and function of psychiatrists, and agreed that psychiatry has low prestige; less satisfied with teaching compared with U.S. students.</td>
</tr>
<tr>
<td>2004 Rajagopal et al, U.K. [108]</td>
<td>To determine attitudes of U.K. students in Years 1-5 to different career options.</td>
<td>52%</td>
<td>Psychiatry least popular career choice and chosen by 3% of students; psychiatry boring, unscientific, depressing, stressful, frustrating, students with mental illness family history more likely to choose psychiatry.</td>
</tr>
<tr>
<td>2003 Niaz et al, Pakistan [56]</td>
<td>To determine attitudes towards psychiatry among pre-clinical and clinical students.</td>
<td>RR not given</td>
<td>20.5% pre-clinical and 25.5% clinical students agreed psychiatry could be career choice.</td>
</tr>
<tr>
<td>2002, Al-Ansari &amp; Alsadadi, Bahrain [114]</td>
<td>To compare attitudes towards psychiatry between Years 1, 4 and 7.</td>
<td>82.3%</td>
<td>Overall, 2.9% selected psychiatry as first career choice – all from pre-clinical years; majority female; overall positive attitude.</td>
</tr>
<tr>
<td>2002 Malhi et al, Australia [51]</td>
<td>To determine attitudes of Year 2 students to psychiatry as a career.</td>
<td>RR not given</td>
<td>Psychiatry least popular career choice – 1.4% reported as ‘chosen’ career and 14.5% as ‘strong possibility’; females more interested than males; more likely to have humanities background, have greater respect for psychiatrists; negative factors, lacks satisfactory outcomes, involves abstract concepts, dangerous patients, stressful work.</td>
</tr>
<tr>
<td>Year, author, country</td>
<td>Aims and years surveyed</td>
<td>Response rate</td>
<td>Main findings</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------------</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2001 Tharyan <em>et al</em>, India [101]</td>
<td>To assess exposure to psychiatry on attitudes, mental illness and career in psychiatry. Year 1/ 4 and final year/interns surveyed.</td>
<td>RR not given</td>
<td>Overall positive attitudes to psychiatry and mental illness; 20.6% reported psychiatry as career; no differences between exposed and not exposed groups; females more positive than males and more likely to choose as career.</td>
</tr>
<tr>
<td>1999 Calvert <em>et al</em>, Scotland [115]</td>
<td>To determine change in attitudes to psychiatry between Year 1, 3 and 5 students.</td>
<td>70%</td>
<td>Overall, attitudes did not improve as students progressed through course; students with negative attitude more likely to be male and interested in surgery.</td>
</tr>
<tr>
<td>1999 Balon <em>et al</em>, U.S. [72]</td>
<td>To determine attitudes and views towards psychiatry of students who had completed the junior clerkship.</td>
<td>RR not given</td>
<td>2.1% definitely take psychiatry residency; overall, views and attitudes towards psychiatry positive; strong agreement regarding effectiveness of psychiatric treatment, psychiatrists and discipline of psychiatry; positive views regarding psychiatry career/ personal reward; and teaching.</td>
</tr>
<tr>
<td>1999 Feifel <em>et al</em>, U.S. [106]</td>
<td>To determine attitudes of freshmen to various medical specialities.</td>
<td>52%</td>
<td>Psychiatry least popular– 1 student reported it as chosen career, 7.2% considered it a ‘strong possibility’; negative views included patients are emotionally draining, lack of scientific foundation/ efficacy of treatment.</td>
</tr>
<tr>
<td>1995 Lee <em>et al</em>, U.S. [103]</td>
<td>To compare views of Year 4 students interested in psychiatry residency with other specialities.</td>
<td>50.4%</td>
<td>Positive factors: greater intellectual challenge, lifestyle, effectiveness of treatment and humanities background; students not interested influenced by poor psychiatry clerkship and wanting to use clinical skills.</td>
</tr>
<tr>
<td>1994 Caldera &amp; Kullgren, Sweden and Nicaragua [98]</td>
<td>To analyse influence of different variables between students in Sweden and Nicaragua. Year level not given.</td>
<td>RR not given</td>
<td>Overall, all students reported positive attitudes; Nicaragua more positive towards patients than Sweden; Fewer Swedish students interested in career; no cross cultural differences in attitudes.</td>
</tr>
<tr>
<td>Year, author, country</td>
<td>Aims and years surveyed</td>
<td>Response rate</td>
<td>Main findings</td>
</tr>
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</tr>
<tr>
<td>1993 Alexander &amp; Kumaraswamy, India [76]</td>
<td>To determine attitudes of final year students to psychiatry and career interest.</td>
<td>93%</td>
<td>4.1% stated psychiatry as career choice; overall positive views of psychiatry and psychiatrists; negative views towards social prestige and financial reward items.</td>
</tr>
<tr>
<td>1993 Baptista et al, Venezuela [110]</td>
<td>To assess attitudes to psychiatry of final year students &amp; physicians.</td>
<td>Students: 99% Physicians: 39%</td>
<td>4% and 5% from each university reported psychiatry as first choice; overall positive view in both groups; females more positive than males.</td>
</tr>
<tr>
<td>1992 Soufi, Saudi Arabia [58]</td>
<td>To assess attitudes of students to psychiatry after introduction of new course. Year level not given.</td>
<td>~50%</td>
<td>Only 1 student thinking about psychiatry career; 28% said psychiatry socially unacceptable; psychiatry not seen as medical speciality; more exposure to psychiatry needed; treatment should be left to traditional healers.</td>
</tr>
<tr>
<td>1990 Koh, South Korea [149]</td>
<td>To assess interest and attitudes to psychiatry of final year students.</td>
<td>92.8%</td>
<td>9.1% stated psychiatry as current career choice; overall, positive attitudes with no differences between males and females; clerkships and lectures and contact with faculty staff and patients improve interest.</td>
</tr>
<tr>
<td>1990 Pan et al, Hong Kong [245]</td>
<td>To investigate career preference of different specialities in pre-clinical and clinical students.</td>
<td>Pre-clinical: 94.7% Clinical: 96.7%</td>
<td>5% of pre-clinical and 4% of clinical students listed psychiatry as first choice; clinical students more positive attitude towards psychiatry, psychiatrists and patients than pre-clinical.</td>
</tr>
</tbody>
</table>
There was some variation in method between studies but for most students were surveyed during class time. One study sent surveys to students by post [103], and two used a combination of in class and electronic surveying [49,104]. Seventy-four medical schools participated in surveys. Fourteen studies recruited students from more than one medical school [49,51,54,56,57,72,76,99,102,103,105-108]. Three studies included interns [101,105,109], and one included physicians [110]. Five studies compared their data with an existing study or studies [57,61,100,111,112] and two studies made international comparisons [98,102].

The studies included in the review were conducted in 22 different countries. The countries with more than one study included the U.S., Pakistan, India, the U.K., and Israel. The following countries had one study each: Nigeria, Kenya, Canada, Bahrain, Scotland, South Korea, Saudi Arabia, Venezuela, Hong Kong, Australia, Ghana, Spain, Serbia, Germany, Sweden c/w Nicaragua, and Spain c/w Colombia.

2.2.6 Students’ attitudes towards psychiatry and as a career

The main trends to emerge were as follows: a) positive factors included the merits, intellectual challenge and efficacy of psychiatry [60,61,72,103,111,113]; career factors and personal reward [101]; and perception of psychiatrists as professionals [76];

b) negative factors included the lack of scientific foundation [104,106,108,109,111]; perceived low status, stigma, prestige and financial reward of psychiatry [60,61,76,100,111], psychiatrists as poor role models [109]; difficulties with the patient population and treatment [51,100,104,106,111,113]; depressing and frustrating perception of psychiatry [108]; and loss of opportunity to use clinical skills [103]. As expected, students expressing interest in psychiatry had more positive
attitudes compared with those with no interest. Furthermore, students interested in psychiatry were more likely to be female, have an arts or non-science background and to have had a family member/relative with a history of mental illness [51,54,99,101,103,105,108,110,112,114,115].

Overall, psychiatry as a career choice was rated poorly by students. Fourteen studies found that psychiatry was chosen as a career by less than 5% of the sample, three studies between 5 and 10% of the sample and six studies 10% or more. Of interest, in two studies only one student nominated psychiatry as a chosen career [60,106].

Some studies made comparisons between pre-clinical and clinical students as a means of assessing the impact of exposure to psychiatry through clinical attachments and rotations. Results were varied, with two studies showing improved attitudes [49,56] in clinical students compared with pre-clinical, and six finding more negative attitudes among students in clinical years [112-117]. Only three studies found no difference between the two groups [60,101,109].

Overall, a mix of both negative and positive attitudes towards psychiatry was reported across all studies. The majority however, found that on the whole student attitudes were quite positive and this was consistent between cultures and countries where studies were undertaken.

2.3 The impact of stigma on medical students’ perceptions of psychiatry and as a career

In a number of studies stigma was raised as a factor in students’ negativity towards psychiatry, and this may play a role in how students perceive psychiatry, both as a
discipline and potential career and frustrates the potential for career recruitment [118-121]. The expression of a negative attitude is often attributed to stigma and in much of the literature the two terms are synonymous and used interchangeably. However, similar to the attitudes research, stigma as it relates to medical students is often not clearly defined. A more explicit definition in this context would assist in providing a clearer framework within which to broaden the discussion around stigma. This would enable clarity in terms of quantifying the impact and consequences of stigma on medical students, their perceptions of psychiatry and psychiatry as a career, and assist in implementing relevant strategies and interventions to minimise its harmful effect.

2.3.1 Defining stigma

Defining stigma in a general sense provides a starting point from which to explore its wider meaning when applied to medical students and psychiatry. Goffman, in his classic 1963 work, defined stigma as, ‘Any attribute, trait or disorder that marks the person as being unacceptably different from the normal people with whom the person usually interacts and that elicits some form of community sanction’ [122]. The World Health Organisation define stigma as, ‘A mark of shame, disgrace or disapproval which results in an individual being rejected, discriminated against, and excluded from participating in a number of different areas of society’ [123]. Cumming (1965) adds a further dimension to defining stigma by stating that, ‘Stigma acquires its meaning through the emotion it generates within the person bearing it and the feeling and behaviour toward him of those affirming it’ [124].
Stigma towards a number of illnesses, disorders and impairments is common, however one of the most stigmatised of all medical conditions are mental illnesses. These definitions are helpful in thinking about stigma from the patient perspective and convey the negative sentiment that stigma imposes on the lives of people with mental illness [125,126]. Stigma however is a multi-dimensional construct and its impact extends beyond those who live with a mental illness. For example, Goffman (1963) suggested that those related through the social structure with a stigmatised individual or group can become recipients of a ‘courtesy stigma’ and experience similar negative attitudes from those around them and the broader community as the stigmatised person [122]. In this sense, by virtue of their connection to mental illness, psychiatrists and other mental health professionals can become the recipients of a courtesy stigma and subject to stigmatising views from others [120]. This was demonstrated by Gaebel and colleagues (2015) in an international study of perceived stigma and discrimination among psychiatrists. The study found that despite variations between countries, overall psychiatrists felt that the public were negative towards their profession, and experiences of stigma and discrimination were common [127]. A study by Bassiri and colleagues (2011) found that 54% of consultant psychiatrists surveyed reported receiving negative comments relating to their profession and work at least weekly. Doctors from other specialities and the media were perceived to be the main contributors to these negative comments [128].

2.3.2 The impact of stigma on career decision making

There are several different ways that the formation of stigmatising views towards mental illness interacts negatively with medical students’ attitudes towards psychiatry.
Firstly, evidence from epidemiological studies has shown that mental illness stigma among the community and general public is common. The Australian National Survey on Mental Health Literacy and Stigma sampled 6019 Australian adults [129]. Telephone interviews based on six vignettes each of which described a person with mental illness were conducted. Personal and perceived stigma, and social distance, the extent that people are willing to interact with someone was a mental illness, were measured. Personal stigma was highest in the schizophrenia vignette with 37% agreeing that people with this disorder are dangerous, 76% agreeing that they are unpredictable, and 37% stating that they would not employ someone with this illness. Across all vignettes, the highest level of agreement was from the statement from regarding unpredictability. In terms of perceived stigma, schizophrenia was again the condition that had the highest level of agreement to each item. Social distance was also negatively rated with most respondents unwilling to work closely or marry someone with a mental illness [129].

In the U.K., national surveys of attitudes and stigma towards mental illness have been conducted every few years since 1994. A nationally representative sample of adults have participated in each survey by responding to a 26 item questionnaire. The questionnaire items covered a range of topics including views on people with a mental illness, relationships with people with a mental illness, stigma and discrimination. Respondents were required to state their level of agreement to each item. Mehta and colleagues (2009) analysed trends in this survey data between 1994 and 2003 and found that over the nine year period there was an overall deterioration in views and
evidence of increased stigmatisation towards mental illness among the general public [130].

Medical students are also ‘members of the public’ and as such, hold similarly stigmatising views towards mental illness as the general community [106,118,131]. Pre-existing stigmatising views prior to the commencement of medical school may negatively influence their attitude towards psychiatry during medical school. This may be expressed as negativity to mental illness as a disease classification; people with mental illness; the psychiatry curriculum and the teaching and learning of psychiatry at medical school; psychiatrists and other mental health professionals; and consideration of psychiatry as a career choice.

Secondly, students interested in psychiatry and psychiatry as a career may be the recipients of externalised sources of stigma. Similar to the courtesy stigma experienced by psychiatrists and other mental health professionals, stigmatising and negative comments from family members, friends and fellow students can actively discourage students from psychiatry due to a feeling that becoming a psychiatrist will not be accepted by those they are close to [72,118,132].

Other sources of stigmatising views and behaviours come from non-psychiatry medical specialists who express negative views towards psychiatry and deter students from considering psychiatry as a career by making derogatory comments towards it as an area of specialisation [118,133,134]. A recent international survey of medical teaching academics found that there was a high degree of negativity towards psychiatrists and the teaching of psychiatry at medical school. Just over 90% of respondents agreed
that psychiatrists were not good role models for medical students and 75% were
disseminate of students expressing interest in psychiatry as a career [135]. Stigma also
comes from the perception that psychiatry has a low status, lacks prestige within the
medical profession, and is a less respected speciality among other medical
professionals [46,90,118, 135,136].

Qualitative and reflective studies can provide a useful dimension of stigma and an
additional insight that is not always captured in quantitative studies that use self-
report questionnaires. Stigma was one of the main themes to emerge in several
studies where students were asked to write reflective pieces post clerkship [137-139].
In one of these, Year 5 students in Australia were asked to write an essay about why
doctors are not interested in psychiatry as a career [139]. Working with mentally ill
patients was described as being ‘less glamorous’ than working with other patients,
and there was a perception that clinicians do not want to be associated with working
with mentally ill patients. Students also felt that psychiatry had low prestige and
respect in the community [139].

The perception of stigma does not always have negative connotations. For some
students, contact with mentally ill patients through the clerkship raised their
awareness of stigma and the impact that it has on patients’ lives. A U.S. study that
analysed students reflective journals at the end of a psychiatry clerkship found that
stigma was expressed as recognition by students of the effect it has on the mentally ill
[138]. Brenner (2011), in a similar analysis of post clerkship reflective journals found
that 23% of students felt that the clerkship had reduced stigma and helped them to
see people with mental illness more positively [137]. However, this is not always the
case. Cutler and colleagues (2009) conducted semi-structured interviews with a sample of 47 students interested in psychiatry to find out in greater detail their perceptions of psychiatry [118]. Analysis of these interviews found that for students, working with patients was stressful and this led to them forming stigmatised views and stereotyping patients. These negative views were influenced in part by family and friends and non-psychiatric academics, and Cutler suggested that the perception of psychiatry having a low status could be a considerable detractor in students’ attitudes [118].

In summary, stigma as it impacts on medical students and psychiatry comes from the negative views and comments towards psychiatry from friends, family and peers; negative comments from other health professionals during clerkships and other clinical situations; and the perception that psychiatry has a low status in the community may cause students to question their career choice and further alienate them from considering psychiatry as a career. This impacts on recruitment and perpetuates negativity towards psychiatry, both as a discipline and profession.

2.3.3 Reducing stigma

Addressing stigma through educational interventions is essential for psychiatry to overcome its negative status among students [132,140], but evidence of the effectiveness of anti-stigma training is mixed. Friedrich and colleagues (2013) found that an educational package of lectures, personal testimonies and role play activities improved short term knowledge, attitudes and behaviour, but these effects were not maintained over time [141]. A similar training package found improvements in knowledge, but not in attitudes and behaviour [142]. A randomised controlled trial of
an educational intervention to reduce mental illness stigma among medical students was effective in reducing stigma both at the end of the program and at the three month follow-up [143]. The most effective component of this program were the ‘clinical correlations’ sessions, small group teaching sessions where students interact with mentally ill patients and a psychiatrist mentor who facilitated the sessions. In the sessions students practiced their psychiatric skills and discussed their reactions and experiences with the mentor. Presentations given by patients with mental illness were also highly rated as effective in reducing stigma. Overall, 89% of students thought that the course was effective in reducing prejudice and discrimination towards people with mental illness and that it would change their behaviour towards the mentally ill [143].

A review of 22 anti-stigma programs for health care providers identified six key program ‘ingredients’ that were particularly important in reducing stigma and improving attitudes among health care providers [144]. These included: i) social contact from a speaker with a lived experience of mental illness; ii) opportunities for social contact between participants and people with mental illness; iii) a focus on behaviour change of participants; iv) myth busting; v) an enthusiastic program facilitator; and vi) an emphasis on recovery from mental illness. While this review focused on programs targeted towards healthcare providers, it is likely that these key stigma reduction elements could be generalised to the medical school setting and assist in mitigating the negative effect of stigma among students. Results from these studies add support to the contact theory which proposes that contact between people with mental illness and other sectors of the community is an effective strategy in reducing stigma and discrimination [145-147]. Regardless of the design and
individual components of an anti-stigma program, in order for the positive benefits to be maintained over time, these strategies need to be supported by academic teaching staff and embedded and integrated throughout the curriculum.

2.4 A summary of instruments to measure attitudes, stigma and career choice

Much of the evidence base and research reviewed above has evolved from the utilisation of different questionnaires that have been designed and developed to assess student’s attitudes towards psychiatry, and to psychiatry as a career choice. The main focus of these questionnaires has been on assessing attitudes, or how students think, feel and behave towards various aspects of psychiatry including working with patients’ and the clinical aspects of psychiatry, the teaching of psychiatry at medical school, psychiatry as a discipline, psychiatrists, and psychiatry as a potential career. Three of the most commonly used questionnaires in the students attitudes literature are those developed by Nielsen and Eaton (1981) [70]; Burra, the ATP-30 (1982) [81]; and Balon (1999) [72].

2.4.1 Measurement of attitudes towards psychiatry

The Nielsen and Eaton questionnaire (NEQ) has 81 items with a combination of positively and negatively phrased statements answered on a five point Likert scale, enabling respondents to provide a neutral response if needed [70]. The questionnaire was first used by the authors in a study of medical students at two U.S. medical schools in 1979. The questionnaire items were derived from ‘previous work and conventional wisdom’ but the authors did not undertake formal validation to assess its psychometric properties. Despite this it has been used in a number of other studies,
for example, Alexander and Kumaraswamy (1993), Koh (1990), Fischel and colleagues (2008) and Samini and colleagues (2006) [76,148-150].

At around the same time, the Attitudes Toward Psychiatry 30 (ATP-30) was developed by Burra and colleagues (1982) [81]. They aimed to develop a standardised method of assessing the impact of their teaching courses on students’ attitudes to psychiatry. A robust process was employed, both in the development and validation of the questionnaire. An initial bank of 80 items that related to eight attitudinal traits was constructed. Half of the items were positively phrased and half negatively phrased. A five point Likert scale (strongly agree-strongly disagree) including a neutral midpoint was used to rate each item. By summing responses to each item a total score could be calculated, with a high score indicating a more positive attitude. Initial trialling on groups of medical and occupational therapy students resulted in the selection of 30 items in the final version of the questionnaire. Finally, the effect of psychiatry training was tested by administering the ATP-30 to groups of medical students, psychiatry residents and occupational therapy students with varying levels of exposure to clinical psychiatry situations. The authors concluded that the ATP-30 was a valid instrument for the measurement of student’s attitudes towards psychiatry and that it could be used as a measure of the impact of teaching interventions. The ATP-30 has been used as a questionnaire in many studies, for example, Baptista and colleagues (1998), Khan and colleagues (2008), Rodrigo and colleagues (2012) and Kuhnigk and colleagues (2007) [99,107,110, 151].

In 1999 Balon and colleagues also developed a questionnaire that aimed to measure students’ views and attitudes towards psychiatry [72]. Their instrument used 12 items
from the NEQ and added 17 new items creating a 29 item questionnaire. A four point
Likert scale, strongly agree-strongly disagree, with no neutral response option was
used to rate each item. Items related to six broad domains – overall merits of
psychiatry; efficacy; role definition and functioning of psychiatrists; possible abuse and
social criticism; career and personal reward; and specific medical school factors. As a
means of validating the questionnaire, chi square testing was undertaken to compare
responses to the 12 NEQ items used with results from the original Nielsen and Eaton
study. Validation was not undertaken on the remaining 17 items in the questionnaire.
Data collected from 479 students at four medical schools was used in the analysis.
Over the last 15 years, the Balon questionnaire has been used in a number of studies
of medical students, for example, Lingeswaran (2010), Aghukwa (2010), Pailhez and
colleagues (2010) and Xavier & Almeida (2010) [60,102,109,152].

2.4.2 Measurement of stigma
There are a number of questionnaires that have been developed to assess stigma. A
review of these instruments by Link and colleagues (2004) identified several stigma
constructs measured by a range of different instruments [153]. These were behaviour;
labelling; stereotyping; cognitive separating; emotional reactions; status loss and
discrimination; and structural discrimination. Most of these questionnaires have been
developed to measure stigma in specific population groups, for example, the general
population, people with mental illness, health professionals, and families of people
with mental illness [153]. As such they are not always suitable for medical student
research which focuses on a different set of stigma themes not always included as
items in these questionnaires. Studies of medical students’ attitudes and stigma

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towards psychiatry have largely used questionnaires that have been primarily
designed to measure attitudes towards psychiatry, and while they capture the concept
of stigma, especially when negative attitudes are expressed, the need remains for
instruments and techniques that more specifically measure stigma and its impact on
medical students’ views towards psychiatry.

Vignettes are a common method utilised in the stigma studies. A vignette enables a
respondent to react to a specific stimulus in a hypothetical setting which has the effect
of distancing them from their own experiences and views of the particular situation
[153,154]. In several medical student studies vignettes have been utilised in the
research design [119,155-157]. Respondents are usually asked to rate answers to
various questions relating to the person portrayed in the vignette. Vignettes can
portray either a specific diagnosis, e.g. depression, schizophrenia [155], a more generic
description of someone with a mental illness [156], and in some studies as a
comparator, a physical disorder is included [119]. Advantages in using vignettes are
that they enable a more elaborate stimulus/scenario to be presented to the
respondent which can elicit a greater range of responses and attitudes than can be
assessed in self-report questionnaires. They also provide a less personal and therefore
less threatening method of exploring sensitive topics and this can reduce response
bias.

More recently, in 2010 a new instrument, the Mental Illness: Clinicians Attitudes scale
(MICA) was developed by the SAPPHIRE group in the U.K. as a measure of stigma and
attitudes towards people with mental illness, mental health, and those working in the
discipline of psychiatry [158]. Two versions of the questionnaire have been designed,
one for use with medical students (MICA-2) and the other for healthcare workers (MICA-4). The MICA-2 is a 16 item self-report questionnaire with each item rated on a six point Likert scale where 1 = ‘strongly agree’, 2 = ‘agree’, 3 = ‘somewhat agree’, 4 = ‘somewhat disagree’, 5 = ‘disagree’ and 6 = ‘strongly disagree’. A total score ranging from 16 to 96 can be calculated by summing each of the 16 item scores with a low total score indicating a less stigmatised attitude towards mental illness. The reliability, validity and responsiveness of the MICA-2 has been assessed by Kassam and colleagues (2010) [159]. Good internal consistency was found (Cronbach’s alpha coefficient of 0.79) and test-retest reliability was high, concordance coefficient of 0.80. Factor analysis yielded seven factors which accounted for 73.7% of the variance, however, these factors were not described or labelled and the specific MICA-2 item numbers that made up each factor was not given. The authors concluded that the MICA-2 was a responsive, reliable and valid instrument to measure stigma and attitudes towards mental illness and psychiatry among medical students, however they acknowledged that further testing of its psychometric properties was required [159].

The MICA-2 shows promise as an instrument that focuses more specifically on stigma. It has the advantage of being able to compute a ‘total score’ that indicates the level of stigma for each individual or study cohort. However, some of the items appear to be biased towards the respondent giving a socially desirable response, for example items 5 and 15. In addition, the extent to which several items actually measure the concept of stigma among medical students is questionable, for example, items 6, 13 and 14.
As the MICA-2 is a relatively new instrument, to date it has only been used in a small number of studies involving medical students [142,160], nursing students [161] and healthcare professionals [162]. In order to add to the limited evidence base of studies that have used the MICA-2, it was selected as a measure of stigma in an international survey of medical students undertaken by the Candidate. Results of this study are reported in Chapter 3 of the thesis.

2.4.3 Measurement of career choice

A commonly used instrument to assess the attitudes of medical students towards several different specialties as career choices was developed by Feifel and colleagues in 1999 [106]. The questionnaire is divided into two sections. The first section asks respondents to rank six areas of medical specialisation in order of preference. These are general medicine; surgery; psychiatry; paediatrics; obstetrics/gynaecology; and general practice. Each career can be rated as: ‘chosen career’, ‘strong possibility’, ‘no strong opinion’, ‘unlikely’, or ‘no way’. Respondents are also asked to describe what attracted them to their first choice and what detracted them from their last choice. The second section of the questionnaire asks respondents to indicate how attractive four of the areas of specialisation are from the following perspectives: financial reward; lifestyle; job satisfaction; intellectual challenge and interesting subject matter; prestige, both from the public and medical community; the scientific foundation; the degree to which patients are helped; and the extent that the speciality uses all aspects of medical training; and enjoyable work. Finally, respondents are asked to rate how the skills and knowledge required for each of these four specialities is perceived by other doctors, fellow students and the wider community. In the second section of the
questionnaire, only four career choices are provided with no explanation given by the authors as to why general medicine and general practice are excluded. While this questionnaire has been used in many studies, e.g. [51,57,112,116] no formal validity testing of its psychometric properties has been undertaken.

2.5 Summary of students’ attitudes and stigma to psychiatry

Decades of research aimed at identifying attitudes towards psychiatry has found that overall, medical students have positive attitudes towards a number of aspects of psychiatry however in spite of this, interest in psychiatry as a career remains low in many countries. Stigma is an influential factor that impacts on students’ perceptions of psychiatry and attention needs to focus more closely on the development of innovative teaching strategies to reduce stigma. This may be helpful in overcoming the negativity that students have towards psychiatry, improve recruitment rates to training programmes and put psychiatry on a more positive foundation for the future.
CHAPTER 3

STIGMA AND PSYCHIATRY AS A CAREER CHOICE: AN INTERNATIONAL STUDY

3.1 Introduction

Chapter 2 has provided a detailed literature review of students’ attitudes and stigma towards psychiatry. This chapter describes the aims, method and results of an international, multicentre study undertaken by the Candidate. The rationale behind the study was to explore in greater detail the impact of stigma on students’ career preferences using the Mental Illness: Clinicians Attitudes scale (medical student version) (MICA-2) as the primary instrument to measure stigma. Pre-clinical and clinical students were included in this international sample of students to further strengthen the evidence base in this area and quantify any between group differences.

The Candidate has co-authored a paper currently under review that is of relevance to this chapter. The paper reports the results of confirmatory factor analysis undertaken on the MICA-2. The paper is appended to the end of the thesis.

3.1.1 Study aims

The aims of this study were to: i) determine the career choices of pre-clinical and clinical students; ii) assess stigma and attitudes towards psychiatry as a career among pre-clinical and clinical medical students; iii) assess the role of stigma in career choice and iv) identify specific career factors that attract students to, and detract them from psychiatry.
3.2 Method

An international, multicentre cross-sectional study was undertaken by the Candidate. Pre-clinical and clinical medical students from eight universities in six different countries – Australia, the U.K., Hong Kong, Ghana, India, and Canada were invited to participate in the study. Students from three universities in Australia participated; the other five countries were represented by students from one university each. Ethics approval or Institutional approval where appropriate, was gained from each participating university prior to implementation of the survey. Consent to take part in the study was implied if students chose to complete the survey. All universities were English speaking so there was no necessity to translate the study questionnaires. Two of the ethics approved Participant Information Sheets used in this study are appended (Appendix 1 and 2).

3.2.1 Instruments

Two questionnaires were used in the survey. To assess career choices, a modified version of a questionnaire designed by Feifel and colleagues (1999) was used [106]. Respondents were asked to rank five career choices – general medicine; surgery; psychiatry; paediatrics; and general practice in order of preference, i.e. ‘chosen career’, ‘strong possibility’, ‘no strong opinion’, ‘unlikely’, or ‘no way’. Respondents were also asked to indicate how attractive each career choice was from a number of different perspectives and to rate how the skills and knowledge required for each speciality is perceived by other doctors, fellow students and the wider community.

To assess stigma and attitudes towards psychiatry the MICA-2 was used [159]. The MICA-2 was selected to measure attitudes and stigma towards mental illness in
preference to the older attitudes focused questionnaires as it was felt that this could
add a new dimension to what is known regarding students attitudes towards
psychiatry and mental illness. It has not been used in a larger study that includes
medical students from different universities and countries. Demographic information
including gender, age, and pre-clinical or clinical status was also collected. The survey
took around 10-15 minutes to complete. Permission to use both the Feifel
questionnaire and the MICA-2 was gained from their respective authors. A description
of these questionnaires is provided in sections 2.4.2 and 2.4.3 and both are appended,
Appendix 3 and Appendix 4.

3.2.2 Procedure
Students completed either a paper copy of the questionnaires during tutorial time, or
an electronic version using the Qualtrics survey platform [163]. For logistical and
practical purposes it was necessary to administer the survey electronically at some of
the participating medical schools. With administrative support, students at these
schools received a global email inviting them to participate in the study. The email
provided a link for students to click on that took them to the electronic survey. As an
incentive to participate and as a means of maximising response rates, there was an
option to enter a draw to win a book voucher for $AU100. Students who decided to
enter the draw were asked to provide an email address, and to ensure confidentiality
their questionnaire responses were not linked to the provided email address. In the
medical schools where participation in the survey was undertaken electronically, an
email reminder was sent two weeks after the first contact was made.
To ensure that pre-clinical and clinical students were included in the study, each medical school allocated a year cohort that was representative of each group to take part in the survey. All students in the designated year were invited to participate. Participation in both paper copy and electronic surveys was voluntary and no identifying information was given by respondents ensuring confidentiality. The survey was conducted between April 2012 and October 2014.

### 3.2.3 Statistical analysis

Statistical analyses were carried out using IBM SPSS software, Version 22.0. Descriptive statistics including frequencies and percentages were used to describe the sample and explore the career choices of pre-clinical and clinical students. Chi square tests were used to compare differences in career choices between male and female students, independent sample t tests were used to compare means between male and female students and pre-clinical and clinical students on the mean MICA-2 total score and each MICA-2 item. To assess differences in the mean MICA-2 total score between countries, a one way ANOVA was used. Effect sizes, using a repeated measure coefficient regression method were calculated for each of the career factors and career choice.

As there were low responses to some of the rating categories in a few of the Feifel and MICA-2 questionnaire items, the rating categories were combined. It was felt that this would make interpretation of the data easier and more meaningful. For the Feifel, the five point rating scales were collapsed in to either three or four categories by combining the first two options into one, keeping the neutral option as is, or combining the fourth and fifth options in to one. Similarly, in order to assess the
percentage agreement and disagreement to the MICA-2 items, the first, second and third rating options were combined in to an agreement variable, and the fourth, fifth, and sixth rating options in to a disagreement variable. Details of the particular statistical methods used for the analysis of each component of the data are provided in the results section.

3.3 Results

Across the eight universities, approximately 4378 students were invited to participate in the survey. Of these, approximately 2048 (46.5%) were in the pre-clinical years and 2330 (53.5%) were in the clinical years. A total of 1554 students responded to the survey, resulting in an overall response rate of 35.3%. Of students who responded, 718 (response rate 35%) were in the pre-clinical years and 826 (response rate 35.5%) in the clinical years. Forty-two percent of respondents were male and the mean age of all students was 23 years, range 17- 44 years. Response rates for each university varied with lower rates from those that administered the survey electronically. The highest rate was India with all invited pre-clinical and clinical students completing paper copy questionnaires during a tutorial. The lowest rates were from the U.K. (10.5%) and Hong Kong (14%), both of whom administered the survey electronically. Table 3.1 shows the number of pre-clinical and clinical respondents from each university, response rates, percent male and method of survey administration.
Table 3.1 Characteristics of survey participants

<table>
<thead>
<tr>
<th></th>
<th>Sample size/number of responses</th>
<th>Response rate %</th>
<th>Male %</th>
<th>Survey administration method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical</td>
<td>482/323 840/454</td>
<td>67/54</td>
<td>46/41</td>
<td>Paper copy</td>
</tr>
<tr>
<td>clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U.K.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical</td>
<td>262/92 228/57</td>
<td>35/25</td>
<td>36/24</td>
<td>Electronic</td>
</tr>
<tr>
<td>clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Canada</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical</td>
<td>900/95 900/94</td>
<td>10.5/10.5</td>
<td>56/37</td>
<td>Electronic</td>
</tr>
<tr>
<td>clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hong Kong</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical</td>
<td>105/105 105/105</td>
<td>100/100</td>
<td>52/38</td>
<td>Electronic</td>
</tr>
<tr>
<td>clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>India</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical</td>
<td>90/80 91/87</td>
<td>89/96</td>
<td>42/43</td>
<td>Paper copy</td>
</tr>
<tr>
<td>clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ghana</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical</td>
<td>209/23 166/29</td>
<td>11/17.5</td>
<td>39/48</td>
<td>Paper copy</td>
</tr>
<tr>
<td>clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-clinical total</td>
<td>2048/718 2330/826</td>
<td>35/35.5</td>
<td>45/38.5</td>
<td>Paper copy</td>
</tr>
<tr>
<td>clinical total</td>
<td>4378/1544</td>
<td>35.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3.1 Career choices of pre-clinical and clinical students

Across the whole sample psychiatry was the least popular of the five career choices with only 49 (3.2%) students nominating it as their ‘chosen’ career. Of these, 21 were pre-clinical (2.9%) and 28 (3.3%) were in the clinical years. General medicine and surgery were the most popular careers with 168 (11%) and 156 (10%) students respectively nominating each as their ‘chosen’ career. Psychiatry was also the lowest rated ‘strong possibility’ career, with 16.5% of pre-clinical and 14% of clinical students rating it as such. This compared to 31.5% of pre-clinical and 18% of clinical students rating surgery as a ‘strong possibility’, and 50% of pre-clinical and 47% of clinical students rating general medicine as a ‘strong possibility’. Similar numbers of around
30% for both general practice and paediatrics were found. For pre-clinical students psychiatry was the highest rated ‘no way’ career with 91 (13%) of students overall rating it as such. Surgery was the highest rated ‘no way’ career among clinical students with 208 (25%) rating it as such. However, when the ‘no way’ and ‘unlikely’ categories were combined, psychiatry had the highest rating among both pre-clinical and clinical students, 51% and 58% respectively. Figure 3.1 shows the proportions of pre-clinical and clinical students who indicated ‘chosen’, ‘strong possibility’, ‘no opinion’, ‘unlikely’, or ‘no way’ for each career choice.

Figure 3.1 Career choices of pre-clinical and clinical students

Between countries there were some notable differences in choice of career at both pre-clinical and clinical level. For this analysis the ‘unlikely’ and ‘no way’ categories
were combined in to ‘unlikely’. For psychiatry, the percentage of pre-clinical students who chose psychiatry was 0% in Hong Kong and Canada, 1.5% in Australia, 5% in the U.K. and 6% in both India and Ghana. For clinical students the range was from 2% in Canada to 8% in India. Rates for the other countries were Australia 2.5%, Hong Kong and Ghana 3.5%, and U.K. 4%. However, when the ‘chosen’ and ‘strong possibility’ categories were combined, the U.K. had the highest number of students who selected psychiatry, 35.5% of pre-clinical and 31% of clinical students. Canada had the lowest number of pre-clinical and clinical students who selected psychiatry as their ‘chosen’ career. Canada also had the highest number of pre-clinical and clinical students who rated psychiatry as ‘unlikely’, 70.5% and 71% respectively, followed by Ghana with 65% of pre-clinical and 60% of clinical students.

When the ‘chosen’ and ‘strong possibility’ categories were combined, general medicine was the highest rated career, followed by surgery. General medicine also had the lowest number of pre-clinical and clinical students who rated it as ‘unlikely’. Interestingly, surgery was a ‘strong possibility’ for pre-clinical students across the sample, however, by the time students were in the clinical years, with the exception of Hong Kong, the rating for surgery by clinical students was lower.

Paediatrics was rated the highest by both pre-clinical and clinical students in India, 23% and 15% respectively. However, when the ‘chosen’ and ‘strong possibility’ categories were combined, Ghanaian students had the highest rating, 44% of pre-clinical students and 40% of clinical students. General practice was ranked as a ‘strong possibility’ by a high proportion of students in Australia, the U.K., and Canada, however students in Hong Kong, India and Ghana ranked it lower, both as a ‘chosen’
and ‘strong possibility’ career. Figures 3.2 to 3.6 show the percentage of pre-clinical and clinical students in each country and their career choice rating.

**Figure 3.2 Psychiatry as a career choice for pre-clinical and clinical students**

![Psychiatry Career Choice](image)

**Figure 3.3 Surgery as a career choice for pre-clinical and clinical students**

![Surgery Career Choice](image)
Figure 3.4 General medicine as a career choice for pre-clinical and clinical students

Figure 3.5 General practice as a career choice for pre-clinical and clinical students
3.3.2 Gender and career choice

In order to make the data easier and more meaningful to interpret, ‘chosen career’ and ‘strong possibility’ were combined into a ‘strong possibility’ category; ‘no opinion’ stayed the same; and ‘unlikely’ and ‘no way’ were combined into an ‘unlikely’ category. Data were analysed across the whole sample. Some interesting trends emerged with some specialities more female oriented, others male oriented and some evenly selected by both. Female students were more likely to select psychiatry and paediatrics as potential careers. Males were more interested in surgery and general medicine. Pearson’s chi-square was used to test for differences in career choice between male and female students. A number of differences were found. Significantly more female students chose psychiatry as a career than males, ($\chi^2 = 19.041, df = 6, p = 0.004$); male students were significantly more likely to choose
surgery, \( \chi^2 = 108.100, \text{df} = 6, p = 0.0005 \); and general medicine, \( \chi^2 = 20.392, \text{df} = 6, p = 0.002 \); and more females chose GP \( \chi^2 = 28.781, \text{df} = 6, p = 0.0005 \) and paediatrics, \( \chi^2 = 34.854, \text{df} = 6, p = 0.0005 \). Table 3.2 shows these results in more detail.

Table 3.2 Gender and career choice

<table>
<thead>
<tr>
<th></th>
<th>Strong possibility</th>
<th>No opinion</th>
<th>Unlikely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M – 14%</td>
<td>M – 26%</td>
<td>M – 59%</td>
<td></td>
</tr>
<tr>
<td>F – 21%</td>
<td>F – 28%</td>
<td>F – 51%</td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M – 48%</td>
<td>M – 21%</td>
<td>M – 31%</td>
<td></td>
</tr>
<tr>
<td>F – 25%</td>
<td>F – 20%</td>
<td>F – 55%</td>
<td></td>
</tr>
<tr>
<td>General medicine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M – 63%</td>
<td>M – 27%</td>
<td>M – 10%</td>
<td></td>
</tr>
<tr>
<td>F – 57%</td>
<td>F – 28%</td>
<td>F – 15%</td>
<td></td>
</tr>
<tr>
<td>General practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M – 31.5%</td>
<td>M – 29.5%</td>
<td>M – 39%</td>
<td></td>
</tr>
<tr>
<td>F – 44%</td>
<td>F – 25.5%</td>
<td>F – 30.5%</td>
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</tr>
<tr>
<td>Paediatrics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M – 29%</td>
<td>M – 34%</td>
<td>M – 37%</td>
<td></td>
</tr>
<tr>
<td>F – 43%</td>
<td>F – 30%</td>
<td>F – 27%</td>
<td></td>
</tr>
</tbody>
</table>

3.4 Analysis of the MICA-2 and career factors

To calculate the MICA-2 total score, the negatively framed items 1, 2, 4, 5, 6, 7, 8, 13, 14, and 15 were reverse scored. The range of scores on the instrument was between 1 and 6, where 1 = ‘strongly agree’, 2 = ‘agree’, 3 = ‘somewhat agree’, 4 = ‘strongly disagree’, 5 = ‘disagree’, and 6 = ‘somewhat disagree’. The mean score and standard deviation for each MICA-2 item was calculated. For easier interpretation of differences between countries, the percentage agreement and disagreement with each item was calculated by dichotomising categories 1-3 into ‘agree’, and 4-6 into ‘disagree’. The mean item score and percent agreement and disagreement were
reported for each country and comparisons between gender and year level across the whole sample were made.

### 3.4.1 MICA-2 mean total score

The total score data were normally distributed. Across the whole sample, the mean MICA-2 total score was 44.1, standard deviation 8.4, median 44, and range 22-74. There was some variation in the mean MICA-2 total score between countries. The U.K. had the lowest mean of 39.5 (sd 8.1) and Ghana had the highest mean, 50.3 (sd 9.1). Mean scores for the other countries were as follows: Australia 43.0 (sd 7.6), Canada 42.9 (sd 7.5), Hong Kong 47.3 (sd 7.1), and India 47.5 (sd 7.7). A one way ANOVA found that there was a significant difference in the mean MICA-2 total score between countries, $F(5, 1474) = 44.753, p = 0.0005$. Post hoc comparisons using the Tukey HSD test found that the mean MICA-2 total score for the U.K. was significantly lower than the other countries, $p = 0.0005$, and that the mean score for Ghana was significantly higher than the other countries indicating that U.K. students hold fewer stigmatising views compared with students from the other countries and Ghanaian students had the highest level of stigmatising views. These results are shown in detail in Table 3.3.

### 3.4.2 MICA-2 and gender

For the whole sample, the mean MICA-2 total score for males was higher, 45.4 (sd 8.2) compared with females, 43.2 (sd 8.4), indicating that male students held a greater level of stigmatising views towards psychiatry. An independent sample t test found that this difference was significant, $df (1476) = 4.928, p < 0.0005$. Between countries the total score for males was either higher compared with females or about the same.
However, the difference was only significant in Australia, independent sample t test, df (739) = 4.593, \( p < 0.0005 \). These results are shown in detail in Table 3.3.

Independent sample t tests found that there were significant differences in some of the MICA-2 items between male and female students. The mean score was significantly higher on four items. For each of these items this represented a more stigmatised view/attitude. The items were as follows, ‘If a consultant psychiatrist instructed me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions’, df (1296.96) = 2.773, \( p < 0.006 \); ‘It is important that any doctor supporting a person with a mental illness also assesses their physical health’, df (1517) = 3.158, \( p < 0.002 \); ‘The public does not need to be protected from people with a severe mental illness’, df (1514) = 3.188, \( p < 0.001 \); ‘If a colleague told me they had a mental illness I would still want to work with them’, df (1516) = 2.403, \( p < 0.016 \).

The mean score was also significantly lower on six items indicating a more stigmatised view/attitude. The items were as follows: ‘I just learn about psychiatry because it is in the exam and would not bother reading additional material on it’, df (1520) = -4.090, \( p < 0.0005 \); ‘If I had a mental illness I would never admit this to any of my friends because I would fear being treated differently’, df (1519) = -2.186, \( p < 0.029 \); ‘Being a psychiatrist is not like being a real doctor’, df (1248.29) = -4.674, \( p < 0.0005 \); ‘If a person with a mental illness complained of physical symptoms (such as chest pain), I would attribute it to their mental illness’, df (1304.90) = -3.539, \( p < 0.0005 \); ‘GP’s should not be expected to complete assessment for people with psychiatric symptoms because they can be referred to a psychiatrist’, df (1516) = -2.940, \( p < 0.003 \); ‘I would
use the terms crazy, nutter, mad etc to describe people with a mental illness who I have seen in my work’, df (1287.32) = -3.396, p < 0.001.

3.4.3 MICA-2 and year level

The MICA-2 total mean score for pre-clinical students across the whole sample was 44.2 (sd 8.9) and for clinical students was 44.0 (sd 8.0). This was not significant, independent sample t test, df (1379.771) = 0.478, p < 0.632. There were some differences between countries, but no consistent pattern emerged. In Australia, the mean score for pre-clinical students was significantly lower than clinical students, 42.2 vs 43.6, independent sample t test, df (739) = -2.453, p < 0.014. In Canada and Ghana pre-clinical students scored significantly higher, Canada 43.9 vs 41.3, independent sample t test, df (143) = -2.051, p < 0.042, Ghana 53.9 vs 47.3, independent sample t test, df (156) = 4.816, p < 0.0005. In the other countries there were no differences. These results are shown in detail in Table 3.3.

Independent sample t tests found that there were significant differences in some of the MICA-2 items between pre-clinical and clinical students. The mean MICA-2 total score was significantly higher on three items. This indicated either a more or less stigmatised view/attitude, depending if the item was negatively or positively phrased. The items were as follows: ‘People with a severe mental illness can never recover enough to have a good quality of life’, df (1512.12) = 2.79, p < 0.0005 (indicates less stigma); ‘It is important that any doctor supporting a person with a mental illness also assesses physical health’, df (1519) = 3.009, p < 0.003 (indicates more stigma); ‘I would use the terms crazy, nutter, mad etc to describe people with a mental illness who I have seen in my work’, df (1518) = 2.234, p < 0.026 (indicates more stigma).
The mean score was also significantly lower on three items. The items were as follows: ‘Psychiatry is just as scientific as other fields of medicine’, $df (1521) = -4.236$, $p < 0.0005$ (indicates less stigma); ‘People with a severe mental illness are dangerous more often than not’, $df (1521) = -3.248$, $p < 0.001$ (indicates more stigma); ‘GPs should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist’, $df (1422.762) = -7.038$, $p < 0.0005$ (indicates less stigma).

Table 3.3 Mean MICA-2 total score, gender and year level

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>U.K.</th>
<th>Canada</th>
<th>Hong Kong</th>
<th>India</th>
<th>Ghana</th>
<th>All</th>
</tr>
</thead>
<tbody>
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<td><strong>Total mean score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>7.6</td>
<td>8.1</td>
<td>7.5</td>
<td>7.1</td>
<td>7.7</td>
<td>9.1</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>44.5 *</td>
<td>41.3</td>
<td>43.6</td>
<td>47.7</td>
<td>48.3</td>
<td>50.0</td>
<td>45.4 *</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>41.9</td>
<td>38.8</td>
<td>42.1</td>
<td>47.0</td>
<td>46.8</td>
<td>50.5</td>
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<tr>
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<td>42.2 *</td>
<td>39.9</td>
<td>43.9 *</td>
<td>47.6</td>
<td>47.0</td>
<td>53.9 *</td>
<td>44.2</td>
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<tr>
<td><strong>Clinical</strong></td>
<td>43.6</td>
<td>39.2</td>
<td>41.3</td>
<td>47.0</td>
<td>48.0</td>
<td>47.3</td>
<td>44.0</td>
</tr>
</tbody>
</table>

* Indicates significance ($p = <0.05$) using an independent test

3.4.4 MICA-2 item analysis

Across the sample students were reasonably positive regarding learning about psychiatry and academic concepts such as psychiatry’s scientific basis and recovery from mental illness. The overall mean for items 1, 2, and 3 which assessed these concepts were 4.1, 4.4, and 3.0 respectively. Detailed results of this analysis are shown in Table 3.4.

Items four and seven that assessed personal disclosure of mental illness showed some level of stigma. In particular, Ghanaian students were more negative than others in
their response to, ‘If I had a mental illness I would never admit this to any of my friends because I would fear being treated differently’ with 74% agreeing with the statement, compared with 45% of Australian students, 42% for the U.K., 42% for Canada, 46% for Hong Kong, and 48% for India. A one way ANOVA found that there was a significant difference in the mean score for this item between countries, [F(5, 28.690) = 15.271, p = 0.0005]. Post hoc comparisons using the Tukey HSD test found that the mean score for Ghana was significantly higher (p = 0.0005) than the other countries, indicating a greater level of stigmatisation regarding willingness to disclose mental illness to others. There were also differences in responses to item 16, ‘If a colleague told me they had a mental illness I would still want to work with them’ with 98% of U.K. students agreeing with this, item mean 1.7, compared with 66% from Ghana (item mean 3.0).

There were some differences between countries on the items that assessed views towards people with mental illness. Seventy-four percent of students from Ghana agreed with the statement, ‘People with a severe mental illness are dangerous more often than not’ (item mean 2.8) compared with 11% of U. K. students (item mean 5.0). The level of agreement for, ‘I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness’, was lowest among Ghanaian students, 37%, item mean 3.8, and highest among students from Hong Kong, 77% agreement, item mean 1.1. The level of agreement with, ‘The public does not need to be protected from people with a severe mental illness’ was also lowest among students from Ghana, 17% (item mean 4.6), and highest among Indian students, 43% (item mean 3.7). For all students the average level of agreement for these two items was
60% (item mean 3.2) and 36% (item mean 3.8) respectively. A one way ANOVA found that there were significant differences in the mean score for both of these items, \( p = 0.0005 \). Post hoc comparisons using the Tukey HSD test found that the mean for Ghana was significantly higher than the other countries, indicating a greater level of stigma among these students, \( [F(5, 17.932) = 11.737, p = 0.0005] \), and \( [F(5, 23.470) = 18.219, p = 0.0005] \),

Across the sample there was overall agreement with item 11, ‘It is important that any doctor supporting a person with a mental illness also assesses their physical health’, average agreement 97% (item mean 1.7). There was a range of views on item 14, ‘GP’s should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist’ which is perhaps a reflection of the differences between countries in health systems and the understanding of the role of primary care. For example, in Canada only 9% of students agreed with the statement, item mean 4.9 compared with 50% agreement among Indian students (item mean 3.5).
<table>
<thead>
<tr>
<th>MICA-2 Item</th>
<th>Australia</th>
<th>U.K.</th>
<th>Canada</th>
<th>Hong Kong</th>
<th>India</th>
<th>Ghana</th>
<th>All Mean (SD)</th>
<th>All % Agree/ Disagree*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. I just learn about psychiatry because it's in the exam and would not bother reading additional material on it.</td>
<td>4.0 (1.3)</td>
<td>4.5 (1.4)</td>
<td>4.3 (1.4)</td>
<td>3.9 (1.3)</td>
<td>4.3 (1.4)</td>
<td>4.0 (1.5)</td>
<td>4.1 (1.3)</td>
<td>33/67</td>
</tr>
<tr>
<td>Q2. People with a severe mental illness can never recover enough to have a good quality of life.</td>
<td>4.4 (1.1)</td>
<td>4.9 (1.1)</td>
<td>4.4 (1.2)</td>
<td>4.1 (1.3)</td>
<td>4.3 (1.3)</td>
<td>4.2 (1.5)</td>
<td>4.4 (1.2)</td>
<td>23/77</td>
</tr>
<tr>
<td>Q3. Psychiatry is just as scientific as other fields of medicine.</td>
<td>3.0 (1.1)</td>
<td>2.9 (1.3)</td>
<td>3.2 (1.2)</td>
<td>3.2 (1.4)</td>
<td>3.0 (1.6)</td>
<td>2.7 (1.4)</td>
<td>3.0 (1.2)</td>
<td>67/33</td>
</tr>
<tr>
<td>Q4. If I had a mental illness I would never admit this to any of my friends because I would fear being treated differently.</td>
<td>3.8 (1.3)</td>
<td>3.9 (1.3)</td>
<td>3.8 (1.1)</td>
<td>3.6 (1.1)</td>
<td>3.7 (1.6)</td>
<td>2.8 (1.5)</td>
<td>3.7/1.4</td>
<td>48/52</td>
</tr>
<tr>
<td>Q5. People with a severe mental illness are dangerous more often than not.</td>
<td>4.4 (1.1)</td>
<td>5.0 (1.0)</td>
<td>4.7 (0.9)</td>
<td>3.6 (1.3)</td>
<td>3.4 (1.3)</td>
<td>2.8 (1.4)</td>
<td>4.2/1.3</td>
<td>30/70</td>
</tr>
<tr>
<td>Q6. Psychiatrists know more about the lives of people treated for a mental illness than do family members of friends.</td>
<td>3.5 (1.1)</td>
<td>3.5 (1.2)</td>
<td>3.3 (1.2)</td>
<td>3.5 (1.0)</td>
<td>2.6 (1.4)</td>
<td>2.6 (1.5)</td>
<td>3.3/1.3</td>
<td>58/42</td>
</tr>
<tr>
<td>MICA-2 Item</td>
<td>Australia</td>
<td>U.K.</td>
<td>Canada</td>
<td>Hong Kong</td>
<td>India</td>
<td>Ghana</td>
<td>All Mean (SD)</td>
<td>All % Agree/Disagree*</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Q7. If I had a mental illness I would never admit this to any of my colleagues for fear of being treated differently.</td>
<td>3.1 (1.1)</td>
<td>3.4 (1.2)</td>
<td>3.2 (1.2)</td>
<td>3.2 (1.2)</td>
<td>3.5 (1.5)</td>
<td>2.7 (1.5)</td>
<td>3.2/1.3</td>
<td>65/35</td>
</tr>
<tr>
<td>Q8. Being a psychiatrist is not like being a real doctor.</td>
<td>4.7 (1.1)</td>
<td>4.8 (1.1)</td>
<td>4.8 (1.1)</td>
<td>4.2 (1.3)</td>
<td>4.5 (1.5)</td>
<td>4.3 (1.4)</td>
<td>4.6/1.2</td>
<td>20/80</td>
</tr>
<tr>
<td>Q9. If a psychiatrist instructed me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions.</td>
<td>1.9 (1.1)</td>
<td>1.8 (1.1)</td>
<td>2.0 (1.2)</td>
<td>2.5 (1.0)</td>
<td>2.5 (1.7)</td>
<td>2.0 (1.6)</td>
<td>2.0/1.2</td>
<td>88/12</td>
</tr>
<tr>
<td>Q10. I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness.</td>
<td>3.1 (1.2)</td>
<td>2.9 (1.2)</td>
<td>3.2 (1.2)</td>
<td>2.8 (1.1)</td>
<td>3.0 (1.4)</td>
<td>3.8 (1.4)</td>
<td>3.2/1.2</td>
<td>60/40</td>
</tr>
<tr>
<td>Q11. It is important that any doctor supporting a person with a mental illness also assesses their physical health.</td>
<td>1.7 (0.7)</td>
<td>1.6 (0.8)</td>
<td>2.0 (0.9)</td>
<td>2.0 (0.9)</td>
<td>1.8 (0.9)</td>
<td>1.5 (1.0)</td>
<td>1.7/0.8</td>
<td>97/3</td>
</tr>
<tr>
<td>Q12. The public does not need to be protected from people with a severe mental illness.</td>
<td>3.8 (1.0)</td>
<td>3.7 (1.1)</td>
<td>3.7 (1.0)</td>
<td>4.0 (1.2)</td>
<td>3.7 (1.3)</td>
<td>4.6 (1.2)</td>
<td>3.8/1.1</td>
<td>36/64</td>
</tr>
<tr>
<td>Q13. If a person with a mental illness complained of physical symptoms (such as chest pain), I would attribute it to their mental illness.</td>
<td>4.8 (0.9)</td>
<td>4.9 (0.9)</td>
<td>4.8 (0.9)</td>
<td>4.3 (1.0)</td>
<td>4.2 (1.2)</td>
<td>4.8 (1.1)</td>
<td>4.7/1.0</td>
<td>12/88</td>
</tr>
<tr>
<td>MICA-2 Item</td>
<td>Australia</td>
<td>U.K.</td>
<td>Canada</td>
<td>Hong Kong</td>
<td>India</td>
<td>Ghana</td>
<td>All Mean (SD)</td>
<td>All % Agree/ Disagree*</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>-----------</td>
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<td>-----------</td>
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<td>---------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Q14. GP’s should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist.</td>
<td>4.5 (1.0) 17/83</td>
<td>4.8 (1.0) 11/89</td>
<td>4.9 (1.0) 9/91</td>
<td>4.3 (1.3) 27/73</td>
<td>3.5 (1.5) 50/50</td>
<td>4.1 (1.7) 37/63</td>
<td>4.4/1.2</td>
<td>23/77</td>
</tr>
<tr>
<td>Q15. I would use the terms ‘crazy’, ‘nutter’, ‘mad’ etc to describe people with a mental illness who I have seen in my work.</td>
<td>4.9 (1.2) 16/84</td>
<td>5.2 (1.0) 9/91</td>
<td>5.2 (1.0) 7/93</td>
<td>4.8 (1.0) 10/90</td>
<td>4.9 (1.4) 16/84</td>
<td>5.0 (1.3) 15/85</td>
<td>5.0/1.2</td>
<td>14/86</td>
</tr>
<tr>
<td>Q16. If a colleague told me they had a mental illness I would still want to work with them.</td>
<td>2.0 (0.8) 97/3</td>
<td>1.7 (0.7) 98/2</td>
<td>2.2 (1.0) 93/7</td>
<td>2.3 (0.9) 92/8</td>
<td>2.3 (1.1) 87/13</td>
<td>3.0 (1.3) 66/34</td>
<td>2.1/1.0</td>
<td>92/8</td>
</tr>
</tbody>
</table>

For each cell values are: a = mean item score; b = SD of mean score; c = % agreement with item; d = % disagreement with item

* Agree = strongly agree, agree, somewhat agree combined; Disagree = strongly disagree, disagree, somewhat disagree combined
3.4.5  **MICA-2 total score and career choice**

The mean MICA-2 total score was associated with the level of consideration of each career choice. Across the sample, students who selected psychiatry as a ‘chosen’ career had the lowest mean score of 38.9, suggesting that students interested in psychiatry as a career have a less stigmatised attitude compared with those not interested. The level of stigma rose in a step wise fashion across rating categories with those who selected it as a ‘no way’ choice scoring a mean of 48.0. For students who selected surgery as their ‘chosen’ career the mean score was the highest at 47.8. The level of stigma declined in a step wise fashion to 41.2 for students who selected surgery as a ‘no way’ career. Students who chose GP as their career had a lower mean score compared with those who selected it as a ‘no way’ choice, 43.8 and 46.1 respectively. The means for those who selected general medicine and paediatrics as ‘chosen’ career were similar, 45.0 and 45.6 respectively. There was less variation between rating categories for these two careers with the mean score for ‘no way’ 44.5 and 44.6 respectively. Figures 3.7 to 3.9 show the mean scores for each rating category and psychiatry, surgery and general practice as career choices.

To test for differences between level of stigma and career choice, the rating categories for each career were dichotomised by combining ‘chosen’ and ‘strong possibility’ in to a ‘yes’ category, and ‘no opinion’, ‘unlikely’, and ‘no way’ in to a ‘no’ category. Independent sample t tests found that the total MICA-2 score was significantly lower, 40.7 compared with 44.9 for students who chose psychiatry as career, df (374.620) = -6.956, $p < 0.0005$; significantly lower for students who chose
GP, 43.1 compared with 44.7, df (1458) = -3.473, $p < 0.001$; significantly higher for students who chose surgery, 46.3 compared with 42.9, df (1469) = 7.392, $p < 0.0005$; and no differences in the other two career choices.

Figure 3.7 MICA-2 mean total score and psychiatry as a career choice
Figure 3.8 MICA-2 mean total score and surgery as a career choice

Figure 3.9 MICA-2 mean total score and GP as a career choice
### 3.4.6 Level of attractiveness of factors for each career choice

The Feifel career choice questionnaire asked students to rate the level of attractiveness of a number of career factors for each of four career choices – psychiatry, surgery, general medicine, and paediatrics. In this section of the questionnaire general practice, which was included as a choice in the first part of the questionnaire was excluded, and is therefore not represented in this part of the study analysis. Each factor was rated on a five point scale, (1 = ‘very attractive’ to 5 = ‘extremely unattractive’). The mean and standard deviation was calculated for each career factor. To measure the magnitude of difference between each career factor and psychiatry compared with surgery, general medicine and paediatrics, the effect size was calculated using a repeated measure coefficient regression method. Interpretation of effect sizes was as follows, 0.2 = small; 0.5 = moderate; and 0.8 = large. A one way ANOVA was conducted to test for significant differences between each career factor and psychiatry compared with surgery, general medicine and paediatrics. Analysis of the level of career factor attractiveness was conducted on the whole sample. Table 3.5 shows the mean, standard deviation, effect size and ANOVA results for the attractiveness of career factors.

In addition to this analysis, and in order to more clearly demonstrate differences between the career choices several career factors were illustrated graphically – financial reward; lifestyle; job satisfaction; prestige within the medical community, and prestige among the general public. For this analysis, ‘very attractive’ and ‘attractive’ were combined into an ‘attractive’ category; ‘neutral’ stayed the same; and ‘not attractive’ and ‘extremely unattractive’ were combined into an
‘unattractive’ category. Figures 3.10 to 3.14 show the percentage rating of attractiveness for each career factor and choice of career.

The ANOVA found that there were significant differences between psychiatry and the three other career choices for the perceived level of attractiveness for each career factor. Lifestyle was the only career factor for which psychiatry was significantly more attractive. For all the other career factors, psychiatry was significantly less attractive. For ‘lifestyle’ psychiatry was rated as the most attractive career choice by 61% of students, and surgery the least attractive with only 21% rating the surgery lifestyle as attractive. The mean ratings were 2.3 and 3.6 respectively and the effect size was 0.60 (medium).

In terms of ‘financial reward’, psychiatry was rated as attractive by only 39% of students and was the least attractive career choice. Surgery was the most attractive, selected by 75% of students. The mean ratings were 1.9 and 2.7 respectively, effect size 0.50. Surgery, general medicine and paediatrics all rated highly for ‘job satisfaction’ with 68%, 75% and 75% of students respectively rating each as most attractive compared to 40% for psychiatry, mean ratings 2.2, 2.0, 2.0, and 2.8 respectively, effect sizes 0.33, 0.42 and 0.43. General medicine was the highest rated choice in terms of ‘intellectual challenge’ with 85% of students rating it as attractive, mean rating 1.7 compared with 2.2 for psychiatry. The ratings for psychiatry and surgery for ‘intellectual challenge’ were similar, with 65% and 68% of students respectively rating these as attractive and a small effect size of 0.10.

Students were asked to rate the attractiveness of each career choice based on its
'scientific foundation'. Most students rated the scientific foundation of surgery, general medicine and paediatrics as attractive, 82%, 87%, and 80% respectively. Only 43% of students rated psychiatry's 'scientific foundation' as attractive. The mean rating for each was 1.8, 1.7, 1.9, and 2.7. Compared to psychiatry the effect sizes for surgery, general medicine and paediatrics were moderate 0.52, 0.57 and 0.51 respectively.

Several of the items in this section of the Feifel questionnaire relate more directly to stigma. Students were asked to rate how attractive each of the four career areas were in terms of 'prestige within the medical community' and 'prestige within the general public'. For both of these, psychiatry was poorly rated with only 24% of students rating psychiatry as attractive for prestige in the medical community (mean rating 3.0) and 26% rating it as attractive for prestige in the general public (mean rating 3.0). Surgery was rated the highest for both of these, the comparative ratings being 75% and 81% respectively, mean ratings 1.8 and 1.7. The effect sizes were medium, 0.64 for prestige in the medical community and 0.67 for prestige among the public.
Table 3.5 Ratings of attractiveness for each career choice

<table>
<thead>
<tr>
<th></th>
<th>Surgery</th>
<th>General medicine</th>
<th>Paediatrics</th>
<th>Psychiatry</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean  SD  Effect size</td>
<td>Mean  SD  Effect size</td>
<td>Mean  SD  Effect size</td>
<td>Mean  SD</td>
<td>F(df), p</td>
</tr>
<tr>
<td>Financial reward</td>
<td>1.88  0.98  0.50</td>
<td>2.35  0.80  0.28</td>
<td>2.58  0.87  0.11</td>
<td>2.70  0.91</td>
<td>F(2.65,3923.108) = 276.275, p = 0.0001</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>3.61  1.25  0.60</td>
<td>2.55  0.95  0.17</td>
<td>2.55  0.85  0.20</td>
<td>2.29  1.02</td>
<td>F(2.77,4118.500) = 443.627, p = 0.0001</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>2.17  1.14  0.33</td>
<td>2.03  0.92  0.42</td>
<td>1.95  0.96  0.43</td>
<td>2.79  1.11</td>
<td>F(2.81,4166.979) = 148.760, p = 0.0001</td>
</tr>
<tr>
<td>Interesting subject matter</td>
<td>2.16  1.13  0.07</td>
<td>1.79  0.91  0.25</td>
<td>2.05  0.96  0.11</td>
<td>2.27  1.18</td>
<td>F(2.75,4074.093) = 39.144, p = 0.0001</td>
</tr>
<tr>
<td>Intellectually challenging</td>
<td>2.10  1.06  0.10</td>
<td>1.70  0.90  0.32</td>
<td>1.96  0.89  0.16</td>
<td>2.17  1.06</td>
<td>F(2.84,4194.546) = 66.708, p = 0.0001</td>
</tr>
<tr>
<td>Prestige in medical community</td>
<td>1.82  0.94  0.64</td>
<td>2.09  0.90  0.56</td>
<td>2.30  0.85  0.51</td>
<td>3.07  0.95</td>
<td>F(2.56,3794.208) = 553.239, p = 0.0001</td>
</tr>
<tr>
<td>Prestige among public</td>
<td>1.67  0.91  0.67</td>
<td>2.0  0.89  0.59</td>
<td>2.04  0.88  0.58</td>
<td>3.04  1.00</td>
<td>F(2.39,3527.179) = 675.022, p = 0.0001</td>
</tr>
<tr>
<td>Degree patients helped</td>
<td>1.72  0.83  0.48</td>
<td>1.90  0.87  0.40</td>
<td>1.78  0.80  0.47</td>
<td>2.56  1.08</td>
<td>F(2.60,3849.040) = 252.047, p = 0.0001</td>
</tr>
<tr>
<td>Aspects of training used</td>
<td>2.36  1.02  0.40</td>
<td>1.68  0.80  0.67</td>
<td>2.02  0.88  0.51</td>
<td>2.98  1.05</td>
<td>F(2.79,4070.084) = 473.447, p = 0.0001</td>
</tr>
<tr>
<td>Understanding of advances in treatment</td>
<td>1.92  0.92  0.42</td>
<td>1.81  0.85  0.48</td>
<td>2.09  1.00  0.31</td>
<td>2.57  1.04</td>
<td>F(2.69,3922.523) = 200.896, p = 0.0001</td>
</tr>
<tr>
<td>Bright interesting future</td>
<td>1.93  0.94  0.30</td>
<td>1.81  0.86  0.36</td>
<td>2.00  0.88  0.25</td>
<td>2.4  1.0</td>
<td>F(2.64,3853.048) = 106.596, p = 0.0001</td>
</tr>
<tr>
<td></td>
<td>Surgery</td>
<td>General medicine</td>
<td>Paediatrics</td>
<td>Psychiatry</td>
<td>ANOVA</td>
</tr>
<tr>
<td>------------------------------</td>
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<td>-----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Effect size</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Reliable scientific foundation</td>
<td>1.81</td>
<td>0.85</td>
<td>0.52</td>
<td>1.66</td>
<td>0.79</td>
</tr>
<tr>
<td>Enjoyable work</td>
<td>2.46</td>
<td>1.22</td>
<td>0.13</td>
<td>2.04</td>
<td>0.98</td>
</tr>
<tr>
<td>Association with colleagues in speciality</td>
<td>2.55</td>
<td>1.31</td>
<td>0.43</td>
<td>1.93</td>
<td>1.11</td>
</tr>
</tbody>
</table>

Rating: 1 = very attractive, 2 = attractive, 3 = neutral, 4 = not attractive, 5 = extremely unattractive
Figure 3.10 Attractiveness of financial reward for each career choice

- Psychiatry: Attractive (61%), Neutral (28%), Unattractive (11%)
- Surgery: Attractive (75%), Neutral (21%), Unattractive (4%)
- General medicine: Attractive (63%), Neutral (45%), Unattractive (16%)
- Paediatrics: Attractive (48%), Neutral (40%), Unattractive (12%)

Figure 3.11 Attractiveness of lifestyle for each career choice

- Psychiatry: Attractive (39%), Neutral (45%), Unattractive (16%)
- Surgery: Attractive (12%), Neutral (39%), Unattractive (4%)
- General medicine: Attractive (57%), Neutral (4%), Unattractive (12%)
- Paediatrics: Attractive (43%), Neutral (45%), Unattractive (12%)
Figure 3.12 Attractiveness of job satisfaction for each career choice

![Attractiveness of job satisfaction for each career choice](image)

Figure 3.13 Prestige within the medical community for each career choice

![Prestige within the medical community for each career choice](image)
3.4.7 Perceptions of stigma

Stigma was also assessed in the Feifel questionnaire by asking students to rate psychiatry, surgery, medicine, and paediatrics in terms of respect for the skills and knowledge of each by other doctors, student peers and family. Each item was rated on a five point scale, 1 = ‘very much’ to 5 = ‘very little’. So that results could be more easily interpreted, ‘very much’ and ‘much’ were combined into an ‘a lot’ category; ‘average’ stayed the same; and ‘little’ and ‘very little’ were combined into a ‘little’ category. The analysis was conducted on the whole sample.

To assist in the interpretation of this section of the questionnaire the exact wording of each of the analysed items is provided here: ‘How much do you respect the skills and knowledge of the doctors in each speciality? ’; ‘How much do you think other doctors respect the skills and knowledge of the doctors in each speciality?’; ‘How
much do you think your student peers respect the skills and knowledge of the doctors in each speciality’; and, ‘How much do you think members of your family respect the skills and knowledge of the doctors in each speciality’?

For each of these items the proportion of students who rated psychiatry in the ‘a lot’ category was the lowest. Seventy-nine percent of students selected the ‘a lot’ category for the extent that they respected the skills and knowledge of psychiatrists, compared with 94% for a surgeon, 95% for a general medicine specialist and 91% for a paediatrician. The ratings for how other doctors perceive the skills and knowledge of a psychiatrist were the lowest with 42% of students perceiving that they were respected ‘a lot’ by other doctors. This compared to 84% for a surgeon, 86% for a general medicine specialist and 71% for a paediatrician. Students perceived that their student peers and family members had little respect for the skills and knowledge of a psychiatrist with 39% and 48% respectively rating this item as ‘a lot’. The scores for the other specialists were higher, 90% perceived that surgeons were respected ‘a lot’ by their student peers, 88% for a general medicine specialist and 81% for a paediatrician. For family members the corresponding scores were 92% for a surgeon, 91% for a general medicine specialist, and 86% for a paediatrician. Figures 3.15 to 3.18 show the percentage rating for each item and speciality.
Figure 3.15 Student level of respect for skills and knowledge of doctors in each speciality

Figure 3.16 Level of respect of other doctors for skills and knowledge of each specialist
Figure 3.17 Level of respect by peers for skills and knowledge of each specialist

Figure 3.18 Level of respect by family for skills and knowledge of each specialist
3.5  **Discussion of study findings**

This study was a cross sectional survey of 1544 pre-clinical and clinical medical students from six countries, Australia, the U.K., Canada, Hong Kong, India, and Ghana. The main study findings were as follows:

- Psychiatry was rated the least popular career choice by pre-clinical and clinical students in all countries;
- Surgery and general medicine were the most popular career choices for both pre-clinical and clinical students;
- There were some variations in psychiatry as a career choice between countries. More students in the U.K. (33%) selected psychiatry as their ‘chosen’ or ‘strong possibility’ choice than the other countries;
- Female students were significantly more likely to choose psychiatry, paediatrics and general practice than males. Male students were significantly more likely to choose surgery and general medicine than females;
- Students in the U.K. scored a significantly lower mean total score on the MICA-2 than students in the other countries indicating that their attitudes and stigma towards psychiatry were more positive. Conversely, Ghanaian students had the highest mean total score indicating that their attitudes and stigma towards psychiatry were more negative than students from the other countries;
• The mean MICA-2 total score for male students was higher than female students indicating that their attitudes were more negative;

• There was no difference in mean MICA-2 total score between pre-clinical and clinical students across the whole sample, however, there were some between country differences;

• There were some between country differences on some of the individual MICA-2 items with Ghanaian and Indian students showing a more stigmatised view towards people with mental illness than students from the other countries;

• Overall, views towards the assessment and treatment of people with mental illness were positive;

• Overall, views towards learning about psychiatry were positive;

• The mean MICA-2 total score was lowest for students who selected psychiatry as their ‘chosen’ career and highest for those who selected it as their ‘no way’ career choice. This indicates that students interested in psychiatry have more positive attitudes and lower levels of stigma towards psychiatry than those not interested;

• Of the four career choices provided (general medicine; surgery; psychiatry; and paediatrics) in the ‘attraction’ questions, psychiatry was rated the lowest in terms of the perceived attractiveness of a number of career factors
including its financial reward, job satisfaction, intellectual challenge and scientific foundation;

- The psychiatry lifestyle was perceived as being significantly more attractive than any of the other career choices (general medicine; surgery; psychiatry; and paediatrics);

- Psychiatry was rated as a low prestige career both by other medical specialists and by the public. Surgery was rated as the highest prestige career;

- Respect for the skills and knowledge of psychiatrists among students was high, with 79% of students respecting them ‘a lot’. However, the ratings for the other specialists were higher at around 95% for each;

- There was a strong belief that psychiatry was not a respected career among other specialists, with 42% of students perceiving that psychiatrists were respected ‘a lot’ by other specialists compared to 84% for a surgeon;

- There was a perception that student peers and family members had little respect for psychiatrists and a great deal of respect for surgeons, general medicine specialists and paediatricians.

### 3.5.1 Psychiatry as a career choice

In this study psychiatry was the lowest rated career as determined by the Feifel career choice questionnaire with only 3% of pre-clinical students and 3.5% of clinical students selecting it as a ‘chosen’ career. Psychiatry was also found to be the career choice that most students rated as ‘unlikely’ with 51% of pre-clinical
students and 58% of clinical students selecting it as such. A comparable international cross sectional survey of final year students also found that psychiatry was the lowest rated career with 4.5% of final year students definitely considering a career in psychiatry [53].

Similar findings using the Feifel instrument have been found in other studies. Feifel’s 1999 study of 223 freshman students in the U.S. found that only one student rated psychiatry as their ‘chosen’ career and 7.2% rated it as a ‘strong possibility’ [106]. Malhi and colleagues (2002) surveyed first year students in Australia and found that psychiatry was the least favourably rated career with 1.4% nominating it a ‘chosen’ career and 14.5% as a ‘strong possibility’ [51]. These results are consistent with the current study which found that 1.5% of pre-clinical students in Australia chose psychiatry and 15% nominated it as a ‘strong possibility’ suggesting that little has changed in the intervening 12 years between the two studies. Syed and colleagues (2008) in a study of clinical students in Pakistan found that 7.6% nominated psychiatry as their likely career (the ‘chosen’ and ‘strong possibility’ categories were combined in the analysis) [57]. A longitudinal study of Israeli students that also used the Feifel questionnaire found that in the pre-clinical years 33% of students surveyed were ‘interested’ in psychiatry (again, the ‘chosen’ and ‘strong possibility’ categories were combined in the analysis). However, some years later when the same students were in their clinical years, only 15% were interested in psychiatry as a career [112]. A Serbian study of pre-clinical and clinical students found that psychiatry was rated more positively compared to the other studies [116]. In this study general medicine was the lowest rated ‘chosen’ career,
and 15% of pre-clinical and 16% of clinical students rated psychiatry as their ‘chosen’ career. However, among clinical students, psychiatry had the highest ‘no way’ rating.

The low rates of interest in psychiatry as a career found in Canada was surprising. There were no pre-clinical students who chose psychiatry and only 11% selected it as a ‘strong possibility’. Interestingly, there was greater interest among clinical students from Canada, with 2% selecting psychiatry as their ‘chosen’ career and 23% as a ‘strong possibility’, but this was offset to some extent by a large proportion of students selecting psychiatry as ‘unlikely’, 70.5% of pre-clinical and 71% of clinical students. A Canadian study of first year students and career choices undertaken by Gowans and colleagues (2009) found that 3.2% selected psychiatry as their first choice, and 34% as a possible option [54]. The current study surveyed students from only one Canadian medical school, whereas Gowans and colleagues included students from eight medical schools which may account for the discrepancy in career interest. Furthermore, the small sample size of Canadian students may have impacted on the wider generalisability of these results.

Similar rates of career interest in psychiatry were found between this and a study by Laugharne and colleagues (2009) of final year Ghanaian students [61]. Both Laugharne and colleagues and the current study surveyed students from the same medical school, several years apart. Laugharne found that two (2.2%) final year students selected psychiatry as their career choice compared with three (3.5%) in the current study. Low interest in psychiatry as a career has also been found among students in other African countries, Nigeria [60] and Kenya [117].
Perhaps not surprisingly, students across the sample who selected psychiatry as their ‘chosen’ career had the lowest mean MICA-2 total score, 38.9 compared with 47.8 for those who selected it as a ‘no way’ career, suggesting that the total score could be a useful predictive measure of interest in psychiatry as a career. The mean MICA-2 total score for the 10% of students across the sample who selected surgery as their ‘chosen’ career was significantly higher at 47.8. While it is expected that students interested in a career in psychiatry have more positive attitudes, it remains of concern that students interested in other specialities have a significantly more negative view. The goal of psychiatry teaching should be for all students, regardless of career choice to develop positive attitudes towards psychiatry as a discipline and be able to recognise the relevance of psychiatry to the practice of medicine and treatment of patients with primary and co-morbid psychiatric disorders [118,133,164].

3.5.2 The MICA-2 as a measurement of stigma

The MICA-2 is a relatively new instrument which has not been widely used in medical student research. Its inclusion in this study as a measure of attitudes and stigma enabled useful comparisons of the mean total score to be made between countries, gender, year level and career choice. The study found that across the whole sample the mean MICA-2 total score was 44.1. The range between countries was 39.5 for the U.K. to 50.3 for Ghana. Male students scored significantly higher than female students, 45.4 vs 43.2, and there were no differences in scores between pre-clinical and clinical students, 44.2 vs 44.0.
Kassam and colleagues (2010) used the MICA-2 to assess the effectiveness of a stigma training programme on medical students’ attitudes, knowledge and behaviour. The mean MICA-2 total score across the three groups in the study ranged from 37.4 - 40.3 at baseline and 36.3 - 38.6 at follow-up [159]. Lyons and Janca (2015) used the MICA-2 in a study of the impact of the psychiatry clerkship on medical students’ attitudes and stigma towards psychiatry. Students completed the MICA-2 at the beginning and end of the 8 week clerkship. The mean baseline score was 48.2 and there was a significant decrease in the score at follow-up to 43.5 [160]. Gras and colleagues (2015) used the healthcare version of the instrument, the MICA-4 in a study that compared stigma and attitudes between GPs, mental healthcare professionals and forensic psychiatrists. Mean total scores were 44.0, 34.1 and 38.0 respectively [162].

In these studies the mean MICA-2 total score enabled differences between groups and the effectiveness of interventions to be determined. The mean score is useful in this regard, however a meaningful interpretation of how to define a particular score in terms of its degree of stigma is more difficult. In the MICA-2 respondents score each item on a scale of 1 - 6 where 1 is ‘strongly agree’, 2 is ‘agree’, 3 is ‘somewhat agree’, 4 is ‘somewhat disagree’, 5 is ‘disagree’, and 6 is ‘strongly disagree’. The range of scores is 16 to 96 with a higher score indicating a more negative attitude and greater stigma. The inclusion of two neutral categories on the rating scale, ‘somewhat agree’, and ‘somewhat disagree’ makes finding a mid-point challenging. Gras and colleagues (2015) attempted to provide some gradations and corresponding descriptors in the mean score [162]. They
considered that a score of 48 indicated a moderately positive attitude with room for improvement. A score of 32 indicated a positive attitude, and a score of 16 indicated a very positive attitude with little or no room for improvement. However, with the exception of scores at either extreme of the scale, these ‘cut-offs’ do not provide sufficient discrimination that is helpful in interpreting for example, how much more stigmatised the views of a respondent or group who have a mean score of 45.0 compares with one who scores 40.0. Despite this shortcoming, in this study the MICA-2 has provided some interesting evidence of differences in attitudes and stigma between students from the different countries surveyed and adds a new dimension to medical student research.

3.5.3 The manifestation of stigma during medical school

As discussed in Chapter 2, stigma and negative attitudes among medical students towards the discipline of psychiatry, psychiatry as a career and people with mental illness can arise for a number of reasons. These include:

- A pre-existing negative perception towards mental illness and people with mental illness that a student may have prior to commencing medical school;
- Negative views that students may express towards the teaching and learning of psychiatry in particular during clinical clerkships;
- Negativity expressed towards interest that a student may have in psychiatry as a career from other medical specialists, medical students, friends and family members;
• A perception that psychiatry has a low status and lacks prestige among other medical specialists; and

• A perception that psychiatry has a low status and lacks prestige in the wider community.

Stigma among medical students towards psychiatry has been consistently reported in studies over the last 40-50 years and is an influential factor in the recruitment to postgraduate training. In common with other research [57,106,112,118,133,136,139], results of this study showed that psychiatry was perceived as having a low prestige among other medical specialists, the general public, family members and friends. Students also perceived that other doctors, their student peers and family members had lower respect for the skills and knowledge of a psychiatrist compared with the other specialists.

Students are frequently exposed to some level of ‘badmouthing’ or ‘bashing’ throughout their medical studies [134,165,166]. Ajaz and colleagues (2016) define these phenomena as, ‘Distinctly negative feedback and comments directed by members of one medical speciality toward other specialities’ [167]. Faculty staff, junior doctors and peers can also be the source of badmouthing. A study of third year students found that after family medicine, psychiatry was the second most frequently ‘bashed’ speciality. Twenty-three percent of students said that ‘bashing’ of a speciality they were interested in made them want to avoid it [134]. Similarly, the recent study by Ajaz and colleagues (2016) found that students reported psychiatry and general practice as attracting the greatest number of negative
comments [167]. In this study 27% of students said that they had changed their career choice due to negative comments made about it. While these comments are regarded by some students as an inevitable part of medicine and ‘just a bit of fun’ [167], they can nonetheless have a subtle impact on impressionable students and their perceptions and career interest in a particular speciality [165-167]. Further evidence of the negativity expressed towards psychiatry from other specialists was found by Stuart and colleagues (2015) in an international study of non-psychiatry faculty members [135]. A number of the doctors surveyed expressed negative views towards patients with mental illness, psychiatric treatments, and psychiatry as a career. Furthermore, the separation of mental health from mainstream health services in many jurisdictions results in a limited understanding of the role of psychiatry by many medical staff which may add to their negativity towards psychiatry and psychiatrists [136].

Bashing and badmouthing towards psychiatry not only constitutes unprofessional behaviour on the part of those who engage in this type of conduct, but also further stigmatises students interested in psychiatry. Efforts to reduce stigma within medical schools need to include improving the image of psychiatry and psychiatrists among the wider medical faculty and other clinical staff involved in teaching medical students. There has been little discussion of how this can be achieved and what strategies can be implemented to improve the perception of psychiatry among the wider medical community. An exception to this is the ‘AntiBash’ campaign recently established in the U.K. by the Royal College of Psychiatrists in response to the badmouthing of psychiatry and psychiatrists. It remains to be seen
how effective this student led initiative will be in reducing badmouthing within medical schools [246].

Responses to the MICA-2 items in this study that assessed the patient population and treatment were reasonably positive, however a number of studies have found that for students working and interacting with patients during clerkships is stressful, frustrating, depressing and emotionally draining [51,104,108,118]. While voicing these views does not necessarily mean that a student is stigmatised towards patients stigma arises if they are expressed negatively to others using derogatory, offensive and inappropriate language or if students behave towards or treat mentally unwell patients differently from patients with other illnesses. Early exposure to clinical psychiatry and providing students with the opportunity to interact with patients prior to starting the clerkship can be effective in raising awareness and changing attitudes towards psychiatry [168]. A four week stigma reduction program that involved contact with patients was found to be effective in reducing stigma and improving attitudes towards people with mental illness [143].

3.5.4 Stigma, year level and cultural differences

In this study there was no significant difference in the mean MICA-2 score between pre-clinical and clinical students across the whole sample. However, there were some between country differences with Australian, Canadian and Ghanaian pre-clinical students showing a significantly higher stigma score than clinical students. In particular, students from Ghana and India showed higher levels of stigma and negative attitudes compared with the other countries, with pre-clinical Ghanaian students having the highest total mean stigma score of 53.9 compared with all of
the other pre-clinical and clinical students. In some developing countries traditional cultural beliefs and attitudes among the community are likely to influence students’ views towards psychiatry, both as a discipline and career. In many African countries common disorders such as depression, anxiety, phobias and panic are not always recognised as mental illness. A South African study that interviewed the general public found that mental illness was considered to be caused by stress, having a weak character or by a medical disorder [169]. A Nigerian study found that knowledge of mental illness among the community was poor and that stigmatising negative views towards mental illness was common [170]. The cause of psychopathology in much of sub-Saharan Africa is often attributed to supernatural forces, epilepsy, sorcery, poisoning, social or spiritual factors, evil spirits, or ‘thinking too much’ [170,171].

These existing cultural and societal beliefs about mental illness and treatment of mentally ill people may in part explain the views reported by Ghanaian and Indian students [172-174]. Aghuka and colleagues (2010) found that of pre-clinical students surveyed in Nigeria, 67% believed that charms were the cause of mental illness, 56% that evil spirits caused mental illness, and 49% that witchcraft was the cause of mental illness [172]. While there was a significant reduction among clinical students, these beliefs nonetheless remained relatively high, 23%, 40% and 26% respectively. In a study of the attitudes of medical students in Nigeria, Ighodaro and colleagues (2014) also found that clinical students had a less stigmatised attitude towards mental illness in terms of socialising with mentally ill people, superstitions and beliefs about mental illness and the aetiology of mental illness
Similar beliefs around the aetiology of mental illness were found in a study of Indian medical students. ‘Excessive emotions’ were reported as the cause of mental illness by almost 70% of students surveyed, ‘loneliness’ by 58%, ‘past sins’ by 10%, and ‘evil spirits’ by 6% [173].

Despite evidence of stigma towards people with mental illness among Ghanaian and Indian students found in this and other studies, attitudes in other areas were more positive and similar to students from the other countries. For example, Ghanaian and Indian students were positive regarding the role of a psychiatrist in the treatment of mental illness and almost all students across the sample agreed that doctors should assess the physical health of people with mental illness. Similarly, Chawla and colleagues (2012) found that 93% of Indian students would choose a psychiatrist to treat a family member with a mental illness [173], Laugharne and colleagues (2009) found that 82% of students in Ghana would prefer a psychiatrist to treat a family member [61] and Aghuka (2010) found that Nigerian students were positive about the role and functioning of a psychiatrist [60]. This apparent disconnect between stigmatising perceptions towards people with mental illness and a more positive view towards their treatment is difficult to explain, especially in countries that do not have an established mental health system, and psychiatrists and other mental health professionals are in short supply.

**3.5.5 Lifestyle factors and career choice**

In recent decades lifestyle factors have been more closely considered by medical students and junior doctors when making career decisions. These include maintaining a work-life balance; having a career with a family friendly image; the
opportunity to work part-time; and a manageable, controllable and flexible workload [37,49,113,118,176]. Results of this study found that psychiatry was rated as a significantly more attractive career in terms of lifestyle with 61% of students rating it as such compared with 21% for surgery, 45% for general medicine and 48% for pediatrics and this has also been found in other studies [54,177,178]. However financial reward, job satisfaction, enjoyable work, and bright and interesting future were not considered to be attractive for psychiatry. Compared with other specialties such as surgery and emergency medicine, psychiatry is well placed to provide some positive lifestyle factors for its potential professionals [179], yet it remains an unpopular career choice. Negativity expressed towards psychiatry among friends, family, the public and other medical specialists, psychiatry’s poor social prestige and lower earning potential found in this, and other studies [52,72,113,152] may explain why some students do not regard psychiatry favorably as a potential career. Stigma on this level may exert a greater influence over career decision making processes and act to negate the more positive aspects that the discipline has to offer.

3.5.6 Study strengths and limitations
The main strength of this study is its large sample size and international perspective. However, some of the individual medical schools in particular those that administered the survey electronically had low response rates. This limits the external validity and generalisability of results for the medical schools in Hong Kong, the U.K., and Canada, all of which had low response rates. While Ghana and India in particular both had good response rates, caution in interpreting these results
beyond the individual medical school needs to be made. Pre-clinical and clinical students participated in the study which enabled comparison between these two distinct stages of medical training to be made. The use of the MICA-2 total score as a measure of stigma enabled associations between stigma and career choice to be made. This is one of the few studies that has demonstrated an association between stigma and career choice and to compare a stigma score between students from different countries.

The study was limited by its cross sectional design which enabled students views to be assessed at only one point in time and does not reflect longitudinal change. A further limitation was the over representation of students from Australia in the sample and small underpowered sample sizes from the U.K. and Hong Kong in particular which may have impacted on the significance of some of the between group differences. With regard to the selection of different career choices in the Feifel questionnaire, there may have been some misunderstanding of the ‘general practitioner’ choice among students from countries that do not have an established primary care sector. Differences between countries in the structure and organisation of the health system, and a lack of understanding of differentiation in the roles of a GP and psychiatrist may also have resulted in misunderstanding on some of the MICA-2 items by students in some countries, specifically Ghana and India and to a lesser extent Hong Kong. It should also be pointed out that in the second section of of the Feifel career choice questionnaire, only four career choices (general medicine; surgery; psychiatry; and paediatrics) are provided for
respondents to assess. With the absence of a general practice option this may have impacted on how psychiatry was rated by some respondents.

3.6 Conclusion

The low rates of students in this study choosing psychiatry as their career was not unexpected and adds to the existing evidence. However, those who chose the ‘strong possibility’ category should not be overlooked as potential candidates for psychiatry training at postgraduate level. Identification of these students could provide the opportunity for psychiatry academics to further encourage this group to more seriously consider psychiatry as a career. A positive clerkship experience and the implementation of psychiatry enrichment programs are potentially effective strategies that could help these students to maintain their interest in psychiatry as they progress through medical school and will be discussed in Chapters 4 and 5.

Stigma is a pervasive factor that impacts negatively on students’ attitudes towards psychiatry and detracts them from considering psychiatry as career. Medical schools can mitigate this to some extent with the implementation of innovative teaching programs. However, as important is the positive endorsement of psychiatry as a discipline and viable career among non-psychiatry academic and clinical staff. How this can be achieved will likely be different for each medical school, but the aim should be to promote psychiatry as a respected medical profession. This would go a long way towards improving the image of psychiatry and psychiatrists and encourage more students to consider it as a career option.
CHAPTER 4

IMPACT OF THE PSYCHIATRY CLERKSHIP

4.1 Introduction

For students in the clinical years of the medical course clerkships (also known as rotations, attachments or placements) provide a more realistic view of psychiatry than may have been gained through lectures and tutorial sessions during the pre-clinical years. Clerkships are an integral component of most medical courses and their core role is to teach the basics of diagnosis and classification, patient interviewing and assessment, symptom recognition and treatment and management of mental disorders [180]. The clerkship provides students with the opportunity for involvement in patient care, experience of working in the mental health system and enables them to interact with psychiatrists and allied mental health professionals [181]. Clerkship length varies between four and eight weeks between courses, with the average length around six weeks [182,183]. In most medical courses the clerkship is the only clinical exposure that students have of psychiatry and the experience can become an important factor in later career decision making [184,185].

The clerkship gives psychiatric educators an ideal opportunity to positively influence students, and while there is no doubt that it has an impact on attitudes and consideration of psychiatry as a career, evidence from the existing literature on the strength and direction of this change is somewhat ambivalent [184-186]. There
is a narrow window to ensure that the clerkship experience is positive and emphasis on ‘getting it right’ becomes imperative. A greater understanding of how clerkships impact on students attitudes, and the influence they have on psychiatry as a career may enable psychiatric educators to utilise clerkship time more effectively to ensure that it provides students with a beneficial learning experience, and improves their attitude towards psychiatry and to psychiatry as a career.

In order to explore the impact of the clerkship in detail, the focus of this chapter is firstly, on a systematic review of the relevant literature and secondly, a study undertaken by the Candidate that assessed the impact of the psychiatry clerkship on students’ attitudes and stigma towards psychiatry. Publications 2 and 3 are integrated throughout the chapter. The published versions of both these papers are appended.

4.2 A systematic review of clerkship impact

This literature has not previously been systematically reviewed. In order to gain some clarity on the impact of the clerkship a systematic review of studies published between 1992 and 2012 was undertaken. The aim of the review was to provide a critique of the literature to determine the impact of the psychiatry clerkship on attitudes of medical students towards psychiatry, and to psychiatry as a career choice. It should be noted that for consistency in terminology, clerkship is used throughout this review, and is synonymous with rotation, attachment, posting and other similar terms that may be used as local equivalents.
4.2.1 Review method

The method used was consistent with the systematic review of students attitudes undertaken by the Candidate and detailed in Chapter 2 of this thesis. The following electronic databases were searched: MEDLINE; EMBASE; Web of Science; ScienceDirect; AustHealth (Informit); CINAHL Plus (Ebsco); Global Health (Ovid); Health and Medical Complete (Proquest); and PsychInfo. In addition, the reference lists of studies included in the review were hand searched. Finally, each available issue from key journals in the area were manually searched by accessing the archive on the journals website. These were Academic Psychiatry, Medical Education, Medical Teacher and Academic Teacher. Conference proceedings were not included in the search.

Search words used were: medical student/s; attitude/s; psychiatry; and clerkship. In order to include words synonymous with clerkship, ‘rotation’; ‘attachment’; ‘posting’; and ‘affiliation’ were also accepted.

4.2.2 Selection of papers and extraction of information

The following criteria were used to determine inclusion of papers for the review: i) must have been published in an English language, peer reviewed journal from 1990 onwards; ii) all the search words to appear in the title and/or abstract; and iii) reporting primary research with medical students as respondents.

Studies were included if they were based on a pre/post design, i.e. the same students participated in the study both before and after a clerkship. This was to ensure that only studies specifically assessing the impact of the clerkship were included.
The information extracted from each paper included: year of publication; country where the study was conducted; aim/s, sample size and response rate; year of course in which the clerkship took place; length of clerkship; and main results. A global ‘yes/no’ assessment to indicate if overall attitudes to psychiatry had improved post clerkship was made.

The electronic search identified 315 papers that had any one of the key search words in its title. An initial screening of these articles to identify those meeting the selection criteria was undertaken by the author and resulted in the identification of 42 papers. In order to minimise selection bias, a senior colleague undertook a further independent assessment of these papers. They were then were read in full to determine suitability for inclusion in the review. Sixteen papers were excluded, leaving 26 that were finally selected. Papers were excluded if they were not based on a pre/post design, students were surveyed retrospectively, or pre/post measures were performed on different student cohorts.

4.2.3 Main findings from studies selected for review

All 26 studies assessed the impact of the clerkship on student attitudes and were based on a pre/post design, where students were asked to complete questionnaires at the beginning and end of the clerkship. Eighteen studies also assessed the impact on career choice. One study used a control group of students doing an ophthalmology clerkship [187], and two assessed different courses resulting from recent curriculum changes [188,189]. Two studies surveyed other year levels as well as the year group undertaking the clerkship as a means of determining changes in attitudes at different stages of training [107,190]. Two studies surveyed students
from more than one medical school [191,192]. Response rates ranged from 50% - 100%.

Several different questionnaires were used to survey students. Eight studies [107,151,188,189,192-195] used the ATP-30 [81], four [59,152,196,197] used the Balon questionnaire [72], two [148,150] the Nielsen and Eaton questionnaire [70], and two [190,198] a questionnaire designed by Wilkinson [79]. One study [199] used the Libertarian Mental Health Scale [200] and one [201] a questionnaire by Das and Chandrasena [202]. The remaining eight studies developed their own questionnaires.

A total of 3,747 students participated in completing baseline and follow-up questionnaires. The reviewed studies were conducted in 19 different countries. There were four from Nigeria, two each from Malaysia, the U.K., Israel and the U.S., and one study from each of the following countries: Australia, Sri Lanka, Portugal, Saudi Arabia, Pakistan, Oman, Germany, Denmark, Iran, Spain, Greece, Turkey, Ireland and Chile. A summary of each study including author, country where conducted, aims, year level surveyed, length of clerkship and overall improvement post clerkship is shown in Table 4.1.

The average length of clerkship across studies was 5.5 weeks, range 3 - 16 weeks. In nine studies it was four weeks, in seven studies eight weeks, in five studies it was six weeks, two studies had a five week clerkship and two others had three and 16 week clerkships respectively (NB, students in this study spent only one day per week in a clinical setting). In one, the length of clerkship was not stated. It is not
possible from the information provided to determine if the clerkship described in the study represented the only clinical exposure to psychiatry that students had, or if further clerkships occurred at different times. There was no identifiable trend between length of clerkship (shorter or longer) and improvement in attitudes or career choice.

Most studies provided some information about the structure of the clerkship. While this varied considerably between courses, all provided a mix of non-clinical teaching and clinical exposure with patient contact. Across studies, non-clinical content was mainly comprised of lectures [59,148,150,187,192-194,197]; tutorials, including problem based learning [59,172,197]; seminars [152,193,203]; theory lessons [59,152,172,196,199]; sessions on diagnostic classification [194,199]; case presentations and histories [148,204]; journal club [204]; history taking and interviewing skills [192,194]; formulation [192]; small group discussions [59,204]; and research project and self-directed learning activities [197].

For the clinical component, the most prominent features in all studies was exposure to adult inpatient wards and outpatients clinics. Other features included acute wards/emergency department work [151,152,196,199]; rehabilitation [152,192]; community liaison psychiatry [151,152,194,205]; child and adolescent psychiatry [151,152,192,194,196,203,205]; old age psychiatry [194]; addiction medicine and substance abuse [151,194]; forensic psychiatry [192,194]; centre for learning disabilities [192]; psychotherapy [194]; ward rounds [172,192]; experience of closed wards [148], ECT [194,205]; and spending time doing evening on call work [205].
<table>
<thead>
<tr>
<th>Year, author, country</th>
<th>Aims, year/s surveyed, length of clerkship</th>
<th>Response rate, sample size</th>
<th>Overall improvement post clerkship</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 Adebowale et al, Nigeria [193]</td>
<td>To examine the impact of c/ship on attitudes to psychiatry and career. Year 5; 4 weeks.</td>
<td>66.9% (81) pre 88% (106) post</td>
<td>Attitudes – yes Career – no</td>
</tr>
<tr>
<td>2012 Rodrigo et al, Sri Lanka [151]</td>
<td>To assess the effect of new c/ship on career choice and attitudes towards psychiatry. Final year students; 8 weeks.</td>
<td>91% (91) pre 93% (93) post</td>
<td>Attitudes – no Career – yes</td>
</tr>
<tr>
<td>2010 Xavier and Almeida, Portugal [152]</td>
<td>To evaluate attitudes to psychiatry and as a career. New curriculum and c/ship model. Year 6; 4 weeks.</td>
<td>100% (153) pre and post</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>2010 El-Gilany et al, Saudi Arabia [59]</td>
<td>To understand changes in attitudes to psychiatry post c/ship. Year 5; 6 weeks.</td>
<td>96.4% (54) pre and post</td>
<td>Attitudes – yes Career – N/A</td>
</tr>
<tr>
<td>2010 Aghukwa, Nigeria [172]</td>
<td>To examine impact of c/ship on beliefs and attitudes towards mental illness. Final year students; 4 weeks.</td>
<td>N=35 pre and post</td>
<td>Beliefs and attitudes – no Career – N/A</td>
</tr>
<tr>
<td>2009 Sajid et al, Pakistan [204]</td>
<td>To determine change in attitudes following c/ship. Year 4; 4 weeks.</td>
<td>75% (67) pre 53% (47) post</td>
<td>Attitudes – yes Career – no</td>
</tr>
<tr>
<td>2009 Issa et al, Nigeria [194]</td>
<td>To report impact of the c/ship on attitudes towards psychiatry. Final year students; 4 weeks.</td>
<td>100% (126) pre 100% (135) post</td>
<td>Attitudes – no Career – yes</td>
</tr>
<tr>
<td>2008 Ramamurthy et al, Malaysia [197]</td>
<td>To assess the impact of the c/ship on attitudes to psychiatry. Year level not stated; 6 weeks.</td>
<td>78% (91) pre 76% (89) post</td>
<td>Attitudes – no Career – N/A</td>
</tr>
<tr>
<td>Year, author, country</td>
<td>Aims, year/s surveyed, length of clerkship</td>
<td>Response rate, sample size</td>
<td>Overall improvement post clerkship</td>
</tr>
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<tr>
<td>2008 Fischel et al, Israel [148]</td>
<td>To assess the impact of the clerkship on attitudes to psychiatry of Israeli students and US students studying in Israel. Year level not stated; 5 weeks.</td>
<td>Israeli: (29); U.S. (28) RR not given</td>
<td>Attitudes – no Career – N/A</td>
</tr>
<tr>
<td>2008 Al-Adawi et al, Oman [201]</td>
<td>To explore attitudes and career intentions. Year level not stated; 8 weeks.</td>
<td>83% (171)</td>
<td>Attitudes – yes Career – no</td>
</tr>
<tr>
<td>2007 Kuhnigk et al, Germany [107]</td>
<td>To assess students attitudes in 4 different semesters to psychiatry and determine if these change during medical school. Students in Year 5 only surveyed pre and post clerkship. Length of clerkship not stated.</td>
<td>Sem 10 students: 100% (136) pre 93% (127) post</td>
<td>Attitudes – no Career – no</td>
</tr>
<tr>
<td>2007 Holm-Petersen et al, Denmark [191]</td>
<td>To assess change in attitudes after clerkship and impact on career. Years 4 and 5 at 3 universities; 4 weeks.</td>
<td>73% (223) pre 70% (214) post</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>2006 Samimi et al, Iran [150]</td>
<td>To assess impact of clerkship on changes in attitudes and career. Year 5; 4 weeks.</td>
<td>87% (109) pre 87% (109) post</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>2006 Niedermier et al, U.S. [205]</td>
<td>To assess attitudes towards clerkship and various aspects of the curriculum and teaching. Year 3; 4 weeks.</td>
<td>(184) pre (184) post RR not given</td>
<td>Attitudes – yes Career – no</td>
</tr>
<tr>
<td>2005 Reddy et al, Malaysia [195]</td>
<td>To examine the impact of clerkship on attitudes to mental illness and psychiatry. Year 4; 8 weeks.</td>
<td>70% (122) pre and post</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>2005 Galka et al, U.S. [203]</td>
<td>To examine attitudes to mental illness before and after clerkship. Year 3; 6 weeks.</td>
<td>70% (672) pre and post</td>
<td>Attitudes – yes Career – no</td>
</tr>
<tr>
<td>Year, author, country</td>
<td>Aims, year/s surveyed, length of clerkship</td>
<td>Response rate, sample size</td>
<td>Overall improvement post clerkship</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------</td>
<td>--------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>2005 Bulbena et al, Spain [196]</td>
<td>To gain understanding of choosing psychiatry as a career and how attitudes change during academic year. Year 4; 6 weeks.</td>
<td>100% (48) pre and post</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>2003 McParland et al, U.K. [188]</td>
<td>To assess attitudes to psychiatry, career intentions and experiences during the c/ship. Year 4; 8 weeks. 2 cohorts – one traditional content, one PBL.</td>
<td>84% (379) pre and post</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>2001 Oluto &amp; Osahon, Nigeria [207]</td>
<td>To evaluate impact of c/ship on beliefs and attitudes towards psychiatry. Year 5; 8 weeks.</td>
<td>(105) pre and post RR not given</td>
<td>Attitudes – no Career – no</td>
</tr>
<tr>
<td>1998 Singh et al, U.K. [189]</td>
<td>To compare efficacy of new curriculum (vs old) of students attitudes to psychiatry and mental illness. Year 4; 8 weeks (old); 6 weeks (new).</td>
<td>90% (110) pre and post</td>
<td>Attitudes – yes Career – N/A</td>
</tr>
<tr>
<td>1998 Garyfallos et al, Greece [199]</td>
<td>To compare attitudes of a previous sample (1985) of students with current students (1993) before and after c/ship. Year 4; 16 weeks (1 day per week).</td>
<td>90.3% (140) 1993 (51) 1985</td>
<td>Attitudes – yes Career – N/A</td>
</tr>
<tr>
<td>1997 Arkar &amp; Eker, Turkey [187]</td>
<td>To compare attitudes to mental illness between students doing psychiatry c/ship with those doing ophthalmology c/ship. Year 5; 3 weeks.</td>
<td>(75) psyc group (60) opth group RR not given</td>
<td>Attitudes – no Career – N/A</td>
</tr>
<tr>
<td>1996 Sloan et al, Ireland [192]</td>
<td>To measure the impact of c/ship on attitudes. Final year students; 8 weeks.</td>
<td>95% (110)- from 3 med colleges</td>
<td>Attitudes – yes Career – yes</td>
</tr>
<tr>
<td>1996 Guttmann et al, Israel [206]</td>
<td>To evaluate student attitudes before and after c/ship. Year 5; 5 weeks.</td>
<td>88% (53) pre 72% (43) post</td>
<td>Attitudes – no Career – N/A</td>
</tr>
<tr>
<td>Year, author, country</td>
<td>Aims, year/s surveyed, length of clerkship</td>
<td>Response rate, sample size</td>
<td>Overall improvement post clerkship</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------</td>
<td>----------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>1995 Galletly et al, Australia [198]</td>
<td>To assess changes in attitudes after c/ship. Final year students; 4 weeks.</td>
<td>(153) pre and post RR not given</td>
<td>Attitudes – no Career – no</td>
</tr>
<tr>
<td>1992 Arya et al, Chile [190]</td>
<td>To assess changes in attitudes after c/ship and determine if these change over time. Year 3 (no exposure); Year 5; 8 weeks; interns.</td>
<td>Year 3: 94% (75) pre 100% (80) post Year 5: 80% (48) pre 90% (54) post Interns: 85% (56) pre 74% (49) post</td>
<td>Attitudes – yes Career – no</td>
</tr>
</tbody>
</table>
4.2.4  **Impact of clerkship on attitudes and career choice**

Attitudes were often positive at the beginning of the clerkship and improved further post clerkship. Inevitably, most studies reported a mix of views that improved, deteriorated or showed no change post clerkship. Overall, 16 studies reported an improvement in attitudes towards psychiatry post clerkship. The remaining ten concluded that the clerkship had not changed attitudes. In terms of career choice, nine studies reported an increase in the number of students interested in psychiatry as a career post clerkship, nine found no impact on career choice and in eight studies it was not assessed.

Some studies found that students with more positive attitudes correlated with greater interest in psychiatry as a career and higher exam results. Female students showed greater improvement in attitudes post clerkship than males in four studies [190,193,195,201]. Age was reported in less than half the studies reviewed, and overall it was not possible to determine if it was a factor in post clerkship attitude change. An improvement in views post clerkship was found in the following areas: value and experience of psychiatric teaching [59,107,151,152]; the effectiveness of treatment/consultation [59,151,152,195,201,203]; the scientific basis of psychiatry [152]; specialisation to a career in psychiatry and psychiatrists as professionals [59,152,,196,191,201]; causes of/beliefs towards mental illness [172,203]; patients with mental illness [191,194,195,204]; the merits of psychiatry [197,206]; and an improvement in clinical skills and understanding of patients feelings [206].

No change, or a deterioration in views was reported in a number of important areas by some studies: attitudes towards mental illness and patients [172,187,194,207];
teaching of psychiatry [196,204]; psychiatry as a discipline and psychiatrists [148,194,197,206]; knowledge in psychiatry [148]; merits of psychiatry [196]; treatment/prognosis [196,206]; and the scientific basis of psychiatry [206].

4.2.5 Limitations of the systematic review

Limitations of this review are that only papers published in English were included which may have excluded some relevant studies. Due to variations in the length and structure of clerkships, local nuances, and differences in methodologies between studies the conclusions drawn from the studies reviewed needs to be interpreted with caution. Specific elements found to be successful in one university may not necessarily translate to another. Finally, in order to make the synthesis of studies of greater significance to contemporary teaching the review was restricted to studies from 1990 onwards. Despite these limitations, the review has highlighted a range of factors both positive and negative regarding the impact of psychiatry clerkships.

4.3 A study of clerkship impact on stigma, attitudes to psychiatry and as a career

The systematic review of this literature found that medical students’ attitudes towards psychiatry were for the most part positive, however the impact of the clerkship on career choice was mixed. As discussed in Chapter 2 stigma towards mental illness and patients with mental illness has been identified as an influential factor in the negative views that medical students have towards psychiatry [72,118-120]. In order to further investigate the role of stigma, a study of medical students undertaking their clinical clerkship in psychiatry was conducted by the Candidate.
The aim of the study was to assess the impact of the eight week clinical clerkship in psychiatry on i) student knowledge and interest in psychiatry; ii) psychiatry as a career choice; iii) attitudes towards psychiatry; and iv) perceptions of stigma towards mental illness.

4.3.1 Study method

At the time of undertaking the study, the medical course at UWA was a six year undergraduate Bachelor of Medicine, Bachelor of Surgery degree. During Year 4 students rotate through four different eight week clinical clerkships including psychiatry in groups of approximately 60. These clerkships are the first opportunity that students have to experience working in hospitals and other clinical settings.

For the psychiatry clerkship students are divided into smaller groups of 4 - 8 and allocated to a clinical teaching site that is attached to a psychiatric inpatient unit. During the eight weeks they have several additional shorter visits to old-age and alcohol and drug rehabilitation services. As well as ward work with a clinical team including consultants and registrars, students also have a three hour tutorial per week which is facilitated by an academic staff member and covers theoretical components of psychiatry. These tutorials cover a range of case based learning scenarios including mood disorders, anxiety disorders, schizophrenia, substance abuse, personality disorders and organic disorders. A two day introductory course of lectures is given at the beginning of the clerkship. The main component of assessment is a case presentation where students are required to interview a patient for an hour followed by a formulation of the findings and discussion with the examiner.
Study participants were Year 4 undergraduate medical students at UWA who were undertaking their eight week psychiatry clerkship. Students were asked to complete two questionnaires on the first day of the clerkship (baseline) and again towards the end of the clerkship (follow-up). Questionnaires were distributed during tutorial contact time and participation was voluntary. To ensure confidentiality no identifying information was collected. Ethics approval for the study was granted from the UWA Human Research Ethics Committee. The Participant Information Sheet used in the study is provided in Appendix 5. Consent to participate in the survey was implied if students decided to complete the survey.

The Balon Attitudes Towards Psychiatry questionnaire [72] and the Mental Illness Clinicians Attitudes Scale (MICA-2) (medical student version) [159] were used to measure students’ attitudes and stigma towards psychiatry. Description of the Balon questionnaire is provided in section 2.4.1 and both study questionnaires are appended (Appendix 3 and Appendix 6). In addition to the Balon and MICA-2 questionnaires, demographic data was collected. Students were also asked to rate their interest in, and knowledge of psychiatry on a 10 point visual analogue scale (1 = low interest/knowledge; 10 = high interest/knowledge) and their extent of consideration of psychiatry as a career on a 10 point scale (1 = definitely not considering; 10 = definitely considering).

Statistical analyses were carried out using IBM SPSS software, Version 22.0. Unpaired t-tests were used to compare mean differences on the visual analogue scale questions. Non-parametric tests were used to compare baseline and follow-up differences on Balon and MICA-2 items. As the full range of responses on the
four point Balon rating scale had not been utilised by many respondents on a number of items, the rating scale was dichotomised into ‘agree’ and ‘disagree’ variables and the percentage agreement/disagreement for each item was calculated. McNemars test was used to determine significance between baseline and follow-up on each item. For the MICA-2, the negatively worded questions were reverse scored and the mean total baseline and post scores calculated. An unpaired t-test was used to determine statistical significance on the mean scores, a Mann-Whitney test tested differences between male and female students and a Wilcoxon signed rank test determined any significant changes between baseline and follow-up on each item. The significance level for all statistical testing was \( p = < 0.05 \).

### 4.3.2 Study results

Approximately 238 students were invited to participate in the baseline survey, and 230 to the follow-up survey. One hundred and fifty one students responded to the baseline survey (63% response rate), and 161 responded to the follow-up survey (70% response rate). At baseline, 68 (45%) respondents were male and 83 (55%) female. At follow-up 77 (48%) were male and 84 (52%) female. The mean age was 23 years, range 20-40 years.

#### 4.3.3 Interest, knowledge and psychiatry as a career choice

The baseline means for interest and knowledge of psychiatry, and psychiatry as a career were 5.7/10, 3.5/10, and 3.9/10 respectively. The follow-up means for interest and knowledge of psychiatry, and psychiatry as a career were 6.1/10, 6.0/10, and 4.8/10 respectively. An unpaired t-test found that there were no
significant changes at follow-up on the level of interest in psychiatry \( t(310)=1.6133,\ p = 0.1077 \). There was however a significant improvement on the level of knowledge of psychiatry and interest in psychiatry as a career, \( t(310)=15.4053,\ p = 0.0001 \) and \( t(310)= 3.3804,\ p = 0.0008 \) respectively. Details are shown in Table 4.2.

**Table 4.2 Changes in interest and knowledge of psychiatry and psychiatry as a career**

<table>
<thead>
<tr>
<th></th>
<th>Baseline mean/10 (SD)</th>
<th>Follow-up mean/10 (SD)</th>
<th>( t )</th>
<th>( p ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in psychiatry</td>
<td>5.7 (1.8)</td>
<td>6.1 (2.0)</td>
<td>1.6133</td>
<td>0.1077</td>
</tr>
<tr>
<td>Knowledge of psychiatry</td>
<td>3.5 (1.6)</td>
<td>6.0 (1.3)</td>
<td>15.4053</td>
<td>0.0001</td>
</tr>
<tr>
<td>Psychiatry as a career</td>
<td>3.9 (2.0)</td>
<td>4.8 (2.2)</td>
<td>3.3804</td>
<td>0.0008</td>
</tr>
</tbody>
</table>

Mann-Whitney U tests found that there were no significant differences between male and female students at either baseline or follow-up in interest in psychiatry (baseline \( p = 0.123; \) follow-up \( p = 0.394 \)), knowledge of psychiatry (baseline \( p = 0.240; \) follow-up \( p = 0.663 \)) or psychiatry as a career (baseline \( p = 0.756; \) follow-up \( p = 0.451 \)). The number of students definitely considering a career in psychiatry (those who scored the question as 8, 9, or 10/10) rose from seven (4.6%) students at baseline to 17 (10.5%) at follow-up.

4.3.4 **The clerkship and attitudes towards psychiatry**

Overall, students reported positive attitudes towards psychiatry both at baseline and follow-up. Only three of the Balon items showed a statistically significant change post clerkship, all of which were in the positive direction. These were, ‘I feel
uncomfortable with mentally ill patients’; ‘Teaching at my medical school is interesting and of good quality’; and, ‘Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school’.

Items that assessed the overall merits of psychiatry and the efficacy of psychiatry were all favourably rated. Eighty-seven percent at baseline and 91% at follow-up agreed that, ‘Psychiatry is a rapidly expanding frontier of medicine’ and 84% at baseline and 81% at follow-up disagreed with the statement, ‘Psychiatry is unscientific and imprecise’.

With one exception the items that measured the role, definition and functioning of psychiatrists were all positively rated at baseline allowing little capacity for significant improvement at follow-up. One item, ‘Among mental health professionals, psychiatrists have the most authority and influence’ showed a more divergent viewpoint. Agreement at baseline was 59%, increasing to 68% at follow-up, however this was not significant.

Students were positive about the teaching of psychiatry during the rotation. Seventy-five percent agreed at baseline that teaching was of a good quality and this increased significantly to 93% at follow-up, McNemars $p = 0.001$. Approximately 90% reported that residents, registrars and consultants they met during the rotation were good role models. There was significant improvement in students views on the level of encouragement to pursue psychiatry as a career, 60% disagreed at baseline with the statement, ‘Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school’ compared with 77% at follow-up, McNemars $p = 0.001$. 

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Several of the ‘career and personal reward’ items showed less positive attitudes, specifically those that assessed how students and others perceive psychiatry as a discipline and career. Fifty-two percent at baseline agreed that psychiatry has a low prestige among the public and there was no significant change in this at follow-up (47%). Approximately a third of students at baseline agreed that their family and friends would discourage them from a career in psychiatry and there was no change in this at follow-up. There was only a 22% agreement with, ‘Psychiatry has a high status among other medical disciplines’ dropping to 17% at follow-up, but the difference was not significant. The percentage agreement/disagreement relating to each item and McNemars test are shown in Table 4.3.
Table 4.3 Clerkship impact on attitudes towards psychiatry

<table>
<thead>
<tr>
<th>Overall merits of psychiatry</th>
<th>Baseline Agree %</th>
<th>Baseline Disagree %</th>
<th>Follow-up Agree %</th>
<th>Follow-up Disagree %</th>
<th>McNemars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychiatric research has made good strides in advancing care of the major mental disorders.</td>
<td>94</td>
<td>6</td>
<td>96</td>
<td>4</td>
<td>NS</td>
</tr>
<tr>
<td>2. Psychiatry is a rapidly expanding frontier of medicine.</td>
<td>87</td>
<td>13</td>
<td>91</td>
<td>9</td>
<td>NS</td>
</tr>
<tr>
<td>3. Psychiatry is unscientific and imprecise.</td>
<td>16</td>
<td>84</td>
<td>19</td>
<td>81</td>
<td>NS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficacy</th>
<th>Baseline Agree %</th>
<th>Baseline Disagree %</th>
<th>Follow-up Agree %</th>
<th>Follow-up Disagree %</th>
<th>McNemars</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. If someone in my family was very emotionally upset and the situation did not seem to be improving, I would recommend a psychiatric consultation.</td>
<td>83</td>
<td>17</td>
<td>91</td>
<td>9</td>
<td>NS</td>
</tr>
<tr>
<td>5. Psychiatric consultation for medical or surgical patients is often helpful.</td>
<td>90</td>
<td>10</td>
<td>93</td>
<td>7</td>
<td>NS</td>
</tr>
<tr>
<td>6. Psychiatric treatment is helpful to most people who receive it.</td>
<td>91</td>
<td>9</td>
<td>91</td>
<td>9</td>
<td>NS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Role, definition and functioning of psychiatrists</th>
<th>Baseline Agree %</th>
<th>Baseline Disagree %</th>
<th>Follow-up Agree %</th>
<th>Follow-up Disagree %</th>
<th>McNemars</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Psychiatry is not a genuine and valid branch of medicine.</td>
<td>5</td>
<td>95</td>
<td>4</td>
<td>96</td>
<td>NS</td>
</tr>
<tr>
<td>8. Most psychiatrists are clear, logical thinkers.</td>
<td>93</td>
<td>7</td>
<td>94</td>
<td>6</td>
<td>NS</td>
</tr>
<tr>
<td>9. With few exceptions, clinical psychologists and social workers are just as qualified as psychiatrists to diagnose and treat emotionally disturbed persons.</td>
<td>22</td>
<td>78</td>
<td>28</td>
<td>72</td>
<td>NS</td>
</tr>
<tr>
<td>10. Among mental health professionals, psychiatrists have the most authority and influence.</td>
<td>59</td>
<td>41</td>
<td>68</td>
<td>32</td>
<td>NS</td>
</tr>
<tr>
<td>11. Psychiatrists are too frequently apologetic when teaching psychiatry.</td>
<td>13</td>
<td>87</td>
<td>7</td>
<td>93</td>
<td>NS</td>
</tr>
<tr>
<td>12. Psychiatry is too ‘biologically’ minded and not attentive enough to the patient’s personal life and psychological problems.</td>
<td>7</td>
<td>93</td>
<td>9</td>
<td>91</td>
<td>NS</td>
</tr>
<tr>
<td>13. Psychiatry is too analytical, theoretical, and psychodynamic, and not attentive enough to patient’s physiology.</td>
<td>15</td>
<td>85</td>
<td>14</td>
<td>86</td>
<td>NS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possible abuse and social criticism</th>
<th>Baseline Agree %</th>
<th>Baseline Disagree %</th>
<th>Follow-up Agree %</th>
<th>Follow-up Disagree %</th>
<th>McNemars</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Psychiatrists frequently abuse their legal power to hospitalise patients against their will.</td>
<td>3</td>
<td>97</td>
<td>5</td>
<td>95</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Baseline Agree %</td>
<td>Baseline Disagree %</td>
<td>Follow-up Agree %</td>
<td>Follow-up Disagree %</td>
<td>McNemars</td>
</tr>
<tr>
<td>---</td>
<td>------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>----------</td>
</tr>
<tr>
<td>15. On average, psychiatrists make as much money as most other doctors.</td>
<td>64</td>
<td>36</td>
<td>68</td>
<td>32</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Career and personal reward</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Psychiatry has a low prestige among the general public.</td>
<td>52</td>
<td>48</td>
<td>47</td>
<td>53</td>
<td>NS</td>
</tr>
<tr>
<td>17. Psychiatry has a high status among other medical disciplines.</td>
<td>22</td>
<td>78</td>
<td>17</td>
<td>83</td>
<td>NS</td>
</tr>
<tr>
<td>18. Many people who could not obtain a residency position in other specialties eventually enter psychiatry.</td>
<td>15</td>
<td>85</td>
<td>17</td>
<td>83</td>
<td>NS</td>
</tr>
<tr>
<td>19. Psychiatry is a discipline filled with international medical graduates whose skills are of low quality.</td>
<td>5</td>
<td>95</td>
<td>9</td>
<td>91</td>
<td>NS</td>
</tr>
<tr>
<td>20. My family would discourage me from entering psychiatry.</td>
<td>32</td>
<td>68</td>
<td>37</td>
<td>63</td>
<td>NS</td>
</tr>
<tr>
<td>21. Friends and fellow students would discourage me from entering psychiatry.</td>
<td>28</td>
<td>72</td>
<td>35</td>
<td>65</td>
<td>NS</td>
</tr>
<tr>
<td>22. If a student expresses interest in psychiatry, he or she risks being associated with a group of other would-be psychiatrists who are often seen by others as odd, peculiar or neurotic.</td>
<td>30</td>
<td>70</td>
<td>30</td>
<td>70</td>
<td>NS</td>
</tr>
<tr>
<td>23. I feel uncomfortable with mentally ill patients.</td>
<td>44</td>
<td>56</td>
<td>16</td>
<td>84</td>
<td>0.001</td>
</tr>
<tr>
<td><strong>Specific medical school factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Teaching of psychiatry at my medical school is interesting and of good quality.</td>
<td>75</td>
<td>25</td>
<td>93</td>
<td>7</td>
<td>0.001</td>
</tr>
<tr>
<td>25. During my psychiatry rotation, psychiatry residents were good role models.</td>
<td>N/A</td>
<td>N/A</td>
<td>89</td>
<td>11</td>
<td>N/A</td>
</tr>
<tr>
<td>26. Attending psychiatrists during my psychiatry rotation were good role models.</td>
<td>N/A</td>
<td>N/A</td>
<td>92</td>
<td>8</td>
<td>N/A</td>
</tr>
<tr>
<td>27. Most psychiatrists at my medical school are clear, logical thinkers.</td>
<td>93</td>
<td>7</td>
<td>98</td>
<td>2</td>
<td>NS</td>
</tr>
<tr>
<td>28. Most non-psychiatry staff at my medical school are respectful of psychiatry.</td>
<td>80</td>
<td>20</td>
<td>85</td>
<td>15</td>
<td>NS</td>
</tr>
<tr>
<td>29. Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school.</td>
<td>40</td>
<td>60</td>
<td>23</td>
<td>77</td>
<td>0.001</td>
</tr>
</tbody>
</table>
4.3.5 **Analysis of the MICA-2**

The baseline mean total score for the MICA-2 was 48.2 (sd 8.3) and the follow-up mean total score was 43.5 (sd 7.5). An unpaired t-test found that this was a significant change $t(310)=15.4053, p = 0.0001$ indicating an overall improvement in attitudes towards psychiatry and mental illness stigma post clerkship. The baseline mean score for male students was 49.4 (sd 9.1) and 47.2 (sd 7.4) for females. A Mann-Whitney test found no significant differences between males and females at baseline, $p = 0.068$. However, at follow-up the mean score for males was 42.0 (sd 6.0), and 44.8 (sd 8.4) for females, Mann-Whitney, $p = 0.015$.

The median scores and level of agreement/disagreement for each MICA-2 item are shown in Table 4.4. Baseline and follow-up comparison of each MICA-2 item was undertaken using Wilcoxon signed rank tests. Five items showed a significant change post clerkship. Two of these, ‘I feel as comfortable talking to a person with a mental illness as I do those with physical illness’; and ‘It is important that any doctor supporting a person with a mental illness also assesses their physical health’ showed a significant improvement in attitudes post clerkship. Three showed a more negative attitude post clerkship. These were, ‘People with a severe mental illness can never recover enough to have a good quality of life’; ‘Psychiatry is just as scientific as other field of medicine’; and, ‘The public does not need to be protected from people with a severe mental illness’.
Table 4.4 The MICA-2 and clerkship impact

<table>
<thead>
<tr>
<th>Question</th>
<th>Baseline Median</th>
<th>Follow-up Median</th>
<th>Baseline (%)</th>
<th>Follow-up (%)</th>
<th>Wilcoxon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. I just learn about psychiatry because it is in the exam and would not bother reading additional material on it.</td>
<td>4</td>
<td>4</td>
<td>1; 2.5; 30; 24; 32; 10.5</td>
<td>2; 7.5; 17; 38.5; 24; 11</td>
<td>NS</td>
</tr>
<tr>
<td>Q2. People with a severe mental illness can never recover enough to have a good quality of life.</td>
<td>5</td>
<td>4.5</td>
<td>1; 3; 5; 26.5; 40.5; 24</td>
<td>3; 6.5; 11; 29; 38; 12.5</td>
<td>0.001 **</td>
</tr>
<tr>
<td>Q3. Psychiatry is just as scientific as other fields of medicine.</td>
<td>3</td>
<td>3</td>
<td>6; 42; 35; 13; 3; 1</td>
<td>7; 35.5; 27; 21; 8.5; 1</td>
<td>0.046 **</td>
</tr>
<tr>
<td>Q4. If I had a mental illness, I would never admit this to any of my friends for fear of being treated differently.</td>
<td>3</td>
<td>4</td>
<td>4; 13; 39; 18; 20; 6</td>
<td>2.5; 9; 32; 28.5; 23; 5</td>
<td>NS</td>
</tr>
<tr>
<td>Q5. People with a severe mental illness are dangerous more often than not.</td>
<td>5</td>
<td>5</td>
<td>0; 4.5; 15; 29; 40; 11.5</td>
<td>0; 6.0; 14.5; 29; 41; 9.5</td>
<td>NS</td>
</tr>
<tr>
<td>Q6. Psychiatrists know more about the lives of people treated for a mental illness than do family members of friends.</td>
<td>3</td>
<td>3</td>
<td>2; 16; 44.5; 24.5; 11; 2</td>
<td>4.5; 15; 34; 28; 17; 1.5</td>
<td>NS</td>
</tr>
<tr>
<td>Q7. If I had a mental illness I would never admit this to any of my colleagues for fear of being treated differently.</td>
<td>3</td>
<td>3</td>
<td>8; 23; 42; 18; 7; 2</td>
<td>9.5; 20.5; 37.5; 20; 10.5; 2</td>
<td>NS</td>
</tr>
<tr>
<td>Q8. Being a psychiatrist is not like being a real doctor.</td>
<td>5</td>
<td>5</td>
<td>0; 2; 10; 18; 14; 28</td>
<td>1; 1; 8.5; 21; 41.5; 27</td>
<td>NS</td>
</tr>
<tr>
<td>Q9. If a psychiatrist instructed me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions.</td>
<td>2</td>
<td>2</td>
<td>36; 42; 15; 2.5; 2.5; 2</td>
<td>39; 40.5; 11.5; 4.5; 2; 2.5</td>
<td>NS</td>
</tr>
<tr>
<td>Question</td>
<td>Baseline Median</td>
<td>Follow-up Median</td>
<td>Baseline (%)</td>
<td>Follow-up (%)</td>
<td>Wilcoxon</td>
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</tr>
<tr>
<td>Q10. I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness.</td>
<td>4</td>
<td>3</td>
<td>4.5; 18; 23; 38.5; 15; 1</td>
<td>12.5; 36; 27; 19; 4.5; 1</td>
<td>0.0001 *</td>
</tr>
<tr>
<td>Q11. It is important that any doctor supporting a person with a mental illness also assesses their physical health.</td>
<td>2</td>
<td>1</td>
<td>31.5; 53.5; 14; 0; 1; 0</td>
<td>52; 40.5; 6.5; 1; 0; 0</td>
<td>0.0001 *</td>
</tr>
<tr>
<td>Q12. The public does not need to be protected from people with a severe mental illness.</td>
<td>4</td>
<td>4</td>
<td>1; 11; 24.5; 43; 19; 12</td>
<td>2; 10; 20; 34; 22.5; 11.5</td>
<td>0.041 **</td>
</tr>
<tr>
<td>Q13. If a person with a mental illness complained of physical symptoms (such as chest pain), I would attribute it to their mental illness.</td>
<td>5</td>
<td>5</td>
<td>0; 1; 7; 33; 49; 10</td>
<td>0; 2; 6.5; 34.5; 41; 16</td>
<td>NS</td>
</tr>
<tr>
<td>Q14. GP’s should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist.</td>
<td>5</td>
<td>5</td>
<td>0; 2; 11; 29; 46; 12</td>
<td>1.5; 3; 7; 32.5; 42; 14</td>
<td>NS</td>
</tr>
<tr>
<td>Q15. I would use the terms ‘crazy’, ‘nutter’, ‘mad’ etc to describe people with a mental illness who I have seen in my work.</td>
<td>5</td>
<td>5</td>
<td>1.5; 4.5; 11; 18; 35; 30</td>
<td>1.5; 7; 15.5; 23; 26.5; 26.5</td>
<td>NS</td>
</tr>
<tr>
<td>Q16. If a colleague told me they had a mental illness I would still want to work with them.</td>
<td>2</td>
<td>2</td>
<td>21; 57; 18; 2; 1; 1</td>
<td>31.5; 48.5; 15; 3.5; 1.5; 0</td>
<td>NS</td>
</tr>
</tbody>
</table>

1/SA = strongly agree; 2/A = agree; 3/SWA = somewhat agree; 4/SWD = somewhat disagree; 5/D = disagree; 6/SD = strongly disagree

* significance demonstrates less stigma post clerkship; ** significance demonstrates more stigma post clerkship
4.3.6 Discussion of study findings

This study explored the impact of an eight week psychiatry clerkship on medical students’ attitudes towards psychiatry and mental illness stigma. Several different measures assessed interest and knowledge of psychiatry; attitudes towards psychiatry; and perceptions of stigma, both towards mental illness, people with mental illness, the discipline of psychiatry, and psychiatry as a career.

Knowledge and interest in psychiatry were poorly rated at the beginning of the clerkship. At the end of the clerkship there was no significant change in the level of interest in psychiatry, however there was a significant improvement in students’ knowledge, indicating that despite low interest in psychiatry, the teaching in the clerkship which was highly rated, resulted in an increase in knowledge.

Attitudes towards psychiatry measured using the Balon questionnaire showed that a number of items were positively rated at baseline, leaving little capacity for significant improvement at follow-up. Similar findings have been reported in other studies [203,205,208,209]. In particular, attitudes towards mentally ill patients improved significantly post clerkship and there was a correlation between similarly worded items on the Balon and MICA-2 questionnaires demonstrating a level of internal consistency between the two instruments. Improvements in attitudes towards patients post clerkship have been found in other studies [191,204] supporting the contact theory which proposes that contact with people with mental illness improves attitudes and acceptance towards mental illness [210]. There was also agreement between instruments regarding the scientific basis of psychiatry
which was positively rated on both the Balon and MICA-2, however the MICA-2 detected a small but significant negative change in this post clerkship.

The baseline and follow-up means for the MICA-2 were close to the neutral value, (48.2 and 43.5 respectively). Despite a significant improvement at follow-up this shows only weak evidence that the clerkship decreased stigma towards mental illness. The items regarding recovery of people with mental illness and the protection of the public from people with mental illness were rated more negatively post clerkship, and this has also been observed in other studies [104,197]. This could reflect the clerkship structure which exposes students to patients with more severe symptoms in acute public inpatient settings where recovery is not captured or witnessed over the clerkship duration. The post clerkship improvement in students feeling comfortable talking to people with mental illness may be due to psychiatric history taking and assessment skills learned during the clerkship which resulted in increased confidence in interviewing and assessing patients. However, despite this improvement, the behaviours of patients observed in an acute setting may be interpreted by students as dangerous and could account for the view that the public need to be protected. Changes to the current clerkship structure to provide opportunities for students to work with patients in outpatient and community settings may provide a more realistic view of mental illness enabling students to see positive aspects of treatment and long term management.

It was encouraging that the quality of the psychiatry teaching during the clerkship was highly rated and psychiatrists were regarded as good role models and this has
also been found in other studies [54,61,102]. There was a significant increase in the consideration of psychiatry as a career which resulted in an additional ten students who were ‘definitely considering’ psychiatry as a career post clerkship. Evidence of the impact of the clerkship on career preference is mixed, with some studies finding increases in the level of career interest post clerkship [151,191,196,211] and others finding no differences [204,205,212]. The clerkship structure, length of clerkship and specific cultural factors may account for the differences in career interest found in these studies that have been conducted in medical schools internationally. While attitudes post clerkship have been found to deteriorate over time as students continue with their studies and internship [213], a positive clerkship experience can have an enduring and positive effect if interested students receive ongoing encouragement from consultants, registrars and other academic staff members [43] as they progress through their training. This is particularly important as career decisions regarding specialisation in general are often made up to three years after graduation from medical school [46]. While there was a modest improvement in the number of students considering a career in psychiatry, most perceived that psychiatry had a low prestige among the community and other medical specialists. There was also agreement that family and friends would not be supportive of a psychiatry career. As discussed in Chapter 2, these views are pervasive among medical students and are a major barrier in the recruitment of students to psychiatry.
4.3.7  **Study strengths and limitations**

While a number of previous studies have identified stigma as an issue [61,72,119, 157], this study was strengthened by the use of a relatively new instrument, the MICA-2 to measure the impact of stigma on the clerkship stigma. Limitations of the study are that in order to maintain confidentiality it was not possible to match baseline and follow-up responses as identifying information was not provided by respondents. For students, providing identifying information in surveys is perceived negatively as despite assurances by staff they are concerned that their responses, in particular negative responses may influence their assessment results or treatment by clinical and academic staff in some way. It can also impact negatively on the response rate. For these reasons, it was decided not to use a matched design which would have resulted in a more robust study design but compromised response rates and biased responses to some of the items in the questionnaires, particularly those relating to the treatment of patients and quality of teaching. Not all students in the year group participated in the study and it is possible that selection bias towards those students who are more interested in psychiatry may have contributed towards the improvement in attitudes reported in the results.

4.4  **Overall summary of clerkship impact**

Despite differences in both the length and structure of the clerkship between medical schools that make it difficult for direct comparisons to be made, of the 26 studies included in the systematic review 16 (61%) showed that students’ attitudes improved post clerkship. However, the impact on career choice was less positive with only nine out of 18 studies that assessed career choice finding that the
clerkship increased students’ interest in psychiatry as a career. While the improvement in attitudes post clerkship is positive, these effects are known to decay as students’ progress through the medical course and into internship [43, 77, 213]. Career preferences also fluctuate as students advance through the clinical years as exposure to different areas of specialisation and acquisition of new skills and knowledge enables them to assess their interest in each area and determine its suitability as a career [214]. Longitudinal studies that follow the same students in the pre-clinical and clinical years will enable clearer evidence of the career decision making process at different stages of medical training to be made.

In many of the studies selected for review, attitudes to psychiatry were positive at the beginning of the clerkship, suggesting that the pre-clinical years play an important role in fostering attitudes ahead of the clinical clerkship. This was also found in the impact of clerkship study conducted by the Candidate. Positive attitudes pre-clerkship often improve further post-clerkship, and this is a strong predictor of specialisation in to psychiatry [215]. Timing of the clerkship (if it takes place at the beginning or end of the academic year) [216, 217] and clerkship length appear to have no impact on eventual choice of psychiatry as a career [183].

From a student perspective an important aspect of any clerkship is patient contact and the relationship with patients that develops during the clerkship [40]. Some studies have shown that students’ attitudes towards patients improved post clerkship and patient contact was regarded as a rewarding aspect [189, 191, 205, 204]. Others however have not shown improvement [187, 194] and
patient behaviour, particularly in acute inpatient settings has been described as a stressful, intimidating and frightening experience [46,218].

Seeing patients recover is associated with positive views, and while this can be unpredictable in the clerkship setting, clerkships should attempt to provide opportunities for students to have involvement in situations where the positive outcomes of treatment and management can be seen [211]. While acknowledging that local factors play a part in the clinical experience and are largely unmodifiable at a Faculty level, an understanding by teachers of how students learn and basic pedagogic theory may be helpful in overcoming negative views developed during the clerkship [181].

The basic structure of most clerkships combines lectures, tutorials and other non-clinical activities with the clinical attachment, usually based in hospitals and outpatient clinics. A few studies have assessed the impact of different clinical settings on students’ perceptions of the clerkship. Clardy and colleagues (2000) found that students who rotated through an outpatient setting were more interested in psychiatry as a career compared with those in an emergency department setting or children’s hospital [216]. However, Bobo and colleagues (2009) found that rotation type (outpatient clinic, hospital based consultation liaison service, acute inpatient ward) had no impact on eventual career choice, examination marks or psychiatric knowledge [219]. In terms of specific learning activities, students particularly value clinically oriented teaching activities and a study by Lampe and colleagues (2010) found that tutorial sessions with an
academic psychiatrist were rated as the most helpful activity during the clerkship [220].

As the majority of students will end up working in primary care or some other area of specialisation, a goal of the clerkship should be to equip all students with the basic skills and competencies important for doctors, regardless of eventual area of specialisation. In this regard, the ability to assess suicide risk, manage alcohol withdrawal, diagnosis and management of depression, and assessment of substance misuse have been identified as important skills for students to learn in the clerkship [164].

4.5 Conclusion

The discipline of psychiatry must be able to recruit and retain a viable workforce of psychiatrists that will adequately meet the future needs of the profession. Career decision making for medical students is a competitive process, and the clerkships that they undertake in the clinical years of medical school will play some part in their career decision making process. For an unpopular speciality such as psychiatry, while fostering positive attitudes must begin in the pre-clinical years, the clerkship provides a crucial opportunity to positively influence students. Destigmatisation strategies and effective pre-clinical teaching could help prepare students for the realities of the clerkship and enable them to make the most of the experience. Maintaining interest post clerkship so that these students are not lost as they progress through the course is essential. Future research needs to identify
components of the clerkship that are rated positively in order to improve student attitudes and encourage a career in psychiatry.
CHAPTER 5

ENRICHMENT PROGRAMS IN PSYCHIATRY

5.1 Introduction

Clinical clerkships in the later years of medical training provide medical students with experience of working with patients in clinical settings and for most will be the only exposure they have to clinical psychiatry at the time of graduation. However, with clerkships becoming shorter [182,221] designing a curriculum that adequately covers the core knowledge, skills and attitudes required by all medical graduates is a challenging process. For a diverse discipline such as psychiatry this inevitably results in difficult choices regarding what teaching content can be included in the time available [222] which places a greater onus on academic departments to offer students who are interested in psychiatry additional opportunities to extend their knowledge and interest beyond the teaching curriculum [132]. This can be achieved through the implementation of an enrichment program. Enrichment activities and programs are an emerging trend in psychiatry and over the last ten years or so a number of programs have been established. As the enrichment program concept is in its infancy, evidence of their effectiveness in raising interest in the discipline of psychiatry, improving attitudes, and as a recruitment strategy is limited. Only a few programs have been evaluated and published in the peer reviewed literature [86,91,92]. However information and evidence of programs more widely is harder to find and often hidden on websites and in the grey
literature. A review of existing programs would be beneficial as a means of finding out ‘who is doing what and where’, and how successful they are in addressing the recruitment crisis and image problems that have plagued psychiatry for so long. In addition to a review of enrichment programs, this chapter also includes results of the evaluation of the Claassen Institute of Psychiatry for Medical Students (the Institute). The Institute is a psychiatry enrichment program that the Candidate has co-ordinated since 2008. The final part of the chapter provides an overview of some of the key elements required to establish and implement an enrichment program.

Over the last few years, a number of published papers have arisen from this component of the thesis and content from Publications 4, 5, 6 and 7 is integrated throughout the chapter. The published versions of these papers are appended.

5.2 A review of psychiatry enrichment programs

The aim of this literature review is to describe and summarise results of existing psychiatry enrichment programs. In this review, an enrichment program is defined as any extra-curricular program that is targeted specifically towards medical students who have an interest in learning more about psychiatry as a discipline and as a potential career pathway. Programs can be designed as an elective to complement or supplement the content of an existing psychiatry curriculum, or run as a stand alone summer school or institute either during the vacation break or in semester time. Programs can also be run as a weekend workshop. Discrete activities such as student led societies, coffee and film clubs, and student psychiatry
interest groups are not considered to be enrichment programs unless they are a component of a formally structured program, and as such are not included in the review.

5.2.1 **Review method**

In order to identify relevant peer-reviewed, published literature, the following databases were searched - EMBASE, PsycINFO and PubMed. Key words used in the search were ‘medical student’, ‘psychiatry’, ‘institute’, ‘summer school’, ‘enrichment program’, and ‘recruitment’. A grey literature search was also carried out to identify unpublished programs and initiatives. This included firstly a Google search using the same key words as in the peer-reviewed search and secondly, email correspondence to individual academics referred to in either the published papers or programs that were identified through the Google search. Finally, the citations referenced by the selected published journal articles, and subsequent articles that had cited these published papers were hand searched and any relevant papers followed up. This search strategy was considered to be the most effective method of identifying as accurately as possible the greatest number of enrichment programs currently available.

5.2.2 **Eligibility and selection of papers for review**

Papers that described a psychiatry enrichment program as defined above were selected for the review. Papers were included if one of the search words appeared in the title or abstract. Papers were excluded if they described programs offered to postgraduate trainees already specialising in psychiatry or qualified mental health professionals; described educational programs that focused on a specific area or
aspect of psychiatry such as addiction training, or research methodology and skills; or described individual activities such as student led societies, coffee and film clubs, and student psychiatry interest groups, unless they were a component of a more formally implemented program. The search was conducted in May 2015 and only English language papers and websites were included.

The database search of the peer-reviewed literature identified a large number of papers. The titles and abstracts were briefly read and it was evident that the majority were not relevant to the review and were rejected. In total, seven papers that described psychiatry summer schools, institutes or programs specifically targeted towards medical students were selected for the review. The grey literature search, personal communications through email correspondence, and citation searches identified a further four programs. The reviewed programs were from the U.S., Canada, Australia, the U.K., Switzerland, Ireland and Finland. Table 5.1 provides a summary of the programs included in the review.
Table 5.1 Summary of psychiatry enrichment programs

<table>
<thead>
<tr>
<th>Country/Institution</th>
<th>Program name</th>
<th>Year started</th>
<th>Type, duration, frequency</th>
<th>Content and structure</th>
<th>Eligible students/number of places</th>
<th>Evaluation results</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. University of Maryland</td>
<td>Combined Accelerated Program in Psychiatry (CAPP)</td>
<td>1970</td>
<td>Special extracurricular elective program that runs for 4 years concurrent to the medical course.</td>
<td>Focus on basic psychiatric concepts; ward work and patient contact; supervised psychotherapy; small group teaching with senior staff.</td>
<td>12 freshmen students recruited to the CAPP each year.</td>
<td>High number of CAPP graduates entered psychiatry residency programs.</td>
</tr>
<tr>
<td>Canada University of Toronto</td>
<td>The Psychiatry Institute for Medical Students</td>
<td>1994</td>
<td>Annual 5 day intensive summer school program.</td>
<td>Informal lectures and seminars each morning; clinical electives in afternoon; patient panel discussion; social activities.</td>
<td>Approx. 25 first and second year students accepted from universities across Canada each year.</td>
<td>Between 1994 and 2005, 178 students have attended. 43% matched to psychiatry residency programs.</td>
</tr>
<tr>
<td>Australia University of Western Australia</td>
<td>The Claassen Institute of Psychiatry for Medical Students</td>
<td>2008</td>
<td>Annual 5 day intensive program held in June.</td>
<td>Seminars on areas of subspecialisation; elective site visits; debate; stigma workshop; social activities including informal meetings with consultants and registrars.</td>
<td>Approx. 16 year 5 and year 6 students from UWA and Notre Dame University attend each year. Also, overseas students have attended in some years – New Zealand and Hong Kong.</td>
<td>Between 2008 and 2014, 117 students have attended. Significant increase in those considering psychiatry as a career at the end of week; long term evaluation showed that 21% of participants currently on training program.</td>
</tr>
<tr>
<td>Country/Institution</td>
<td>Program name</td>
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<td>U.K. Institute of Psychiatry and King’s College, London, U.K. [226]</td>
<td>Institute of Psychiatry, Psychology and Neuroscience Summer School (IoPPN)</td>
<td>2009</td>
<td>Annual 5 day intensive summer school program.</td>
<td>Seminars; patient interviews; debates; ‘speed dating’; film club; opportunities to meet clinicians; evening social activities.</td>
<td>Medical students and Foundation year doctors; number of places not stated.</td>
<td>No evaluation data available.</td>
</tr>
<tr>
<td>Switzerland University Hospital Zurich [87]</td>
<td>Study Focus on Psychiatry</td>
<td>2011</td>
<td>Intensified training program of elective modules at Masters level integrated in to medical curriculum.</td>
<td>Covers key competencies in psychiatry and psychotherapy; research component; mentoring program.</td>
<td>Students in second and third year can apply for course; Masters modules start in Year 5 and thesis completed by end of Year 6; 56 applications received in first 2 years.</td>
<td>No evaluation data available.</td>
</tr>
<tr>
<td>Ireland College of Psychiatry of Ireland [224]</td>
<td>Psychiatry Summer School</td>
<td>2011</td>
<td>One day program run twice over two consecutive days.</td>
<td>Informal seminars in the morning; site visits in afternoon; feedback sessions; social event.</td>
<td>Students from all Irish medical schools eligible to attend; 62 attended over 2 days.</td>
<td>Interest in psychiatry as career and overall attitudes towards psychiatry increased significantly by end of day. Improvements maintained at 3 months follow-up.</td>
</tr>
<tr>
<td>Country/Institution</td>
<td>Program name</td>
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<tr>
<td>U.K. Tees, Esk and Wear NHS Foundation Trust [225]</td>
<td>Summer School of Psychiatry</td>
<td>2012</td>
<td>3 days</td>
<td>Clinical case presentations; film club; training and research in psychiatry; speed dating; no clinical contact.</td>
<td>19 Year 1, 2 3 students from U.K. schools.</td>
<td>Significant increase in attitudes towards psychiatry and as a career at end of program.</td>
</tr>
<tr>
<td>U.K. St Andrews Healthcare, East Midlands School of Psychiatry, and the East of England School of Psychiatry [228]</td>
<td>The East Midlands Psychiatry Summer School</td>
<td>2012</td>
<td>3 day program run bi-annually; 1 day program run on alternate years.</td>
<td>Speed dating; day in the life of a trainee; mock trial.</td>
<td>50 participants in 2012; 58 in 2014 (3 day program); 60 in 2013 (1 day).</td>
<td>No evaluation data available.</td>
</tr>
<tr>
<td>Finland Satakunda Hospital [230]</td>
<td>Summer School of Psychiatry</td>
<td>2013</td>
<td>Program run over 2 months.</td>
<td>Patient case workshops; teaching and tutoring sessions.</td>
<td>14 medical students (working as substitutes for permanent staff during summer vacation) and 8 interns from 4 medical schools.</td>
<td>Knowledge in psychiatry and core skills significantly improved; diverse learning environment positively rated.</td>
</tr>
<tr>
<td>Country/Institution</td>
<td>Program name</td>
<td>Year started</td>
<td>Type, duration, frequency</td>
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<tr>
<td>U. S. Virginia Commonwealth University</td>
<td>Summer Institute in Psychiatry for Medical Students</td>
<td>Unknown</td>
<td>5 day program.</td>
<td>Seminars; stigma discussion; boundary issues; inpatient team rounds; information about the Residency program.</td>
<td>Max 15 students per year.</td>
<td>No evaluation data available.</td>
</tr>
<tr>
<td>Australia</td>
<td>Recruitment into Psychiatry Project</td>
<td>2014</td>
<td>Weekend workshops run in Sydney, Brisbane and Melbourne.</td>
<td>Speed dating; case study presentations; consumer stories; research news; student led debate.</td>
<td>78 participants in total.</td>
<td>Level of knowledge in psychiatry improved at the end of the weekend; 99% said they would recommend to others.</td>
</tr>
</tbody>
</table>
5.2.3 Design and structure of programs

Most of the reviewed programs were designed as summer schools and took place during the summer vacation period (with the exception of the Claassen Institute which was run in the southern winter during semester time) [223]. Programs were of varying length ranging from one day [224]; three days [225], or five days [91,92,226,227]. The East Midlands Psychiatry Summer School was implemented as a three day program bi-annually and a one day program in the alternate years [228]. The Royal Australian and New Zealand College of Psychiatry Recruitment Project was implemented as a series of weekend workshops in three major cities across the country [229].

Two programs, the Combined Accelerated Program in Psychiatry (Maryland) and the Study Focus on Psychiatry (Zurich) [87,86] were embedded in the existing medical curriculum and enabled participating students with a particular interest in psychiatry to have an extended, intensive and enriched teaching in psychiatry over several years starting at an early stage of their medical studies. The Satakunda Summer School took place over the two month summer vacation break and enabled students to work under supervision as ‘substitutes’ for permanent medical staff at the local hospital [230].

Regardless of the structure of each individual program aims were similar. The main focus was firstly on increasing student interest in psychiatry, both as a discipline and as a rewarding and fulfilling career choice, and secondly to introduce students to aspects of psychiatry, mainly areas of subspecialisation that they were unfamiliar with, e.g. forensic, old age and consultation liaison psychiatry. Most of the summer
school programs emphasized the importance of providing students with a positive, inspiring and stimulating experience.

Individual components and activities undertaken in the summer school programs included seminars presented by inspirational speakers who covered topics not usually taught in the medical curriculum; patient contact through elective site visits; ‘speed dating’ (an activity that involves between 8 and 10 ‘stations’ represented by psychiatrists from different specialties. Students spend 5-10 minutes at each station to find out as much as possible about each before rotating to the next station); film nights; case discussions; informal opportunities to meet with consultants and registrars; and social events such as dinners and lunches. Not all programs were able to provide students with elective site visits and patient contact [225,229]. Three programs provided a more structured learning environment that included seminars, tutorials, workshops, and clinical exposure through inpatient and outpatient work [86,87,230].

5.2.4 Evaluation of programs

Seven of the eleven programs reviewed reported results of questionnaire based evaluation that had been undertaken to assess the effectiveness of the program [86,91,92,224,225,229,230]. In all cases, the evaluation showed that attending the program had increased students’ interest in psychiatry and their consideration of psychiatry as a career. Three programs reported results of longitudinal data that demonstrated the proportion of students who joined psychiatry training programs after graduation. Weintraub and colleagues (1999) showed that over a 20 year period 70% of CAPP students who ranked psychiatry first in their freshman year
joined psychiatry residency programs after graduation [86]. The Toronto Institute found that between 1994 and 2005 43% of participants matched into psychiatry [91], and evaluation of the Claassen Institute showed that 21% of 89 students who attended between 2008 and 2013 and responded to a long term follow-up survey were undertaking postgraduate training [92].

### 5.2.5 Summary of reviewed programs

The CAPP, established in 1970 can be credited as the first example of a psychiatry enrichment program [86], followed by the Toronto Institute established as a summer school in 1994 [91] and the Claassen Institute in 2008 [92]. Over the last five years the popularity of enrichment programs has grown significantly. This review identified 11 programs, eight of which were designed as intensive summer schools or psychiatry institutes and implemented as a one, two, three or five day stand alone program [91,92,224-229]; two programs were integrated into the existing medical curriculum [86,87]; and one involved students working at the local hospital as ‘substitutes’ during the summer vacation [230].

Regardless of program type, results from the seven programs that were evaluated showed that participation increased students’ interest, both in psychiatry as a discipline and as a career. This is perhaps unsurprising as students apply to attend on the basis of an existing special interest in psychiatry and are more likely to be considering it as a career option [50]. Furthermore, surveying students who are already interested in psychiatry at the beginning and end of a program that is specifically designed to broaden and extend their interest is likely to show a positive effect. However, whether the interest gained during the program is maintained
over time and ultimately leads to residency training is less clear. As there is a time lag between attending a program and making a final career decision, longer term follow-up of students after completion of medical school and any other required internships is needed. Tracking students over time, particularly after they have left medical school can result in loss to follow-up and contribute to difficulties in undertaking longitudinal evaluation. Most of the programs identified for this review had not been established for long enough to determine the eventual career choices of students who have attended. However, of the three programs that reported longitudinal evaluation all found that the initial intention to choose psychiatry persisted over time with a high proportion of students matching into psychiatry training/residency courses after graduation from medical school [86,91,92].

Measuring the effectiveness of an individual program depends on its specified outcomes and aims, the selection criteria that determine which students are eligible to attend, and the specific questionnaires and study design used in the evaluation. Caution in interpreting results of programs is needed as outcomes and aims are varied, and in terms of assessing their effectiveness as a strategy to improve recruitment, longitudinal evaluation is imperative.

5.2.6 Limitations of the review

While this review aimed to identify as many current enrichment programs as possible through the implementation of a comprehensive search strategy that included both peer reviewed and grey literature, it is possible that some programs were not captured in this process. In particular, only publications and information
from websites in the English language were included. This may have resulted in programs from non-English speaking countries around the world not being identified. As the enrichment program concept is still relatively new, a consequence and further limitation is the shortage of published papers that explicitly describe the types of programs that are being undertaken and results of any evaluation that has been done. Furthermore, longitudinal evaluation to determine the numbers of students who match in to psychiatry residency/training programs was only available for three programs. While intuitively it is likely that a significant proportion of students who participate in enrichment programs will ultimately choose psychiatry as a career, the lack of evidence from long term follow-up studies somewhat limits the conclusions that can be made regarding their effectiveness as a recruitment strategy. Finally, a lack of consistency between programs regarding outcomes and aims, selection of students and evaluation methodology limits the broader interpretation and generalisation of the existing evidence.

5.3 Background to the Claassen Institute of Psychiatry for Medical Students

Intrinsic factors such as the quality of educational programs and teaching offered by schools and departments of psychiatry are influential in raising the profile of psychiatry teaching and attracting students towards a career in psychiatry [231]. Introducing an innovative enrichment program enables psychiatric educators to take proactive steps towards improving and extending the teaching and learning options for students who are interested in broadening their skills and knowledge.
beyond what can be delivered in the standard curriculum. In 2008, the School of Psychiatry and Clinical Neurosciences at UWA established an innovative enrichment program, initially named the UWA Institute of Psychiatry for Medical Students, but renamed the Claassen Institute of Psychiatry for Medical Students in 2009 after the sudden death of the program founder and champion, Dr Johann Claassen. The Institute has been run in June each year for eight consecutive years since 2008 and is described in detail below.

The Institute is an innovative week-long enrichment program with the broad objective to provide students who are interested in psychiatry either as a career, or because they wish to learn more about the specialty with the opportunity to experience an extended view of the discipline [89]. The specific aims of the Institute are as follows:

i. To provide students ‘decided’ and ‘thinking about’ about a career in psychiatry with further knowledge of it as a potential career choice;

ii. To provide students with the opportunity to explore the diversity of psychiatric subspecialities;

iii. To provide students with an opportunity to learn more about the postgraduate training program and potential career pathways;

iv. To enable students to meet registrars and consultants in an informal setting;

v. To provide opportunities for students to identify mentors; and
vi. To enable like-minded students interested in psychiatry to meet each other and network together.

5.3.1 Structure of the Institute and program overview

The Institute aims are achieved by offering a wide range of seminars and elective sessions and site visits that enable students to explore the diversity of psychiatry as a discipline and as a potential career pathway. Throughout the week students participate in interactive seminars that cover a range of diverse topics each morning. The seminars usually include the presentation of case studies, and in-depth discussion on a variety of contemporary topics. Importantly, one of the talks is given by a Director from the Postgraduate Training Program in Psychiatry which provides students with details of the training program and enables them to have their questions related to training answered.

Seminar presenters are both academic psychiatrists and clinical colleagues from the wider psychiatric community who are keen to be involved and support the Institute ethos. This provides the opportunity for collaboration between academic and non-academic colleagues which develops a positive sense of collegiality and fosters good will in the wider psychiatric community.

Presenters are chosen for their specific area of clinical or research expertise. They are also encouraged to tell their own story of how and why they entered the profession, and to describe to students some aspects of daily work in their particular area of specialisation. This enables students to gain a range of different perspectives of psychiatry as a career and gives them a ‘real world’ feeling for what
working life as a psychiatrist might entail. Trainee psychiatrists also talk informally to the students about their experiences of gaining a place, and subsequently working on the training program. Throughout the week there are opportunities for students to interact informally with presenters during lunchtimes and the social evening dinner event that takes place every year.

Students go on elective site visits to community and hospital-based mental health services on three afternoons during the week. The aim for electives is to provide students with an insight of the specific service, how the service is provided to those who need it, the professionals involved in service delivery and the type of clients who access the service. Client contact if appropriate is encouraged wherever possible. Examples of elective visits include a mother and baby unit, a women’s prison, community residential facilities and a sexual assault centre. An overview of the Institute program is shown in Table 5.2

5.3.2 The debate and stigma workshop

In response to student feedback, several interactive activities were introduced to the program in 2011 including a student led debate and an interactive stigma workshop. The debate topics are focussed on contemporary and controversial issues in psychiatry such as early intervention in high risk psychosis, and involuntary psychiatric treatment. Students are encouraged to formulate their team position based on ethical principles and to apply these to the patient perspective. Post-debate discussion has been facilitated by a consultant psychiatrist who specialises in each of these areas. The stigma workshop is facilitated by a psychiatry registrar and the concept of stigma is explored from a number of different perspectives.
Students participate in the discussion of scenarios and are encouraged to become active mental health advocates.

5.3.3 Promotion of the Institute and selection of students

The Institute is targeted towards students in the clinical years of the medical course who have either decided on a career in psychiatry or are thinking about, but not necessarily committed to psychiatry as their career choice. As students at UWA undertake the main psychiatry clerkship in Year 4 of the course, the Institute program has been designed to build on the basic knowledge gained during the clerkship. Targeting the Institute towards clinical students also enables those who have expressed a particular interest in a psychiatry career during the clerkship to gain more of a vocational view of the discipline than is apparent during the clerkship.

The Institute is held in June each year and promotion and advertising usually begins in February. Details and information about the Institute are emailed to all students in the clinical years of the course. In addition to emails, promotional flyers are put up around the campus and other venues and locations frequented by medical students. Academic staff are encouraged to promote the Institute to students during tutorials and other teaching situations. Over the years, word of mouth by students who have previously attended has become a useful source of promotion.
Table 5.2 Overview of the Claassen Institute of Psychiatry for Medical Students program

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td><strong>08.30-09.15</strong></td>
<td><strong>09.00-10.00</strong></td>
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<td><strong>09.00-10.00</strong></td>
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<td>WELCOME AND INTRODUCTION</td>
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<td>Child and adolescent Psychiatry</td>
<td>Psychiatry of old age</td>
<td>Training in Psychiatry</td>
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<td><strong>09.15-10.15</strong></td>
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<td>Normality, Abnormality and Mental Illness</td>
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<td><strong>10.15-10.30</strong></td>
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<td>Morning Tea</td>
<td>Morning Tea</td>
<td>Morning Tea</td>
<td>Morning Tea</td>
<td>Morning Tea</td>
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<td><strong>10.15-11.15</strong></td>
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<tr>
<td>Forensic Psychiatry</td>
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<tr>
<td><strong>10.30-11.30</strong></td>
<td><strong>11.15-12.15</strong></td>
<td><strong>10.45-11.45</strong></td>
<td><strong>11.15-12.15</strong></td>
<td><strong>11.15-12.15</strong></td>
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<td>Psychotherapy</td>
<td>Emergency Psychiatry</td>
<td>Community Psychiatry</td>
<td>Substance abuse</td>
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<td><strong>11.30-12.30</strong></td>
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<td><strong>12.30-13.15</strong></td>
<td><strong>12.15-13.00</strong></td>
<td><strong>11.45-12.15</strong></td>
<td><strong>12.15-12.45</strong></td>
<td><strong>12.15-12.45</strong></td>
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<tr>
<td>Lunch</td>
<td>Lunch with Consultants and Registrars</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
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<tr>
<td><strong>13.15-13.45</strong></td>
<td><strong>13.00-13.30</strong></td>
<td><strong>13.30-14.00</strong></td>
<td><strong>13.45-15.00</strong></td>
<td><strong>13.45-14.15</strong></td>
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<tr>
<td>Travel to electives</td>
<td>Travel to electives</td>
<td>Travel to electives</td>
<td>The Great Debate</td>
<td>CLOSING CEREMONY</td>
</tr>
<tr>
<td><strong>13.45-16.45</strong></td>
<td><strong>13.30-16.00</strong></td>
<td><strong>14.00-17.00</strong></td>
<td><strong>19.00</strong></td>
<td>Presentation of certificates</td>
</tr>
<tr>
<td>Clinical electives</td>
<td>Clinical electives</td>
<td>Clinical electives</td>
<td>DINNER</td>
<td></td>
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</tbody>
</table>
Students who are interested in attending are required to submit a formal application which consists of their C.V. and a few paragraphs explaining why they would like to attend. The standard of applications has always been high with students submitting thoughtful and compelling explanations of why they would like to attend. The Institute is a very intensive and busy week for students and they are required to commit to attending the week in full including all morning seminars, elective sessions, site visits and social events. Applying to attend demonstrates motivation and commitment to the Institute ethos, and as applications rarely exceed the number of available places, all students who apply are usually accepted. Over the years, several students from Notre Dame University in Fremantle have attended the Institute. Students from New Zealand and Hong Kong universities have also attended, adding an international perspective and allowing for a cross-cultural exchange to take place between students. There are no costs for students in attending the Institute and morning tea and lunch are provided each day. A selection of student applications and the Institute flyer are provided in Appendices 7 and 8.

5.3.4 **Organisation of the Institute**

Organisation of the Institute is co-ordinated by the Organising Committee. Membership of this Committee consists of the Head of School of Psychiatry and Clinical Neurosciences (the School), several School academics and psychiatric registrars, both of whom attended the Institute in previous years and are now on the postgraduate training program. The Committee meets monthly from mid-January to put in place all the arrangements and preparations required for the
successful running of the Institute. Committee members have various tasks and responsibilities which together ensure that all aspects of the weeks activities are planned and co-ordinated. Tasks include inviting presenters for each of the morning sessions, organising the elective sessions and site visits by liaising with various non-government organisations and hospital services, organising morning tea and lunch for each day and arranging other social events, including the evening dinner. Administrative support helps with logistical matters such as room hire and catering. The Institute is run on a modest budget and has been funded each year by the School. In recent years, donations from a community source have been made – details in section 5.4.7 below.

5.4 Evaluation of the Claassen Institute of Psychiatry for Medical Students

Evaluation is an integral and important component of the Institute. Evaluation enables the effectiveness of the Institute to be assessed. This includes the extent that it has improved knowledge and interest in different areas of psychiatry, and the extent that it has influenced current career decision making processes. Evaluation also provides valuable feedback from students and highlights areas for improvement in future years.

Evaluation of the Institute is in two parts. Each year all students who attend the Institute have participated in evaluation by completing questionnaires at the beginning and end of the week. The first part of the evaluation focuses on analysis of this questionnaire data and is referred to as the Attendance Survey. The second part of the evaluation is a long-term follow-up survey of students who have
attended the Institute since 2008 and is referred to as the Follow-up Survey. Results from both surveys are reported below.

Ethics approval was granted from the UWA Human Research Ethics Committee. The Participant Information Sheet used in the study is appended (Appendix 9).

5.4.1 Overall aims of the evaluation

The overall aims of the evaluation were to: i) assess the extent that attending the Institute increased the level of consideration in psychiatry as a career; ii) assess the extent that attendance improved students’ level of knowledge and interest in psychiatry; iii) assess the long-term effectiveness of the Institute as a strategy to increase interest in psychiatry as a career; and iv) determine the career pathways of students who have attended since 2008.

5.4.2 Procedure

All students who attended the Institute were invited to take part in the Attendance Survey by completing hard copy questionnaires on day 1 (baseline) and the final day (post attendance). The questionnaires were specifically designed for the evaluation which was based on a pre/post design. In order to match baseline and post attendance data, each student was allocated an identifying number known only to the Institute co-ordinator. Students were informed of the purpose of the evaluation and told that questionnaire responses were anonymous and would not impact on their academic grades.

The baseline and post attendance questionnaires asked students to: i) assess the extent that they were currently considering psychiatry as a career; ii) assess interest
in, and knowledge of psychiatry and neurosciences; and iii) assess interest in, and knowledge of a number of topic and speciality areas which included mood disorders, anxiety disorders, psychotic disorders, cultural psychiatry, community psychiatry, forensic psychiatry, substance use, old age psychiatry, consultation liaison psychiatry, child and adolescent psychiatry, and research and the future of psychiatry. Each of these items was rated on a scale of 1-10 where 1 indicated low interest/knowledge and 10 high interest/knowledge. From 2011 onwards, a similar scale was included to rate the debate and stigma workshop. Student enjoyment and organisation of the Institute, comments on what they had liked most and least about the week, and if they would recommend it to others was also assessed.

In August 2014 a Follow-up Survey was undertaken. The Follow-up Survey aimed to determine the career pathways of students who had attended the Institute between 2008 and 2013. Students who attended in 2014 were not included as their career choices would be unchanged at the time of this survey being implemented. Respondents were asked about their current career and occupational status and how attending the Institute had impacted on their career decision making process. Respondents were also asked about factors considered important when making career choices; the impact of stigma on psychiatry as a career choice; and the support from family and friends in regards to their interest in psychiatry as a career.

The Follow-up Survey was conducted electronically using an online survey platform, Qualtrics [163]. Respondents were contacted by email and invited to participate by clicking on a link to the online questionnaire.
5.4.3 Statistical analyses

For both the Attendance Survey and Follow-up Survey, statistical analyses were carried out using IBM SPSS software, Version 22.0. Paired t-tests were used in the Attendance Survey to compare baseline and post attendance means on the interest and knowledge items. Mann-Whitney U tests were used to test for statistical differences between male and female students. In the Follow-up Survey, basic descriptive exploratory analysis was undertaken.

5.4.4 Attendance Survey results

Between 2008 and 2014, 117 students attended the Institute. All students completed both the baseline and post attendance questionnaires (response rate 100%). Thirty-five (30%) were male and 82 female (70%). The average age of attending students was 26.2 years, age range 20-53 years. Twenty-two (19%) students were over 30 years and these older students were among the cohort of UWA students who undertook the medical course at graduate entry level. Students from five different universities have attended over the past seven years. The majority were from UWA (107 students), followed by five from Notre Dame University (Fremantle), two from New Zealand universities, University of Otago and Auckland University, and three from the Chinese University of Hong Kong.

The number of students who were ‘definitely’ considering a career in psychiatry (those who scored the question as 8, 9, or 10/10) rose from 67 (57%) at baseline to 90 (77%) at the end of the week. The baseline mean increased significantly from 7.6/10 to 8.5/10 post attendance, paired sample t test, $p = 0.001$. Mann-Whitney U tests tested for statistical differences between male and female students. Despite
females making up 70% of the overall Institute attendees, no significant gender differences were found regarding consideration of psychiatry as a career at baseline ($p = 0.497$) or post attendance ($p = 0.699$).

Mean baseline scores for ‘knowledge’ ranged from 3.2/10 (forensic psychiatry) to 6.4/10 (mood disorders). The range of mean scores post attendance was 5.6/10 (cultural psychiatry) to 7.2/10 (mood disorders). Paired $t$-tests found that all knowledge areas had improved significantly by the end of the week.

The mean baseline scores for ‘interest’ ranged from 4.9/10 (old age psychiatry) to 7.6/10 for psychiatry. The post attendance mean scores for ‘interest’ ranged from 6.0/10 for old age psychiatry to 8.8/10 for interest in psychiatry. Paired $t$-tests found that the level of interest across all speciality and topic areas increased significantly by the end of the week. More detailed results are shown in Table 5.3.

Mann-Whitney U tests on ‘interest’ and ‘knowledge’ found some differences between male and female students. Female students rated significantly more highly than male students in five areas – baseline knowledge of neuroscience ($p = 0.024$), baseline interest in child and adolescent psychiatry ($p = 0.009$), post attendance interest in mood disorders ($p = 0.030$), post attendance interest in anxiety disorders ($p = 0.046$) and post attendance interest in child and adolescent psychiatry ($p = 0.003$).

The mean score for ‘enjoyment’ and ‘organisation’ of the Institute were 9.0/10 and 9.5/10 respectively. All students said that they would recommend the Institute to other students.
Table 5.3 Changes in self-reported level of knowledge and interest in subspecialty and topic areas

<table>
<thead>
<tr>
<th>Level of knowledge and interest in speciality/topic area on a scale 1-10</th>
<th>Baseline mean (sd)</th>
<th>Follow-up mean (sd)</th>
<th>Paired t test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td>Knowledge</td>
<td>5.7 (1.7)</td>
<td>7.3 (1.0)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>7.6 (1.1)</td>
<td>8.8 (1.1)</td>
</tr>
<tr>
<td>Neurosciences</td>
<td>Knowledge</td>
<td>4.2 (1.5)</td>
<td>6.2 (1.5)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>6.6 (1.7)</td>
<td>7.9 (1.5)</td>
</tr>
<tr>
<td>Psychotic disorders</td>
<td>Knowledge</td>
<td>5.9 (1.5)</td>
<td>7.0 (1.8)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>7.2 (1.9)</td>
<td>7.6 (1.8)</td>
</tr>
<tr>
<td>Mood disorders</td>
<td>Knowledge</td>
<td>6.4 (1.5)</td>
<td>7.2 (1.4)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>7.5 (1.7)</td>
<td>8.0 (1.4)</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>Knowledge</td>
<td>6.0 (1.5)</td>
<td>7.5 (1.5)</td>
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<tr>
<td></td>
<td>Interest</td>
<td>7.1 (1.8)</td>
<td>7.8 (1.5)</td>
</tr>
<tr>
<td>Cultural psychiatry</td>
<td>Knowledge</td>
<td>3.3 (1.8)</td>
<td>5.6 (1.8)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>6.0 (2.3)</td>
<td>6.6 (2.0)</td>
</tr>
<tr>
<td>Community psychiatry</td>
<td>Knowledge</td>
<td>4.1 (1.7)</td>
<td>6.3 (1.4)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>6.1 (2.0)</td>
<td>7.1 (1.9)</td>
</tr>
<tr>
<td>Forensic psychiatry</td>
<td>Knowledge</td>
<td>3.2 (1.8)</td>
<td>6.0 (1.4)</td>
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<tr>
<td></td>
<td>Interest</td>
<td>6.6 (2.6)</td>
<td>7.1 (2.1)</td>
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<tr>
<td>Substance use</td>
<td>Knowledge</td>
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<td></td>
<td>Interest</td>
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<td>Knowledge</td>
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<td></td>
<td>Interest</td>
<td>4.9 (2.0)</td>
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<td>Consultation liaison psychiatry</td>
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<td>3.8 (2.0)</td>
<td>6.2 (1.4)</td>
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<tr>
<td></td>
<td>Interest</td>
<td>5.6 (2.2)</td>
<td>7.3 (1.8)</td>
</tr>
<tr>
<td>Child and adolescent psychiatry</td>
<td>Knowledge</td>
<td>4.3 (2.0)</td>
<td>6.3 (1.7)</td>
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<tr>
<td></td>
<td>Interest</td>
<td>7.2 (2.5)</td>
<td>7.7 (2.2)</td>
</tr>
<tr>
<td>Research and the future of psychiatry</td>
<td>Knowledge</td>
<td>3.5 (2.0)</td>
<td>5.7 (1.5)</td>
</tr>
<tr>
<td></td>
<td>Interest</td>
<td>5.6 (2.6)</td>
<td>6.8 (2.1)</td>
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</tbody>
</table>
The student debate and stigma workshop were introduced into the Institute program in 2011, and this analysis is based on responses of the 46 students who attended between 2011 and 2014. Assessment of both these activities was made by rating on a scale of 1-10 the level of interest, information, and the extent that the session increased students’ knowledge of the material covered in each activity. The debate and stigma workshop both had a mean rating of 8.1/10 for interest, knowledge and information.

Students were also asked to provide written comments about the debate and stigma workshop. Examples of these comments are as follows:

‘Being able to research both sides of the argument before being presented with a lecture was incredibly useful in assisting and improving our knowledge of the topic. In addition it was really fun! I came away from the session feeling like I had a good grip of both sides of the topic.’

‘Debate exciting and post-debate discussion deepened my thoughts about psychiatry.’

‘Debate was a bit scary but I learned lots.’

‘The stigma session was a fantastic opportunity to share personal experiences of stigma in psychiatry, and to brainstorm ways of overcoming the stigma.’

‘Stigma workshop helped me reflect on my own prejudice.’

At the end on the week students were also asked for comments of what they liked most and least about the Institute. Most of the comments were overwhelmingly positive and include the following:
‘Wonderfully dynamic speakers who were fantastic to listen to.’

‘Absolute best part was Dr X explaining his pathway into psychiatry.’

‘Thank you very much for this great educational session. I’ve deepened and broadened my perspective in psychiatry.’

‘Amazing opportunity to learn about many areas of psychiatry and what psychiatrists do on a daily basis. I feel really excited about my future in this field.’

‘Has helped me make up my mind that psychiatry is definitely for me.’

‘Thank-you so much for a highly stimulating and thought provoking week for me. It has really challenged me in to considering psychiatry far more seriously.’

Comments about what was liked least mainly revolved around specific afternoon electives, the intensive and busy pace of the week, and likes and dislikes regarding the food at morning tea and lunch.

5.4.5 Follow-up Survey results

The 17 students who attended the Institute in 2014 were not included in the Follow-up Survey as they were still in medical school at the time of survey administration. Email addresses were not available for 11 of the ex-Institute students making a total sample size of 89. Of these 47 responded to the survey, 19 males and 28 females, response rate 53%.

The Follow-up Survey found that ten (21%) respondents were psychiatry trainees and another 11 (23%) were in their intern year. Twelve (26%) were enrolled on
other training courses which included nine undertaking GP training, one doing radiology and two anaesthetics. The remaining 14 (30%) were either in PGY3, working as Resident Medical Officers or still at medical school. For all interns attending the Institute had increased their interest in psychiatry as a career, and seven of them stated that they were currently seriously considering a career in psychiatry.

Respondents were asked to select factors that were important when considering which area to specialise in. As can be seen from Table 5.4 work/life balance was selected by 85% of respondents; intellectual challenge 63%; use of clinical skills 54%; and having the option to work part time by 50%. There were some differences between male and female respondents. For example, 14 (36%) males and 25 females (64%) cited work/life balance as an important factor; 8 males (35%) compared with 15 females (65%) cited the option to work part time as important; and 10 males (40%) compared with 15 females (60%) reported the opportunity to use clinical skills as important.
### Table 5.4 Factors of importance in career choice

<table>
<thead>
<tr>
<th>Career factor</th>
<th>Number (%) who selected factor as important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work/life balance</td>
<td>39 (85)</td>
</tr>
<tr>
<td>Intellectual challenge</td>
<td>29 (63)</td>
</tr>
<tr>
<td>Use of clinical skills</td>
<td>25 (54)</td>
</tr>
<tr>
<td>Option to work part time</td>
<td>23 (50)</td>
</tr>
<tr>
<td>Earning potential</td>
<td>18 (39)</td>
</tr>
<tr>
<td>Career advancement opportunities</td>
<td>18 (39)</td>
</tr>
<tr>
<td>Research opportunities</td>
<td>14 (30)</td>
</tr>
<tr>
<td>Rural work</td>
<td>12 (26)</td>
</tr>
<tr>
<td>Evidence base</td>
<td>7 (15)</td>
</tr>
<tr>
<td>Prestige in society</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Prestige among public</td>
<td>2 (4)</td>
</tr>
</tbody>
</table>

The views of family, friends and societal attitude towards psychiatry as a career choice were also explored. Twenty-eight (70%) out of the 40 participants who responded to the question said that family and friends had supported their interest in a career in psychiatry. When asked if mental illness stigma had an impact on their consideration of psychiatry as a career, ten (21%) responded that stigma had a positive impact, five (11%) that it had a negative impact and 32 (68%) that it had no impact. There were also some interesting additional narrative comments of the positive impact of stigma including the following:

‘The opportunity to contribute towards social justice is a key motivator for me to work in psychiatry. Psychiatric patients are
among the most stigmatised and disadvantaged people in the community. They are therefore most in need of advocacy and high quality, patient centred care.’

‘I feel that in the tertiary system people with mental illness sometimes receive suboptimal care and are often but into boxes according to their psychiatric diagnosis. I think most clinicians do acknowledge that this is an issue but still change needs to be made and I would like to play part in this.’

5.4.6 Discussion of evaluation results

Results of the Attendance and Follow-up Surveys show that the Institute has been successful in encouraging students to pursue psychiatry as a career and in raising overall interest and knowledge in psychiatry and its subspecialities. The Attendance Survey found that the number of students ‘definitely’ considering a career in psychiatry rose significantly by 23, from 67 at baseline to 90 at the end of the week. While not all of these will ultimately become psychiatrists, the Follow-up Survey found that 10 (21%) students who had participated in the Institute since 2008 were currently psychiatry trainees and seven interns were ‘definitely’ considering psychiatry as their career. Similar rates of acceptance to psychiatry training program have been found among students who have participated in the University of Maryland’s CAPP and Toronto’s Psychiatry Institute [86,91].

Although the Institute has been successful in increasing interest in psychiatry as a career choice, limitations of the Follow-up Survey make it challenging to accurately assess the number of past students who have actually become psychiatry trainees. The current and future career pathways of ex-Institute students varies, and it is
difficult to assess how many are either on the psychiatry training program or planning to apply. This is due in part to the time lag between attending the Institute and making career decisions regarding area of specialisation. Career decisions are made during medical school or up to three years post graduate [50], and at the time of attending, the 2008 Institute students still had one or two more years of medical school followed by an intern year and possibly further years as a Resident Medical Officer. This means that it could be up to four or five years before starting as a trainee in psychiatry. For students who attended the Institute in subsequent years this timeline is even longer. Other difficulties have been in tracking students longitudinally as not all stay in Western Australia and those who leave to go interstate or overseas become lost to follow-up. A further limitation of the study concerns the response rate to the Follow-up Survey. It is uncertain if all ex-Institute students received the email inviting them to participate in the survey and this may account for the relatively low response rate of 53%. Those who responded may have more interest in psychiatry than non-responders, resulting in possible response bias.

The stigma workshop was highly rated by students and successful in engaging them in open and dynamic discussions about stigma and providing them with skills to address it when they are confronted with stigmatising and other negative comments. It was encouraging that in the Follow-up Survey, 21% responded that stigma had a positive effect on their consideration of psychiatry as a career, and for 68% it had no effect.
Evaluation of the Institute and feedback received from students, presenters and others involved over the last eight years has been overwhelmingly positive. Enrichment programs such as the Institute provide academic psychiatrists and other psychiatry educators with a good opportunity to build positive relationships with students who are interested in psychiatry as a career. They enable students to maintain interest in psychiatry as the clinical years of the medical course progress and the career decision making process becomes more serious. The establishment of similar programs in Australia and overseas has the potential to play an important role in encouraging students to join the psychiatric workforce in the coming decades.

5.4.7 Medical school and community outcomes from the Institute

Over the years there have been several unanticipated positive outcomes to emerge from the Institute. A student-led mental health interest group known as Students Passionate About Mental Health (SPAMH) was established by a motivated group of students who attended in 2011. SPAMH aimed to raise awareness of mental health, reduce stigma towards mental illness and promote a positive perception of mental health within the university. The students organise several events each year which include a Q & A panel discussion which usually takes place during Mental Health week, campus-wide activities on RUOK Day, and coffee club meetings throughout the year. SPAMH has recently been integrated into the medical student society and is now known as WAMSS Mental Health.

A second outcome has been support for the Institute from a local artist (PM) who has provided donations towards the Institute through her annual art exhibitions.
PM has a passionate interest in many mental health related issues and recognised that supporting the Institute would make an important contribution to attracting medical students towards psychiatry as a career which will have a beneficial impact on the treatment and care of people with mental illness. PM has also implemented the Decorate a Duck for Depression auction. The aim of this extremely novel and unique idea was both to raise awareness of stigma associated with mental illness as well as additional funds in support of the Institute.

PM organised a number of her artistic colleagues to decorate wooden ducks approximately 25 cms tall. Over the last few years a total of 200 ducks have been decorated - some painted, others covered in beautifully colourful and intricate mosaic and glass designs, some humanised and dressed in clothes, some with boots on - each with its own character and personality. PM’s contribution and involvement has been a positive influence on the students’ experience of attending the Institute.

5.5 Establishment and implementation of an enrichment program

Based on the Candidate’s experience of co-ordinating the Claassen Institute for eight years, the following practical tips and suggestions for academic psychiatrists who are interested in establishing and implementing similar initiatives has been developed.

For university departments and Schools who are considering establishing an enrichment program two differing approaches can be adopted. Firstly, the program can be structured as a series of elective modules and integrated throughout the
medical course over a period of years as occurs in the CAPP and Study Focus on Psychiatry program [87,86]. The administrative and curricular requirements for establishing this may be prohibitive for many departments making it unfeasible, despite the benefits in terms of improving attitudes and recruitment to psychiatry. Alternatively, and more commonly an intensive standalone summer school or institute program that includes seminars, elective site visits and social activities can be established.

5.5.1 Where to start

A good starting point is to team up with like-minded colleagues to gain a commitment to proceeding with establishing a program. Initial questions to consider are:

- Do we have the support and enthusiasm of colleagues and heads of departments to do this?
- Do we have the time to devote to establishing, setting up and implementing a program?
- What do we want the program to achieve? What are its specific objectives?
- Do we have the financial resources required to run a program?
- Can we deal with the logistics, for example are there rooms and equipment available to run seminars and other sessions?

If the answer to these questions is ‘yes’ then more detailed planning can begin.
5.5.2 Program length, content and structure

The basic structure of the program needs to be decided. Summer schools and institutes are often run as five day programs, but can be less if resources are limited. Other possibilities are to run the program over a weekend or series of weekends. The length of the program is often determined by the budget and time available. Obviously the longer the program the more content and activities can be covered, however costs may be higher.

An important consideration is when to run the program and this depends on the academic calendar, timing of exams and other curricula matters. Regardless of the length and timing of the program, it is important to gain the support of enthusiastic, dedicated and charismatic teachers and professionals who are willing to invest their time, energy and expertise into working on setting up the program.

An introductory welcome by the department head and allocation of time for icebreakers will get the program off to a good start. Students at the Claassen Institute are asked to introduce themselves and tell the group something that is unique about them. Offering a combination of seminars and elective visits each day is a good basic structure to follow. Two or three morning seminars presented by local experts and afternoon elective visits on a few days provides a balance of different activities. Seminars that cover topics not taught in the curriculum in particular areas of psychiatric research and/or subspecialisation that students may not be familiar with will raise career interest and improve knowledge of different aspects of psychiatry. Seminars of one hour including question time is optimal. It
is important to ensure that seminars are engaging and allow students to interact with the presenters and each other.

Attending clinical elective sessions is an important component of a program, however organising them can be time consuming and the arrangements need to be made well in advance of the program start date. Ideally, students attend electives in groups of 2/3. Arranging the visits with local mental health service providers that students have not had contact with during the clerkship will broaden their exposure to, and knowledge of the allied mental health system. These include community providers, specialised hospital departments and services in the not for profit and non-governmental sectors.

Opportunities such as morning tea and lunch to meet and chat informally with consultants and registrars are also well received and are easily integrated into the program. Presentation of certificates of participation provides students with a sense of achievement and is a good way to end the program. Photographs also provide mementos for students and presenters alike.

5.5.3 Organising the program

Establishing an Organising Committee will assist with the various tasks that need to be undertaken to implement the program. These include developing the program content and deciding which topics to cover; inviting presenters; promoting the program to the targeted students; assessing applications and selecting successful candidates; organising catering and social events; and any other tasks necessary for the smooth running of the program.
The program can be promoted to the target group of students directly through the global email system or online learning management system; posters/flyers distributed around the campus and other places where students congregate; or through a short talk by the program co-ordinator at the beginning of a lecture or tutorial. Some programs are promoted to students from several universities and most have a formal application process whereby students are required to submit a written application detailing why they are interested in attending.

Administrative support is also essential to assist with logistical matters such as room hire, catering, accommodation and travel for students, if required. Naming the program, developing a logo and other artwork that can be used in promotional materials is a good way to create a sense of identity.

5.5.4 Choosing which students to participate

In most programs the number of places available is limited. Twenty is an optimal number that encourages a good group dynamic and enables students, presenters and organisers to get to know one another. This means that careful consideration needs to be given to deciding which students to target and select to participate in the program. A main aim of most programs is to attract students to choosing psychiatry as a career. With this in mind there are a number of different selection options that can be considered. Table 5.5 lists some advantages and disadvantages of choosing pre-clinical versus clinical students, and those ‘thinking about’ a career in psychiatry compared with those who have ‘definitely’ chosen psychiatry as a career. While there is no clear consensus on which students to select, targeting clinical students who have undertaken a clerkship and are closer to making career
decisions will make the experience more meaningful and provide program
organisers with the opportunity to build on and extend their existing interest and
knowledge.
<table>
<thead>
<tr>
<th></th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
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<tbody>
<tr>
<td><strong>Pre-clinical years</strong>&lt;br&gt;<strong>only</strong></td>
<td>• Increases career interest in early stages of medical school.  &lt;br&gt;• Opportunities to establish ongoing mentoring relationships to maintain long term interest.  &lt;br&gt;• Improves knowledge and skills which will give a head start to the clinical clerkship.</td>
<td>• Less prior knowledge of core clinical psychiatric knowledge which may limit interaction and engagement with program content.  &lt;br&gt;• Initial interest may deteriorate as student progress through medical school.  &lt;br&gt;• Program may need to be modified to account for lower knowledge level.  &lt;br&gt;• Electives visits may not be appropriate.  &lt;br&gt;• Excludes students in clinical years who have become interested in psychiatry post clerkship.</td>
</tr>
<tr>
<td><strong>Clinical years and ‘decided’ on psychiatry as a career</strong></td>
<td>• Introduces students to areas of subspecialisation that they have little knowledge of which can help with career planning.  &lt;br&gt;• Program content can be targeted at a higher, more challenging level.  &lt;br&gt;• Opportunities to establish ongoing mentoring relationships to maintain long term interest.</td>
<td>• Pool of potential applicants may be small.  &lt;br&gt;• Excludes ‘thinking about’ and ‘undecided’ students.  &lt;br&gt;• Excludes pre-clinical students who may be interested.  &lt;br&gt;• Preaching to the converted.  &lt;br&gt;• If recruitment rates are used as a long term outcome measure, may positively skew success of the program if they do pursue.</td>
</tr>
<tr>
<td><strong>Clinical years and ‘thinking about’ psychiatry as a career</strong></td>
<td>• Introduces students to areas of subspecialisation that they have little knowledge of which can help with career planning.  &lt;br&gt;• Provides opportunity to ‘win them over’ and ‘get them over the line’ regarding psychiatry as a career.  &lt;br&gt;• Program content can be targeted at a higher, more challenging level.  &lt;br&gt;• Opportunities to establish ongoing mentoring relationships to maintain long term interest.</td>
<td>• May put them off psychiatry as career.  &lt;br&gt;• Excludes ‘decided’ students denying them the opportunity to learn more about psychiatry.  &lt;br&gt;• May alienate ‘decided’ students.  &lt;br&gt;• Excludes pre-clinical students who may be interested.  &lt;br&gt;• If recruitment rates are used as a long term outcome measure, may negatively skew evaluation of the program if they decide not to pursue.</td>
</tr>
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In the programs reviewed in section 5.2 there was little consistency regarding the selection of students, year level at the time of attending the program and current level of interest in psychiatry as a career. Some programs accepted first year students only [86], others first and second year students [91], others required students to be in the clinical years of the course [92,230] and some accepted students from any year of the course [224,225]. Programs that specifically select students who have expressed a degree of interest or are already decided on psychiatry as a career may lead to more students taking up a psychiatry residency, and as a consequence appear more successful compared with those that select undecided or ambivalent students.

Regardless of which students attend from the student perspective there are a number of advantages in participating in a program. Attending a summer school or institute will assist students in making a career decision – even if they decide that psychiatry is not their choice participating will have played an important part in the process. Attending a program also increases interest and knowledge in the discipline of psychiatry and improves attitudes towards psychiatry more generally. Students enjoy mixing with like-minded peers who all share a common interest in psychiatry. Students have a lot of fun participating in summer school programs and are great advocates for word of mouth recommendation of the program to their peers. Some ex-students may volunteer to be involved in the organisation of future programs and this will help to ensure that a student perspective is maintained over time.
5.5.5 Program costs

The program can be adapted to the available budget and resources. Catering is one of the major overheads, and while this can be done relatively cheaply, program length and student numbers will impact on the daily catering costs. Providing morning tea and lunch and breakfast if there are early morning starts are standard components of most programs. Evening social events can add substantially to the overall budget, but costs can be minimised by choosing a reasonably priced venue. One of the highlights of the Claassen Institute is the formal evening dinner to which students, presenters and others involved in organising the Institute are invited. This is also a way to thank everyone for giving their time to the program.

Other costs include transport to clinical site visits. Using taxis is an easier and more time efficient method of transport for students to get to their afternoon clinical electives but may be more costly than using public transport. Costs can be reduced by choosing elective sites that are closer to the program venue and arranging for students to attend in small groups. If the budget permits, assisting non-local students with subsidising travel and accommodation costs and inviting special guests as speakers are optional extras.

Raising funding externally from the local health department, private sector or other sources that have an interest in supporting mental health causes can be considered. Jointly collaborating and partnering with other universities and/or health organisations to share costs may be more feasible in some jurisdictions [228]. Running a program bi-annually could be an option if funding is limited [224]. There
also needs to be a commitment for long term funding of the program to ensure that it is sustainable over time.

5.5.6 Program evaluation

Evaluation is important to ensure that the program meets its aims and goals. Evaluation is usually undertaken by administering questionnaires at the beginning and end of the program. Some programs have designed their own questionnaires [91,92] for this purpose and others have used previously validated instruments [224,225]. Alternatively, a combination of both can be utilised. Regardless of which questionnaires are used demographic information should be included and there should be an opportunity for students to provide open ended feedback about the content and structure of the program. As well as questionnaires, focus groups can be convened which will provide a useful qualitative perspective to data collection.

Timely response to student feedback is especially important as this will improve the program into the future and ensure that it maintains relevance for students. As students often attend summer schools as extracurricular activities in their own time, it is important to ensure that their expectations are met and that program aims and goals are achieved. A further benefit in evaluating the program is to provide evidence of its success which may be important in securing long term funding. Formal evaluation of the program will require ethics approval and this needs to be organised well in advance of the start date.
As final career decisions may not be made for some years after a student has participated in a program [45,47], longitudinal evaluation to determine if the ‘here and now’ interest endures through the remainder of medical school and internship should be embedded within the evaluation. There may be difficulty in achieving this due to problems in following students over longer periods of time, especially after graduation from medical school when their university email address and other contact details change. Recording a non-university email address so that students can be contacted to participate in further surveys in the post program years can overcome this. Finally, as the trend towards the establishment of more enrichment programs grows it is important that academics and researchers involved in the program publish and share their experiences with others to expand the evidence base.

5.6 Enrichment program conclusion

For students who have some level of interest in psychiatry as a career, maintaining this as they advance through the clinical years can be achieved by implementing innovative enrichment programs such as psychiatry electives, summer schools and institutes. Psychiatry enrichment programs are an emerging concept in medical schools that have the potential to improve the profile and image of psychiatry to make it a more attractive and competitive medical speciality. From a student perspective attending an enrichment program increases interest in the discipline of psychiatry and improves attitudes towards psychiatry more generally. Over the last eight years the Claassen Institute has been successful in attracting a self-selected group of students who have a pre-existing level of interest towards psychiatry as a
career. These students have greatly enjoyed attending the Institute and it has been a valuable learning experience that has increased their knowledge and understanding of the depth and breadth that psychiatry has to offer that is not always visible during core teaching activities.

In terms of addressing the recruitment crisis in psychiatry more widely however, the evidence is less conclusive. Further research and evaluation of programs is needed to more conclusively demonstrate their effectiveness as a strategy to attract more students to a career in psychiatry.
CHAPTER 6

GENERAL DISCUSSION AND CONCLUSIONS

6.1 Introduction

The body of work discussed in Chapters 1 – 5 of this thesis contains a detailed exploration of issues related to the recruitment of medical students to a career in psychiatry. These issues include medical students’ attitudes towards psychiatry; the impact of stigma on psychiatry as a career choice; and the potential of enrichment programs to encourage students to choose psychiatry as their career pathway. This final chapter aims firstly to elaborate on the main findings that have arisen from the various components of the thesis and, secondly to discuss some additional challenges of relevance to this area of medical education research. Finally, directions for future research and concluding comments will be made.

6.2 Addressing stigma among medical students

Psychiatry is not a popular career choice for medical students. Results of the international study reported in Chapter 3 of this thesis found that in a sample of 1544 students from six countries, overall only 3% of pre-clinical students and 3.5% of clinical students selected psychiatry as their ‘chosen’ career. The systematic review of students attitudes towards psychiatry detailed in Chapter 2 concluded that despite some negativity students’ attitudes towards psychiatry are to a large extent positive, but interest in psychiatry as a career is low. The systematic review
of clerkship impact reported in Chapter 4 found that attitudes had improved by the end of the clerkship, however interest in psychiatry as a career increased in only half of the reviewed studies. Despite positive attitudes to some aspects of psychiatry, stigma as it relates to medical students exerts a considerable influence on their views, in particular to consideration of psychiatry as a career. There is persistent evidence from a number of studies including the clerkship impact study and international study conducted by the Candidate, that students perceive a career in psychiatry to have low prestige and status in the general community, among other medical specialists, and among friends and family and this carries considerable weight in the career decision making process.

The relationship between medical students and the impact of stigma on their perceptions of mental illness, psychiatry as a discipline and career is complex. Adding to this complexity are socio-cultural differences and cross cultural diversity, variations in teaching quality and clerkship experiences between medical schools, and gender differences. The influence of multiple factors that are both intrinsic and extrinsic to each medical school environment means that in order to improve stigmatising attitudes a number of different approaches are needed with no single or generic solution likely to overcome the negative impact that stigma has on students’ attitudes towards psychiatry.

6.3 Teaching to reduce stigma and attract students to psychiatry

Some aspects of stigma arise from the influence of family, friends and the general community and are potentially less modifiable within the medical school setting
Exploring the psychiatry curriculum and how academic teaching staff function in the teaching environment provides a good starting point from which to address stigma and ‘undo’ some of the pre-existing negative perceptions that students may have towards psychiatry. Carefully designed educational programs and interventions may be effective in reducing stigma [141,143]. Introducing such initiatives to the pre-clinical years may help to change negative behaviours and prepare students for the clinical clerkship [168]. While open discussion of stigma and anti-stigma training may not be seen as a core teaching priority by all academics, it is nonetheless important to provide students with skills to overcome damaging and negative perceptions towards psychiatry, particularly as they move into the clinical years [120].

As well as addressing stigma through targeted interventions, enhancing the learning experience that students have of psychiatry both at the pre-clinical and clinical level is also part of the solution to improving attitudes and making psychiatry a more attractive career proposition for students [6,34,181,232]. Differences in learning between pre-clinical and clinical students needs to be recognised [6] with emphasis on the teaching of effective communication skills and behavioural science made in the pre-clinical years [5,231].

Poor quality teaching has been reported as a factor in the formation of negative attitudes towards psychiatry while at medical school by students in several studies [100,109,233]. While the impact of clerkship study carried out by the Candidate found that overall, students were positive about teaching during the clerkship and perceived psychiatrists as positive role models, in many medical schools psychiatry
teaching has a low status [234] and is regarded negatively by other clinical academics [135]. A radical overhaul of the psychiatry curriculum may not always be a feasible or practical undertaking in courses that are horizontally and vertically integrated, in courses that are under resourced and unsupported at a Faculty level, or in courses that have multiple teaching sites and are administratively decentralised. Similarly, influencing the medical school admission process to ensure its relevance to psychiatry [51,72] particularly in the selection of students to graduate medical courses from humanities and non-science backgrounds who typically show more interest in psychiatry [5,112] may be less achievable. There are however a number of strategies that can be more easily implemented into psychiatry curricula that may be effective in reducing stigma and making psychiatry more attractive as a career choice. These include good course organisation and co-ordination [133]; effective role modelling by academic staff [181]; improvements to the pre-clinical curriculum content to better prepare students for clerkships [118,168,181] an increase in the amount of pre-clerkship teaching [215]; integration of psychiatry teaching in to other clinical rotations [164,222]; better integration of clinical and basic science teaching [120,222]; tutorial teaching that is facilitated by academic psychiatrists [220]; improving training for clinical tutors [181,235]; encouragement of experiential and self-directed learning for students [181]; development of on-line teaching and learning resources [136]; and the implementation of electives and enrichment programs [50,120,136].
6.4 The relevance of the informal and hidden curricula to psychiatry

Much of what is taught and what students learn throughout medical school comes from the informal and hidden curricula [236]. Hafferty (1998) defines the informal curriculum as, ‘An unscripted, predominantly ad hoc, and highly interpersonal form of teaching and learning that takes place among and between faculty and students’. The hidden curriculum is defined as, ‘A set of influences that function at the level of organisational structure and culture’ [236]. Identifying specific components of the hidden curriculum can be an elusive process. As well as the underlying structure of the institution and how it is organised, implicit to the hidden curriculum are the more openly and explicitly demonstrated behaviours and interpersonal interactions between students and clinical academics [237]. Some of these involve negative and unprofessional behaviours that are inadvertently role modelled during tutorials, ward rounds and other teaching activities [237]. However, a great deal of the teaching in the hidden curriculum is by charismatic and passionate teachers who provide positive role models and form ongoing and long lasting mentoring relationships with students [43,188,205]. Identifying positive role models among teaching academics that lead to mentoring relationships can be beneficial in helping students with personal and professional development, emotional support, providing ongoing career advice, involvement in research, and through offering practical assistance such as providing references for training applications and scholarships [238-240]. These informal relationships between students and academic teachers that are formed outside the formal curriculum and teaching
environemnt play an influential role in reducing stigma and encouraging recruitment to a career in psychiatry [40,181,184].

6.5 Enrichment programs, stigma reduction and career promotion

While the clerkship experience will be the deciding factor in the career decision making process for a small proportion of students, for those who are interested and considering psychiatry as a ‘strong possibility’ the implementation of strategies that maintain interest post clerkship would be beneficial. This is important, as for many students career decision making is in a state of flux during medical school, and for some this continues post-graduation [45,178]. The international survey conducted by the Candidate found that 16.5% of pre-clinical students and 14% of clinical students rated a career in psychiatry as a ‘strong possibility’. Furthermore, 29% of pre-clinical and 24% of clinical students had ‘no opinion’ regarding psychiatry as a career choice. The views of these students are potentially modifiable and providing a positive learning experience may encourage them to more seriously consider psychiatry.

Psychiatry enrichment programs such as summer schools, psychiatry institutes and electives can play an important part in enabling students interested in psychiatry to have a more in depth educational exposure to the speciality beyond the clerkship [88,223,241]. The establishment of enrichment programs is becoming more common. The review undertaken by the Candidate identified 11 such programs that aimed to provide students with an extended exposure to psychiatry and promote psychiatry as an attractive career pathway. While developing and
implementing an enrichment program may add to existing workloads, the responsibility need not fall solely upon university and hospital based academics. Health departments, the private sector and training Colleges also have a vested interest in improving recruitment rates to psychiatry. Joint collaboration in the establishment, funding and implementation of enrichment programs and other strategies that raise interest in psychiatry among medical students could be of mutual benefit to all stakeholders.

Similarly, in recent years several national colleges of psychiatrists have developed recruitment strategies that target medical students. For example, the U.K. Royal College of Psychiatrists has an active Recruitment Strategy (2011-2016) that includes detailed careers information on the website, promotional videos, (e.g. A Different Life, and Beards and Bowties), blogs and other relevant and useful information [242]. In the recruitment strategy the establishment of summer schools is specifically recommended and some brief information of how this can be achieved is provided [243]. In its 2015-17 Strategic Plan, the Royal Australian and New Zealand College of Psychiatry (RANZCP) also recognises the issues associated with recruitment and attraction of students to psychiatry as a career and includes the promotion of interest in psychiatry among medical students and junior doctors as part of its recruitment strategy. The RANZCP website has a dedicated section for students to access a range of information which includes a Psychiatry Interest Forum that enables students to participate in relevant discussions and keep up to date with College events and activities [244].
Enrichment programs also offer a good opportunity for psychiatry departments to demonstrate excellence and innovation in teaching. Over time, an innovative and excellent teaching program might receive a teaching award, which could have a positive impact on staff satisfaction and morale. It may also raise the profile of psychiatry Faculty wide to positively promote it to non-psychiatry colleagues involved in medical education and reduce the ‘badmouthing’ and negativity that many specialists have towards psychiatry [135,166,167].

There are several additional outcomes of enrichment programs that may be either explicit to the program aims or part of its ‘hidden curriculum’. Enrichment programs are an ideal environment within which to address stigma and provide students with knowledge and skills to overcome its negative effect. The stigma workshop introduced to the Claassen Institute in 2011 was successful in engaging students in open and dynamic discussions about stigma. It helped them to develop advocacy skills to use when confronted with negative comments from others regarding mental illness in general and towards their choice of psychiatry as a career.

Mentoring can also be incorporated as a component of an enrichment program with the additional benefit that students will be matched with a senior academic or clinician who shares the same career aspirations and goals, and has faced similar career decision making processes. Mentoring is an integral component of the Zurich Study Focus on Psychiatry with 87% of students reported being ‘very satisfied’ or ‘satisfied’ with the mentoring relationship [87].
6.6 Selection of students to participate in enrichment programs

Determining the success of an enrichment program in increasing recruitment of students to a career in psychiatry depends on a number of factors including the content and structure of the program; which students are targeted to participate in the program; when students are surveyed regarding their career choices; and how students are followed up longitudinally.

If students who have already decided on psychiatry as a career are selected to attend, the program may serve only to broaden their knowledge and introduce them to different areas of subspecialisation. Evaluation will show that the program is successful in increasing recruitment to psychiatry. However, if students who are ‘thinking about’ or those for whom a career in psychiatry is a ‘strong possibility’ but are not necessarily committed participate, evaluation may show the program to be less successful with fewer students matching to psychiatry. That is not to say that the program has not been ‘successful’, as for those students attending may well have helped them in their career decision making process by ruling psychiatry out.

Secondly, analysis of pre and post program survey data invariably shows an increase in career interest by the end of a week which has been specifically designed to raise interest in psychiatry as a career. This does not mean for certain that those students who reported a definite intention to choose psychiatry will follow through with their choice. Only longitudinal surveys or access to matching databases can more accurately determine this. A major critique of the current evidence of the effectiveness of enrichment programs as a recruitment strategy is
the paucity of objective evidence due to a lack of long term follow-up evaluation of existing programs.

The challenges of conducting long term evaluation of an enrichment program were discussed in Chapter 5. Results from the three programs that have been evaluated long term, including the Claassen Institute show that between 21% and 70% of students who attended the program matched to psychiatry training after graduation from medical school [86,91,92]. However, there are still a number of students who have attended enrichment programs that follow different career pathways, so the value of enrichment programs in attracting more students to a psychiatry career is uncertain. Those who attend an enrichment program and match into postgraduate psychiatry training may well be students for whom psychiatry had been their long term chosen career.

6.7 Challenges in medical student survey research

Medical education research in this area depends heavily on surveying students, usually by asking them to complete various questionnaires. Conducting research with medical students as participants is becoming more challenging in an environment where students have heavy workloads and are frequently asked to complete surveys and questionnaires for research and course evaluation purposes. The difficulties are compounded if the research involves students from outside of the researchers own university. Heads of department are often conflicted between wanting to be part of the research process and at the same time protecting their students from being ‘over surveyed’. The process of gaining ethics approval from
multiple sites, especially where the researcher is not a staff member is onerous and can take many months. It is essential to form good working relationships with collaborators, but when academic workloads are high and the individuals do not know each other personally this can be difficult. A lot of goodwill is required in order to achieve a successful and fruitful working relationship which is largely maintained through email correspondence. In the absence of funding, which is often the case in this kind of research, goodwill can be further stretched.

When agreement has been given by a medical school to collaborate in a survey based research project there are a number of steps that need to be taken to get the project up and running. Ethics approval is needed, a decision on how the survey will be administered needs to be made, a timeline established and agreement on data and results sharing made.

There is a growing reluctance by department heads and Deans to allow the administration of hard copy questionnaires for students to complete during tutorial or lecture time. This is partly because timetables are often crowded and finding a 15 minute slot for students to fill in a questionnaire can be problematic. Confidentiality is also seen as an issue by some, although this can largely be overcome by not including identifying information on the questionnaires. Students too are reluctant to complete yet another questionnaire that they feel has no relevance to their studies, and there is a growing feeling of apathy and ‘survey fatique’.
Electronic administration of surveys offers an alternative to paper based surveys. However, there are a number of issues involved in this too. Firstly, the researcher needs to have access to a suitable survey platform. While free services such as Survey Monkey can be an option, for more complicated surveys this may not be suitable and fees may be incurred. The paper version needs to be successfully converted into electronic format and thoroughly tested and trialled before administration to the target group of students. Administrative assistance is crucial as surveys are usually promoted to students in a global email or through their Learning Management System.

The main problem associated with electronically administered surveys is a poor response rate. Students are strategic with the use of their time and many will not prioritise participating in an unsolicited research project, especially when they may receive many such requests over the course of a semester. One way of overcoming this is to offer an incentive to students to participate in the project. An incentive needs to be of relevance and appropriate to students and sufficiently attractive to gain their attention when an email arrives in their inbox. It will also depend on the funds available to the researcher. Vouchers may not be highly rated, but are an affordable option and the value can be determined dependent on available funding. Equipment such as a tablet or iPad may be a more attractive incentive to students but more expensive for the researcher. Offering two prizes can be considered. As an email address is required for a student to enter a prize draw, it is important that the survey is set up in such a way that confidentiality of questionnaire responses is guaranteed for those who decide to enter. It is also important to publicise the
winner of the prize in some way so that students can see the legitimacy of the research (even if they were not the lucky winner). An advantage of electronic survey administration is that students can be sent a follow-up reminder which may improve the response rate.

In the international study conducted by the Candidate, the process of including students from eight universities and six countries was onerous. Firstly, initial contact was established with a potential collaborator using existing academic networks and recommendations from colleagues. When agreement to participate from a Faculty Dean or department head had been reached, decisions on how to administer the survey (paper based or electronic) were made and ethics approval gained. It was also necessary to liaise with administrative staff at each university to assist with survey implementation and other practical issues, and respond to enquiries and concerns throughout the process.

It is likely that electronically administered surveys will become a standard method of data collection in future studies involving medical students. Information sharing between researchers will help to discern the most effective way of conducting research in this way to improve response rates and student participation.

### 6.8 Future research directions

There are a number of areas of further research that will assist in improving understanding of the interplay of factors involved in improving students’ attitudes towards psychiatry, reducing stigma and attracting medical students to a career in psychiatry. These include:
i. A focus on the design, implementation and evaluation of stigma reduction interventions to determine what works best to improve negative attitudes and behaviours towards psychiatry;

ii. Determining the components of the clinical clerkship that students will gain an optimum learning experience from will help psychiatric educators to structure the psychiatry curriculum to address both the required and relevant educational outcomes, and maximise opportunities to improve attitudes towards psychiatry, reduce stigma and increase the number of students who are considering psychiatry as a career;

iii. Longitudinal studies where the same students are surveyed throughout the years of medical school to assess how their career decisions fluctuate is essential in order to better understand the decision making process and target strategies more effectively; and

iv. The design, implementation and evaluation of enrichment programs in psychiatry will expand the existing evidence base and determine more precisely their role and effectiveness in the attraction of students to a psychiatry career.

6.9 Conclusion

There is a growing recognition and consensus of the need to act proactively to ensure that the psychiatric workforce remains sustainable into the future and is able to meet the increasing demand for mental health services globally. Stigmatising views of medical students towards patients with mental illness,
psychiatry as a discipline and a career choice continue to be challenges that need to be recognised and given serious attention across all stages of the medical school curriculum. Psychiatric educators should be aware of the positive role that the informal and hidden curricula can play in this process, and of its significance in reducing stigma and raising the profile and image of psychiatry and psychiatrists. Overcoming negative attitudes of other medical specialists, family members, friends and the broader community towards psychiatry and psychiatrists also remain ongoing challenges that are less easily modified within the educational setting, yet impact on the recruitment of medical students to a career in psychiatry.

Innovative enrichment programs show promise as a means of attracting more students to seriously consider psychiatry as a career. Furthermore, anecdotal evidence from the Claassen Institute suggests that there is also a potential for such programs to raise the profile of psychiatry among other specialists in both academic and clinical settings. They enable students to maintain interest in psychiatry as the clinical years of the medical course progress and the career decision making process becomes of greater relevance. Evaluation of the Claassen Institute and feedback received from students, presenters and others involved in its implementation over the years has been overwhelmingly positive. The establishment of similar enrichment programs can play an important role in future proofing the psychiatric workforce in the coming decades. Students with specific interest in psychiatry are also playing an important part in the destigmatisation process. A number of medical schools have established student led mental health interest groups which aim to encourage positive views towards psychiatry among students, demystify and
destigmatise mental illness and promote psychiatry, both as a discipline and potential career.

Recognition of the recruitment problems by influential professional associations and organisations including the World Psychiatric Association and several national colleges has seen a growing momentum and genuine commitment by them to develop initiatives, programs and activities to both encourage medical students towards a career in psychiatry and provide support for early career psychiatrists. Endorsement of initiatives such as enrichment programs and other strategies to destigmatise psychiatry at an international and national level will provide much needed encouragement and support for medical schools and heads of psychiatry departments to embark on establishing innovative projects at the local level.

A recent editorial by Kristiansen and colleagues (2015) depicts a growing optimism among the discipline and profession that will attract future generations of the brightest and best students to psychiatry [247]. They write, ‘Psychiatry is an upcoming specialty, which interests and attracts medical students. This generation carries a huge potential for psychiatry. It is up to the psychiatrists currently in charge to involve, engage, and share their knowledge and experience with the students who will then, hopefully, enlist to become future colleagues’. This sentiment captures the enthusiasm that motivates many academic and clinical psychiatrists the world over who are passionate about teaching and committed to inspiring medical students to choose psychiatry as their life long vocation.
REFERENCES


221. Lyons Z. (2014) Impact of the psychiatry clerkship on medical student attitudes towards psychiatry, and to psychiatry as a career: A systematic review. Academic Psychiatry 38:35–42.


## APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix 1</td>
<td>Participant Information Sheet – International Study</td>
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<tr>
<td>Appendix 2</td>
<td>Participant Information Sheet – International Study</td>
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<tr>
<td>Appendix 3</td>
<td>MICA-2 questionnaire</td>
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<td>Appendix 4</td>
<td>Feifel career choice questionnaire</td>
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<tr>
<td>Appendix 5</td>
<td>Participant Information Sheet – Impact of clerkship study</td>
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<tr>
<td>Appendix 6</td>
<td>Balon questionnaire</td>
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<td>Appendix 7</td>
<td>Student applications to the Claassen Institute</td>
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<tr>
<td>Appendix 8</td>
<td>Claassen Institute promotional flyer</td>
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<tr>
<td>Appendix 9</td>
<td>Participant Information Sheet – Claassen Institute evaluation</td>
</tr>
</tbody>
</table>
Participant Information Sheet

Study title
Stigma towards mental illness and attitudes to psychiatry among medical students.

Chief Investigator
Asst/Prof Zaza Lyons, UWA School of Psychiatry and Clinical Neurosciences.

Purpose of the study
We would like to invite you to take part in this research project. The aim of the project is to assess the views of medical students regarding stigma towards mental illness, people with mental illness and attitudes to psychiatry.

What's involved
We would like you to complete two questionnaires during a FCP tutorial (Year 2 students) or during your psychiatry rotation (Year 6 students). The questionnaires will take about 10-12 minutes to complete. You will also be asked to provide some demographic background such as age and gender. You will not be asked for your name or student number.

Confidentiality and consent
There will be no information on the questionnaire that could identify you, so confidentiality is assured. Consent to participate in this research is implied should you choose to complete the questionnaire.

You are free at any time to withdraw your consent and participation in this study and it will not prejudice your future studies, grades or relationships with teaching staff in any way. There is no need to give a reason or justification for such a decision, and, unless you agree, the questionnaire that you have completed will be destroyed.

Potential benefits of the research
Evaluation and feedback of this module will enable us to improve the module for the benefit of future generations of students.

The Human Research Ethics Committee at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Human Research Ethics Committee, Registrar’s Office, University of Western Australia, 35 Stirling Highway, Crawley, WA 6009 (telephone number 6488 3703). All study participants will be provided with a copy of the Information Sheet and Consent Form for their personal records.

If you have any questions, or require further information about this research please contact Zaza Lyons, ph 9346 2218, email zaza.lyons@uwa.edu.au.
PLAIN LANGUAGE STATEMENT

Study title
An international assessment of stigma towards mental illness and attitudes to psychiatry among medical students

Ethics number: 1237438.1

Chief Investigator
Dr Eleanor Flynn, Melbourne Medical School, e.flynn@unimelb.edu.au

Co-Researcher
Assistant Professor Zaza Lyons, School of Psychiatry and Clinical Neurosciences, University of Western Australia, zaza.lyons@uwa.edu.au 08 9346 2218. This study is part of Zaza Lyon’s PhD research.

Purpose of the research
The aim of the study is to explore the relationship between stigmatisation towards mental illness and attitudes to psychiatry and to psychiatry as a career among medical students

What’s involved
We would like you to complete two questionnaires. Completing the questionnaires is simple. There will be a link to the survey available on LMS/Curriculum Connect. The questionnaires take about 10 minutes to complete. You will also be asked to provide some demographic background such as age and gender. You will not be asked for your name or student number.

If you decide to participate, you can choose to enter a draw to win a $100 Readings Bookshop voucher. If you would like to enter the draw you will need to provide your email address – your survey response will remain confidential as this page gets directed to a different place and is not connected to your answers.

Confidentiality and consent
There will be no information on the questionnaires that could identify you, so confidentiality is assured. Consent to participate in this research is implied should you choose to complete the questionnaire. Your participation in this research is entirely voluntary.

This study has been approved by the Melbourne University Human Research Ethics Committee. If you have any complaint regarding the manner in which this research project is conducted, please contact the Executive Officer, Human Research Ethics, The University of Melbourne, ph 8344 2073; fax 9347 6739.
### Mental Illness: Clinicians' Attitudes Scale (Medical student version) MICA-2

Note to researchers distributing this scale: please only use after reading instructions in “Manual for Researchers.”

**Instructions:** for each of questions 1-16, please respond by **ticking one box only**. Mental illness here refers to conditions for which an individual would be seen by a psychiatrist.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I just learn about psychiatry because it is in the exam and would not bother reading additional material on it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>People with a severe mental illness can never recover enough to have a good quality of life.</td>
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<tr>
<td>3</td>
<td>Psychiatry is just as scientific as other fields of medicine.</td>
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<tr>
<td>4</td>
<td>If I had a mental illness, I would never admit this to any of my <strong>friends</strong> because I would fear being treated differently.</td>
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<tr>
<td>5</td>
<td>People with a severe mental illness are dangerous more often than not.</td>
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<tr>
<td>6</td>
<td>Psychiatrists know more about the lives of people treated for a mental illness than do family members or friends.</td>
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</tr>
<tr>
<td>7</td>
<td>If I had a mental illness, I would never admit this to my <strong>colleagues</strong> for fear of being treated differently.</td>
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<tr>
<td>8</td>
<td>Being a psychiatrist is <strong>not</strong> like being a real doctor.</td>
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<tr>
<td>9</td>
<td>If a consultant psychiatrist instructed me to treat people with a mental illness in a disrespectful manner, I would <strong>not</strong> follow their instructions.</td>
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</tr>
</tbody>
</table>

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Mental Illness: Clinicians’ Attitudes Scale (Medical student version)  

Note to researchers distributing this scale: please only use after reading instructions in “Manual for Researchers”.

Instructions: for each of questions 1-16, please respond by ticking **one** box only. Mental illness here refers to conditions for which an individual would be seen by a psychiatrist.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>It is important that any doctor supporting a person with a mental illness also assesses their physical health.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>The public does not need to be protected from people with a severe mental illness.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>13</td>
<td>If a person with a mental illness complained of physical symptoms (such as chest pain), I would attribute it to their mental illness.</td>
<td></td>
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<tr>
<td>14</td>
<td>General practitioners should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist.</td>
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<tr>
<td>15</td>
<td>I would use the terms ‘crazy’, ‘nutter’, ‘mad’ etc. to describe people with a mental illness who I have seen in my work.</td>
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<td></td>
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<tr>
<td>16</td>
<td>If a colleague told me they had a mental illness, I would still want to work with them.</td>
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</tbody>
</table>

Thank you very much for your help.
**DEMOGRAPHIC BACKGROUND**

1. Current age:

2. Sex: (circle) male female

3. What year of medical school are you currently in?

**CAREER CHOICE**

4. Indicate the extent that you are considering a career in each medical specialties listed below:

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Chosen career</th>
<th>Strong possibility</th>
<th>No strong opinion yet</th>
<th>Unlikely</th>
<th>No way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Surgery</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>OB/GYN</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>General Practice</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other _____</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
5. Regarding the specialty you ranked with a ‘1’, please briefly describe why you are attracted to it (any experiences which really ‘turned you on’ towards this field.)

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

6. List below those specialties you ranked with a ‘5’ and briefly describe why you are not considering them at all (any particular experiences which really ‘turned you off’ toward the field.)

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
7. Use one of these numbers to indicate how attractive each of the medical specialties currently seems to you:
   1. Very attractive
   2. Attractive
   3. Neutral
   4. Not attractive
   5. Extremely unattractive

<table>
<thead>
<tr>
<th></th>
<th>Medicine</th>
<th>Surgery</th>
<th>Psychiatry</th>
<th>Pediatrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Reward</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifestyle</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Job satisfaction</td>
<td></td>
<td></td>
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<tr>
<td>Interesting subject matter</td>
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<tr>
<td>Intellectually challenging</td>
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<tr>
<td>Prestige within medical community</td>
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<tr>
<td>Prestige within general public</td>
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<tr>
<td>Degree to which patients are helped effectively</td>
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<tr>
<td>Degree to which draws upon all aspects of medical training</td>
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<tr>
<td>Rapidly advancing understanding and treatments</td>
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<tr>
<td>Overall bright and interesting future for the field</td>
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<tr>
<td>Based upon reliable scientific foundation</td>
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<tr>
<td>Enjoyable work</td>
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<tr>
<td>Association with other physicians in that specialty</td>
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</tbody>
</table>
8. For each of these questions, choose one of the following numbers:
   1. Very much
   2. Much
   3. Neutral/average
   4. Little
   5. Very little

<table>
<thead>
<tr>
<th>Question</th>
<th>Medicine</th>
<th>Surgery</th>
<th>Psychiatry</th>
<th>Pediatrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) How much do you respect the skills and knowledge of the physicians in each specialty?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>b) How much do you think other physicians respect the skills and knowledge of the physicians in each specialty?</td>
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<td></td>
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<tr>
<td>c) How much do you think your classmates respect the skills and knowledge of the physicians in each specialty?</td>
<td></td>
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<tr>
<td>d) How much do you think members of your family respect the skills and knowledge of the physicians in each specialty?</td>
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<tr>
<td>e) To what extent do you feel the following specialties will be an exciting and rapidly expanding frontier of medicine?</td>
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<tr>
<td>f) Indicate how much contact you have had thus far with physicians in each specialty.</td>
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<tr>
<td>g) Referring to previous statement, would you say these physicians were good role models of their specialty?</td>
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</tbody>
</table>
School of Psychiatry and Clinical Neurosciences

Participant Information Sheet

Study title
The impact of a psychiatry rotation on medical students’ attitudes towards psychiatry and perceptions of stigma towards mental illness.

Chief Investigator
Asst/Prof Zaza Lyons, UWA School of Psychiatry and Clinical Neurosciences.

Purpose of the study
We would like to invite you to take part in this research project. The aim of the project is to assess the impact of the Year 4 psychiatry rotation on students’ attitudes towards psychiatry and perceptions of stigma towards mental illness, people with mental illness and attitudes to psychiatry.

What’s involved
We would like you to complete two questionnaires at the beginning of the psychiatry rotation and again towards the end of the rotation. The questionnaires will take about 10 minutes to complete each time.

Confidentiality and consent
There will be no information on the questionnaire that could identify you, so confidentiality is assured. Consent to participate in this research is implied should you choose to complete the questionnaires.

You are free at any time to withdraw your consent and participation in this study and it will not prejudice your future studies, grades or relationships with teaching staff in any way. There is no need to give a reason or justification for such a decision, and, unless you agree, the questionnaire that you have completed will be destroyed.

Potential benefits of the research
Evaluation and feedback of this module will enable us to improve the module for the benefit of future generations of students.

The Human Research Ethics Committee at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Human Research Ethics Committee, Registrar’s Office, University of Western Australia, 35 Stirling Highway, Crawley, WA 6009 (telephone number 6488 3703). All study participants will be provided with a copy of the Information Sheet and Consent Form for their personal records.

If you have any questions, or require further information about this research please contact Zaza Lyons, ph 9346 2218, email zaza.lyons@uwa.edu.au.
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<tr>
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<th>Strongly agree</th>
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<tbody>
<tr>
<td>1. Psychiatric research has made good strides in advancing care of the major mental disorders.</td>
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<td>2. Psychiatry is a rapidly expanding frontier of medicine.</td>
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<td>3. Psychiatry is unscientific and imprecise.</td>
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<td>4. If someone in my family was very emotionally upset and the situation did not seem to be improving, I would recommend a psychiatric consultation.</td>
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<td>5. Psychiatric consultation for medical or surgical patients is often helpful.</td>
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<td>6. Psychiatric treatment is helpful to most people who receive it.</td>
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<td>7. Psychiatry is not a genuine and valid branch of medicine.</td>
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<td>8. Most psychiatrists are clear, logical thinkers.</td>
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<td>9. With few exceptions, clinical psychologists and social workers are just as qualified as psychiatrists to diagnose and treat emotionally disturbed persons.</td>
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<td>10. Among mental health professionals, psychiatrists have the most authority and influence.</td>
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<td>11. Psychiatrists are too frequently apologetic when teaching psychiatry.</td>
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<td>12. Psychiatry is too ‘biologically’ minded and not attentive enough to the patient’s personal life and psychological problems.</td>
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<td>13. Psychiatry is too analytical, theoretical, and psychodynamic, and not attentive enough to patient’s physiology.</td>
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<td>14. Psychiatrists frequently abuse their legal power to hospitalise patients against their will.</td>
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<td>15. On average, psychiatrists make as much money as most other doctors.</td>
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<td>16. Psychiatry has a low prestige among the general public.</td>
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<td>17. Psychiatry has a high status among other medical disciplines.</td>
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<td>18. Many people who could not obtain a residency position in other specialities eventually enter psychiatry.</td>
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<td>19. Psychiatry is a discipline filled with international medical graduates whose skills are of low quality.</td>
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<td>20. My family would discourage me from entering psychiatry.</td>
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<tr>
<td>21. Friends and fellow students would discourage me from entering psychiatry.</td>
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<td>22. If a student expresses interest in psychiatry, he or she risks being associated with a group of other would-be psychiatrists who are often seen by others as odd, peculiar or neurotic.</td>
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<td>23. I feel uncomfortable with mentally ill patients.</td>
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<td>24. Teaching of psychiatry at my medical school is interesting and of good quality.</td>
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<td>25. During my psychiatry rotation, psychiatry residents were good role models.</td>
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<tr>
<td>26. Attending psychiatrists during my psychiatry rotation were good role models.</td>
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<tr>
<td>27. Most psychiatrists at my medical school are clear, logical thinkers.</td>
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<tr>
<td>28. Most non-psychiatry staff at my medical school are respectful of psychiatry.</td>
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<tr>
<td>29. Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school.</td>
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STUDENT APPLICATIONS TO ATTEND THE CLAASSEN INSTITUTE

STUDENT 1
This is to express my interest in taking part in the Classen Institute of Psychiatry programme in June. Ever since completing my fourth year psychiatry rotation, I have been deeply interested in the field of psychiatry. I was fascinated by the wide variety of psychiatric conditions that we were able to see on a daily basis, and trying to understand the complexity of each patient’s case was both challenging and stimulating. In addition, I found it especially rewarding to be able to talk to and build trust with patients who were in their most vulnerable state. Even now, in my general practice rotation, I am finding that an understanding of psychiatry is useful when dealing with all kinds of patients.

Although I thoroughly enjoyed my psychiatry rotation, I am eager to gain further exposure to the specialty. I have applied to do my sixth year medical elective in psychiatry and would love any opportunity to study the specialty in greater depth. I am currently contemplating a career in the field of psychiatry and would like some day to be able to conduct research in anxiety disorders or in child and adolescent psychiatric disorders. I hope that you will consider my application, as I strongly feel this programme can provide me with clearer direction as to my suitability for a career in psychiatry.

STUDENT 2
I first became aware of mental health issues in high school, when a classmate of mine was diagnosed with schizophrenia, another with an eating disorder, and a third suffered what (on hindsight) must have been a panic attack. Sadly, the first became increasingly shunned and eventually took a year off school, while the other two had friends rallying around them. Though unsettled by the way the first girl would talk to herself in class, and how she began to neglect her appearance and hygiene, I understood that she was extremely unwell, and felt it was unfair that she had little support save her family and a few close friends. To me, she deserved no less than the other two girls, and least of all the criticism and sarcasm that some of the staff and students would heap upon her. At best, she would be ignored. For my part, I tried to include her in our class activities and to keep in touch after she left school. I have no doubt that she would have done much better with more support, yet she suffered from not only her own demons, but also from the blatant prejudice.

This was my first introduction to mental health, to the problems that people with mental illness face, and more importantly the stigma associated with it. I began to understand that mental health is no less important than the physical, and that each influences the other. This marked the beginning of my interest in mental health, but it was not until doing the Psychiatry rotation in Year 4 that I realised how much I enjoyed it. Patient interviews may take a long time, but I appreciate how they are more personal, and how it allows me to understand a patient better - not just their
current problems, but also how their background and social environment have shaped them. As I enter my final year and working life draws nearer, Psychiatry is a field that I can see myself working in.

Each encounter with Psychiatry leaves me challenging my preconceptions, and bolsters my faith that there is always hope for a patient to improve. Each encounter also shows just how much stigma and prejudice we have overcome with regard to mental illness, and how much more can be done. If awarded the opportunity to attend the Claassen Institute this year, I believe I would enjoy having more preconceptions challenged. I would treasure the opportunity to learn how to be a better clinician and figure out how I can contribute to the field of Psychiatry. I would treasure the opportunity to learn more about this art and how to practice it with finesse in my final year as a medical student.

STUDENT 3
I'm just writing to you to express my interest in attending the Claassen Institute of Psychiatry as a fifth year medical student.

I would love to have the opportunity to attend the week long program in June, having heard fantastic things about it from past participants. I'm very interested in pursuing a career in psychiatry in the future, and think this would be a great opportunity to be able to gain more exposure to and experience in the specialty, on top of what I have already seen as part of our normal curriculum.

My interest in psychiatry was really cemented last year during my fourth year psychiatry term. I really enjoyed the challenge of the unique patient cases I was exposed to, and was lucky to be given a great introduction to psychiatry by the team I was working with. I would love the opportunity to build on that education and knowledge through the Claassen Institute. In particular, the clinical elective afternoons sound fantastic in terms of learning about areas of specialisation within psychiatry that we weren't exposed to last year, as well as observing the delivery of mental health care in the community. Together with the clinical seminars, I think this would be a great opportunity to really facilitate broadening my understanding of the place and process of mental health care.

I also think it would be great to have the chance to meet students who have similar interests and future career hopes to my own. The opportunity to meet with doctors who are already working in the field, and to hear of their experiences and advice would be really helpful, especially with regards to psychiatry training and the process that would be involved in transforming the interest I developed last year in psychiatry into a tangible career.
**STUDENT 4**

I am interested in applying for the Claassen Institute of Psychiatry program, in order to gain more knowledge about psychiatry as a future career pathway. I believe that psychiatry has the potential to be the most challenging, rewarding and intriguing field that I could choose to enter, as I enjoy critical analysis and forming a meaningful relationship with my patients.

During my Psychiatry rotation in fourth year medicine, I began to develop an appreciation for what being a psychiatrist entailed. I found the patients and their disorders extremely interesting, and I saw first hand how a person can be completely debilitated by emotional pain. I came to appreciate that the human mind plays a critical role in how the body functions and how a person responds to life experience. The mind, in a very real sense, defines the quality of human experience.

My enthusiasm for psychiatry was demonstrated in my marks. I scored a high distinction (85%) in this clinical rotation. This, I hope, demonstrates the hard work and dedication that I devoted to my learning.

I would like to attend this program, as I believe it will give me the opportunity to firstly talk to community psychiatrists, who can give me personal insights and their thoughts on their chosen specialty. I’d also like to be introduced to the areas of specialization available in this field, and further enhance my knowledge of mental illness. I believe that this program has the potential to be a very rewarding and interesting week.

**STUDENT 5**

I would very much like to express my keen interest in procuring a place in the Claassen Institute of Psychiatry in 2014.

I was placed in S. Hospital for my Psychiatry rotation earlier last year. I had initially entered the rotation with skepticism and trepidation, but found it to be the most enjoyable rotation for the year. On hindsight, I note that the rotation was probably the rotation I worked hardest in, and one in which I was most keen to learn from. My time spent in D20 has allowed many inspirational interactions with both patients and members of the allied health, and has truly impressed upon me the gravity of mental health as a specialty. I was fortunate enough to have been placed in a very inclusive team that encouraged my participation in all aspects of patient management, thereby catalyzing my understanding of psychiatry in seeing the patient as a whole, rather than just focusing on the mental disorder in isolation.

Coming from a traditional Chinese family, my interest in potentially pursuing psychiatry as a specialty has been met with vehement disapproval, however, I am still however, strongly interested in exploring psychiatry as a possible career option, and I hope that the programme can give me insight as I attempt to find a place in the medical community.
STUDENT 6
I have recently received an email detailing the Classen Institute of Psychiatry which will take place in June. I would like to be considered to take part in this option.

Psychiatry was my first rotation in fourth year and I loved my experience. I was attached to SB's team at G.hospital and it was the first time I had even thought about psychiatry as a career option in medicine. It has been the only rotation that I have absolutely loved so far and I am seriously considering Psychiatry as a career path.

I previously studied nursing and I am a graduate entry student. In my nursing degree I did a psychiatry rotation at Fremantle hospital in the older adult ward. This experience at F. and my experience last year at G. have given me a great perspective of acute care (and G. also showed the chronic, rehabilitation side). However, I don't know what other areas of psychiatry there are and I feel that doing this option would give me a broader perspective of psychiatry.

As someone who is very seriously considering psychiatry as a career option, I would love to have the opportunity to get to know some of the psychiatrists in Perth and to see what else psychiatry has to offer. This will probably be what I need to make a solid decision as to whether it is the career I wish to pursue or not.

I would really appreciate being considered for a place in this week long option, and I am available at the time it will be held during our June holidays.
Learn More About Psychiatry

The Claassen Institute of Psychiatry for Medical Students
JUNE 8th-12th 2015

WINNER OF A 2013 EXCELLENCE IN TEACHING AWARD!

A vibrant, interactive and fun week long program with seminars, visits to mental health service providers, a student led debate and social events

VENUE
UWA School of Psychiatry and Clinical Neurosciences, Level 1 D Block
Queen Elizabeth II Medical Centre

Comments from past Institute students:
♦ Thank-you so much for a highly stimulating and thought provoking week - it has really challenged me to consider psychiatry far more seriously.
♦ Learnt about a very wide range of concepts and career possibilities.
♦ Well done - extremely enjoyable week - I enjoyed all aspects.
♦ Has helped me make up my mind that psychiatry is definitely for me.

How to apply
♦ The 2015 Institute is open to Year 5 and 6 UWA and Notre Dame medical students
♦ Morning tea and lunch are provided each day
♦ Places are limited to 20 students

If you would like to attend, send an e-mail with a few paragraphs telling us why you are interested in attending and your Resume, including your mobile number.

SEND TO: Zaza Lyons
Study title
The Claassen Institute of Psychiatry for Medical Students: Evaluation of a novel enrichment programme in Psychiatry

Chief Investigator
Assistant Professor Zaza Lyons, UWA School of Psychiatry and Clinical Neurosciences.

Introduction
As you are aware, the Claassen Institute of Psychiatry for Medical Students (the Institute) is a week long series of seminars and elective sessions that aims to introduce you to a wide variety of Psychiatry subspecialties organised around various themes.

Aim of the research
We would like to invite you to take part in a research project. The aim of the project is to assess the impact and effectiveness of the Institute programme on your interest and knowledge of Psychiatry; your views and attitudes towards Psychiatry as a discipline; and Psychiatry as a career choice. In addition, your feedback on the structure of the Institute week, the morning seminars, elective sessions and social activities will help us to improve the programme for future years.

What's involved?
There are seven questionnaires that we would like you to complete during the course of the week. The baseline questionnaire will be distributed to you at the beginning of the week. The follow-up questionnaire will be distributed on the final day. It is expected that these questionnaires will take around 10 minutes to complete. At the end of each day we will ask you to complete a feedback questionnaire about the morning seminars and the afternoon elective that you attended. We would like these returned the following morning. It is expected that these will take about 5 minutes to complete each day.

Confidentiality
Your completed questionnaires will be stored in a safe, secure locked filing cabinet. To ensure confidentiality, your name will be replaced by a code number which will be used in analysis of the data. Your name will not be used on the questionnaire. The Chief Investigator of the study will be the only person who will be able to re-identify participants and you will remain anonymous to other researchers involved in the project.
You are free at any time to withdraw your consent and participation in this study and it will not prejudice your future studies in any way. There is no need to give a reason or justification for such a decision, and, unless you agree, any questionnaires that you have completed will be destroyed.

Potential benefits of the research
Traditionally, we have found that students enjoy their clinical psychiatric rotations, but interest in pursuing Psychiatry as a career wanes in later years. As a result, there are often smaller numbers of trainees in psychiatric training programmes and subsequently fewer trained psychiatrists to work in the community and provide psychiatric services to those in need. By introducing students to a wide range of psychiatric subspecialties that they may previously have little knowledge of, we hope that the Institute will raise awareness of Psychiatry both as a discipline and as a post graduate option. This research will enable us to measure the impact of the Institute on these factors.

If you have any questions, or require further information about this research please contact Zaza Lyons, ph 9346 2218, email zaza.lyons@uwa.edu.au.
<table>
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<tr>
<th>Publication</th>
<th>Authors</th>
<th>Title</th>
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<tr>
<td>1</td>
<td>Lyons Z.</td>
<td>Attitudes of medical students towards psychiatry, and to psychiatry as a career: a systematic review.</td>
<td>Academic Psychiatry</td>
<td>2013</td>
<td>37(3)</td>
<td>150-157</td>
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<td>38</td>
<td>35-42</td>
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<td>3</td>
<td>Lyons Z, Janca A.</td>
<td>Impact of a psychiatry clerkship on stigma, attitudes towards psychiatry, and psychiatry as a career choice.</td>
<td>BMC Medical Education</td>
<td>2015</td>
<td>15</td>
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<td>5</td>
<td>Lyons Z, Hans D, Janca A.</td>
<td>Future proofing the psychiatry workforce: Evaluation of an innovative enrichment program for medical students.</td>
<td>Australasian Psychiatry</td>
<td>2015</td>
<td>23(5)</td>
<td>584-588</td>
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<td>6</td>
<td>Lyons Z, Janca A.</td>
<td>Towards protecting the endangered discipline of psychiatry.</td>
<td>Australian and New Zealand Journal of Psychiatry</td>
<td>2015</td>
<td>49(4)</td>
<td>388-399</td>
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Attitudes of Medical Students Toward Psychiatry and Psychiatry as a Career: A Systematic Review

Zaza Lyons, M.P.H.

Objective: The discipline of psychiatry, and psychiatry as a career option, have been negatively regarded by medical students for decades. There is a large amount of literature on attitudes of students and the factors that attract them to and detract from psychiatry. The aim of this article is to systematically review this literature from 1990 to the present time.

Method: The author undertook a systematic review searching a number of electronic databases using the following key words: medical students, attitudes, psychiatry, career. Studies were included in the review if they had been published in an English-language, peer-reviewed journal. Data extracted included year of publication, country where the study was conducted, study design and aim, sample size and response rate, year of study that students were in when they participated in the research, and main results.

Results: A total of 32 papers from 22 different countries were selected for inclusion; 12,144 students from 74 medical schools were surveyed. A mix of positive and negative attitudes toward psychiatry were identified, and, overall, attitudes were found to be positive. However, psychiatry as a career choice was rated poorly and found to be unpopular for many students.

Conclusion: The studies undertaken to-date have identified and raised awareness of a wide range of negative and positive factors toward psychiatry. In order to encourage more students to consider psychiatry as a career, attention needs to focus more closely on the psychiatry curriculum and the development of innovative teaching strategies. This may overcome the negativity that students express toward psychiatry, improve recruitment rates to training programs, and put psychiatry on a more positive foundation for the future.

Over the last century, psychiatry has established itself as a discipline and profession, and major advances in diagnosis, classification, assessment, and treatment of mental disorders have been made. Inclusion of psychiatry as a core part of the medical curriculum is now an accepted component of all medical courses. Endorsement of this by the World Psychiatric Association and the World Federation for Medical Education in 1998 has seen the development of guidelines and recommendations for teaching and assessing psychiatry in medical schools that describe the minimum standard of skills and competencies that students should achieve (1).

Despite exposure to psychiatry and behavioral science in most courses, starting in the preclinical years and progressing to clinical clerkships in the later years, medical students’ attitudes toward psychiatry and psychiatry as a career option have been negative for decades. This has resulted in low levels of recruitment to postgraduate training programs and, consequently, workplace shortages in many countries around the world (2–7).

Over the last 3 to 4 decades, awareness of student negativity toward psychiatry has led to research to investigate attitudes toward psychiatry, both as a discipline and career choice. Findings from some of the earlier studies included positive factors toward psychiatry, such as the ability to treat patients holistically and as individuals; lifestyle factors such as working hours; an interest in counseling and focus on the aspects of patient care; the importance of dealing with emotional problems; and a belief that psychiatric illness is as important as physical illness. Less-favorable views were concerns about a lack of scientific basis and objectivity, the low status of psychiatrists, stigmatization toward students interested in psychiatry, lack of effectiveness of treatment, and concerns about working with the patient population (8–13).

Over the years, a number of different questionnaires have been developed as a means of measuring students’ attitudes...
(8, 9, 14, 15), and the research base has expanded to include studies from around the world. The aim of this article is to systematically review the literature from 1990 onward, to determine the attitudes of medical students toward psychiatry and to psychiatry as a career choice. A greater understanding and awareness of these issues may enable psychiatric educators to design curricula and innovative programs to increase the number of students who choose psychiatry as a career and improve attitudes among students more generally.

**Method**

The U.K. Centre for Review and Dissemination Guidance for Undertaking Reviews in Healthcare was used to provide guidance in conducting the review and search strategy (16). The following electronic databases were searched: MEDLINE, EMBASE, Web of Science, ScienceDirect, AustHealth (Informit), CINAHL Plus (Ebsco), Global Health (Ovid), Health and Medical Complete (Proquest), and PsychInfo. In addition to an electronic database search, the reference lists of the studies identified were hand-searched. Finally, using the available online archive search function, each available issue of key journals was hand-searched. These included Academic Psychiatry, Medical Education, Medical Teacher, and Academic Teacher. Search words used were: medical student/s, attitude/s, psychiatry, career.

Studies were selected for the review if they met the following inclusion criteria: 1) published in an English-language, peer-reviewed journal from 1990 onward; 2) all the search words appeared in the title and/or abstract; because some of the papers were focused on career choice and others attitudes toward psychiatry, the inclusion of either/or “career” and “attitude” was allowed; and 3) studies reported primary research on the attitudes of medical students toward psychiatry and/or to psychiatry as a career. Studies that evaluated the impact of clerkships have not been included because they are methodologically different and generally based on pre- and post-clerkship assessment and thus not comparable with the cross-sectional design of studies selected for this review.

A data extraction form was developed to collate the information derived from the selected studies. The following information was extracted from each paper: year of publication, country where the study was conducted, aim/s, sample size and response rate, year of course students were in when they participated in the research, and main results.

The electronic search identified 586 papers that had any one of the key search words in its title. An initial screening of these articles to identify those that met the selection criteria was undertaken by the author and senior colleague. This resulted in the identification of 159 papers that were read in full to determine whether they were suitable for inclusion in the review; of these, 32 were selected and analyzed.

**Results**

All 32 studies were based on a cross-sectional design. The aims, methods, and main results of each study in the review are summarized in Table 1.

There was some variation in method between studies, but, for most, students were surveyed during class time. One study sent surveys to students by mail (40), and two used a combination of in-class and electronic survey (18, 19). Seventy-four medical schools participated in the surveys. Fourteen studies recruited students from more than one medical school (14, 15, 18, 21, 23, 24, 26, 28, 29, 34, 35, 37, 40, 42). Three studies included interns (20, 26, 38), and one included physicians (43). Five studies compared their data with an existing study or studies (25, 29, 30, 32, 33), and two studies made international comparisons (21, 41).

The studies included in the review were conducted in 22 different countries. The countries with more than one study included the United States, Pakistan, India, the United Kingdom, and Israel. The following countries had one study each: Nigeria, Kenya, Canada, Bahrain, Scotland, Korea, Saudi Arabia, Venezuela, Hong Kong, Australia, Ghana, Spain, Serbia, Germany, Sweden compared with Nicaragua, and Spain compared with Colombia.

A total of 12,144 students, from 74 medical schools, were surveyed across all studies. Response rates were generally high, most likely a reflection of the method, in which students were asked to complete the survey during contact time. Response rates ranged from 100% to 49%, with 13 studies reporting rates of over 85%. In eight studies, response rate was not reported (14, 21, 28, 33, 35, 37, 38, 41).

Overall, psychiatry as a career choice was rated poorly by students; 14 studies found that psychiatry was chosen as a career by less than 5% of the sample; 3 studies, between 5% and 10% of the sample; and 6 studies, 10% or more. It is interesting to note that, in two studies (15, 22), only one student nominated psychiatry as a chosen career.

Most studies reported a mix of both negative and positive attitudes toward psychiatry. The majority, however, found that overall student attitudes were quite positive. Such
<table>
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<tr>
<th>Study</th>
<th>Aims and Years Surveyed</th>
<th>Response Rate</th>
<th>Main Findings</th>
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<tr>
<td>2011; Maric et al; Serbia (17)</td>
<td>To assess changes in attitudes to psychiatry as a career between Year 2 and Year 5 students</td>
<td>Year 2: 97.5%; Year 5: 81%</td>
<td>15% of Year 2 and 16% of Year 5 students reported psychiatry as chosen career; Year 5 more negative than Year 2; demographic variables had little impact on career choice in either year.</td>
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<td>2011; Budd et al; U.K (18)</td>
<td>To explore students career choices and attitudes to psychiatry. Years 1, 3, 4, and 5 surveyed from four universities</td>
<td>Ranged from 50% to 85%</td>
<td>Overall, 4% rated psychiatry as most interesting career choice; 131 rated psychiatry in top three choice; 69% of interested students female; “job satisfaction” and “family-friendly” important career factors.</td>
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<td>2011; Curtis-Barton and Eagles; U.K (19)</td>
<td>To investigate career intentions of Year 1–5 students and factors that may discourage psychiatry as a career</td>
<td>51%</td>
<td>4%-7% (across years) chose psychiatry as “probably” or “definitely.” Negative factors were scientific basis of psychiatry, no evidence-base, patient prognosis, and paperwork/bureaucracy.</td>
</tr>
<tr>
<td>2010; Lingeswaran; India (20)</td>
<td>To assess attitudes of undergraduate students (Years 1–4) and interns to psychiatry and mentally ill patients</td>
<td>96%</td>
<td>Overall negative views toward psychiatry and was least-preferred career choice. Reported as unscientific; psychiatrists considered as poor role-models; teaching low quality.</td>
</tr>
<tr>
<td>2010; Pailhez; Spain, Colombia (21)</td>
<td>To assess the role of opinions of medical students on recruitment rates in two countries</td>
<td>RR not given</td>
<td>9.7% of students from Spain and 4.3% from Colombia said psychiatry was chosen career; overall positive views among all students.</td>
</tr>
<tr>
<td>2010; Aghukwa; Nigeria (22)</td>
<td>To determine attitudes toward psychiatry as a profession and career. Year 5 (pre-clerkship) and Year 6 (post-clerkship) students surveyed.</td>
<td>Year 5: 78.6%; Year 6: 71.4%</td>
<td>One Year 5 and no Year 6 students reported psychiatry as career choice; positive views on merits/efficacy of psychiatry, role of psychiatrists in both years; no differences between years; negative views in both years regarding psychiatry as a career, its status, and personal reward.</td>
</tr>
<tr>
<td>2009; Kuhngik et al; Germany (23)</td>
<td>To compare difference in attitudes of students from two universities studying PBL and traditional program (TP)</td>
<td>Hamburg: 93%; Duisburg-Essen: 86%</td>
<td>5.7% of Hamburg and 5% of Duisburg-Essen students said psychiatry was first career choice; no differences between men and women in PBL, but higher scores for women in TP.</td>
</tr>
<tr>
<td>2009; Gowans et al; Canada (24)</td>
<td>To report on career choices of students entering graduate medical school.</td>
<td>89.6%</td>
<td>3.2% reported psychiatry as first career choice; 14.1% put psychiatry in top 3 choices; students interested in psychiatry more likely to have arts or arts/science background; have friends/family practicing medicine.</td>
</tr>
<tr>
<td>2009; Laugharme et al; Ghana (25)</td>
<td>To assess attitudes of final-year students and compare with U.S. and Spanish students</td>
<td>89.5%</td>
<td>2.2% definitely considering psychiatry; positive factors were merits of and research in psychiatry; negative: psychiatrists have low prestige. Ghanan students views closer to those of Spanish students than U.S.</td>
</tr>
<tr>
<td>2009; Aslam et al; Pakistan (26)</td>
<td>To determine characteristics of Year 3, 4, and final-year students and interns interested in psychiatry</td>
<td>90%</td>
<td>Overall, 17% reported psychiatry as career choice, significantly more from private college than public; psychiatry rotation &gt;1 month and family member with psychiatric history more likely to report it as career.</td>
</tr>
<tr>
<td>2008; Ndeei et al; Kenya (27)</td>
<td>To determine attitudes of students (all Years, 1–5) to psychiatry</td>
<td>58.2%</td>
<td>75% favorable attitude to psychiatry, but only 14% considering as career; clinical students less favorable than students in early years.</td>
</tr>
<tr>
<td>Study</td>
<td>Aims and Years Surveyed</td>
<td>Response Rate</td>
<td>Main Findings</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------</td>
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</tr>
<tr>
<td>2008; Khan et al; Pakistan (28)</td>
<td>To determine the attitude of final-year students to psychiatry</td>
<td>RR not given</td>
<td>Overall positive attitudes for all students; scores on attitudes toward psychiatric patients and illness higher; women more positive than men.</td>
</tr>
<tr>
<td>2008; Syed et al; Pakistan (29)</td>
<td>To determine attitudes of Year 3 students to psychiatry career and compare with U.S. and Israeli studies</td>
<td>60%</td>
<td>7.6% reported psychiatry as preferred choice or highly likely; no differences in gender, premedical education or family.</td>
</tr>
<tr>
<td>2007; Gat et al; Israel (30)</td>
<td>To examine changes in attitudes to careers in Years 4–6; results compared with same cohort (Year 1–3, preclinical), reported in earlier study.</td>
<td>69%</td>
<td>Psychiatry ranked as least attractive specialty; 5.5% said ‘high chance’ of considering psychiatry career; psychiatry perceived as attractive lifestyle; negative views regarding treatment efficacy, lack of scientific basis, and low perception of professional skills; more women than men interested; interest declines as students progress to clinical years.</td>
</tr>
<tr>
<td>2006; Cutler et al; U.S (31).</td>
<td>To compare perceptions of students interested in career in psychiatry vs. non-interested students; Years 3 and 4 surveyed</td>
<td>Year 3: 90%; Year 4: 75%</td>
<td>49% of Year 3 seriously considered psychiatry career; 27% of Year 4s. Interested students more likely to have personal exposure to psychiatry through friend/family and come from nonscience background; intellectual content and quality of life issues rated as positive factors.</td>
</tr>
<tr>
<td>2005; Abramowitz and Bentov-Gofrit; Israel (32)</td>
<td>To analyze attitudes toward psychiatry residency among preclinical students and compare with U.S. data.</td>
<td>70%</td>
<td>9.4% considered psychiatry as “chosen career” and 22% as “strong possibility,” higher than U.S. study; psychiatry ranked most positive on intellectual challenge and least attractive on use of clinical skills; low scores on financial reward, prestige in medical community, ability to benefit patient, reliable scientific foundation.</td>
</tr>
<tr>
<td>2005; Pailhez et al; Spain (33)</td>
<td>To compare attitudes and views toward psychiatry of Year 4 students with U.S. data</td>
<td>RR not given</td>
<td>6% reported psychiatry as career choice; Spanish students more positive about overall merits and possible social abuse/social criticism than U.S.; Spanish less likely to view treatment as effective; Spanish neutral about role and function of psychiatrists, and agreed that psychiatry has low prestige; less satisfied with teaching than U.S. students.</td>
</tr>
<tr>
<td>2004; Rajagopal et al; U.K (34).</td>
<td>To determine attitudes of U.K. students in Years 1–5 to different career options</td>
<td>52%</td>
<td>Psychiatry least popular career choice and chosen by 3% of students; psychiatry boring, unscientific, depressing, stressful, frustrating; students with mental illness family history more likely to choose psychiatry.</td>
</tr>
<tr>
<td>2003; Niaz et al; Pakistan (35)</td>
<td>To determine attitudes toward psychiatry among preclinical and clinical students</td>
<td>RR not given</td>
<td>20.5% preclinical and 25.5% clinical students agreed psychiatry could be career choice.</td>
</tr>
<tr>
<td>2002; Al-Ansari and Alsadadi; Bahrain (36)</td>
<td>To compare attitudes toward psychiatry between Years 1, 4, and 7</td>
<td>82.3%</td>
<td>Overall, 2.9% selected psychiatry as first career choice – all from preclinical years; majority female; overall positive attitude.</td>
</tr>
<tr>
<td>2002; Malhi et al; Australia (37)</td>
<td>To determine attitudes of Year 2 students to psychiatry as a career</td>
<td>RR not given</td>
<td>Psychiatry least popular career choice: 1.4% reported as “chosen” career and 14.5% as “strong possibility;” women more interested than men; more likely to have humanities background, have greater respect for psychiatrists; negative factors: lacks satisfactory outcomes, involves abstract concepts, dangerous patients, stressful work.</td>
</tr>
</tbody>
</table>

continued
<table>
<thead>
<tr>
<th>Study</th>
<th>Aims and Years Surveyed</th>
<th>Response Rate</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001; Tharyan et al; India (38)</td>
<td>To assess exposure to psychiatry on attitudes, mental illness, and career in psychiatry; Year 1 / 4 and final-year/interns surveyed</td>
<td>RR not given</td>
<td>Overall positive attitudes to psychiatry and mental illness; 20.6% reported psychiatry as career; no differences between exposed and not-exposed groups; women more positive than men and more likely to choose as career.</td>
</tr>
<tr>
<td>1999; Calvert et al; Scotland (39)</td>
<td>To determine change in attitudes to psychiatry between Year 1, 3, and 5 students</td>
<td>70%</td>
<td>Overall, attitudes did not improve as students progressed through course; students with negative attitude more likely to be male and interested in surgery.</td>
</tr>
<tr>
<td>1999; Balon et al; U.S (14)</td>
<td>To determine attitudes and views toward psychiatry of students who had completed the junior clerkship</td>
<td>RR not given</td>
<td>2.1% definitely take psychiatry residency; overall, views and attitudes toward psychiatry positive; strong agreement regarding effectiveness of psychiatric treatment, psychiatrists, and discipline of psychiatry; positive views regarding psychiatry career/ personal reward and teaching.</td>
</tr>
<tr>
<td>1999; Feifel et al; U.S (15)</td>
<td>To determine attitudes of freshmen to various medical specialties</td>
<td>52%</td>
<td>Psychiatry least popular; 1 student reported it as chosen career; 7.2% considered it a “strong possibility;” negative views included idea that patients are emotionally draining, lack of scientific foundation/efficacy of treatment.</td>
</tr>
<tr>
<td>1995; Lee et al; U.S. (40)</td>
<td>To compare views of Year 4 students interested in psychiatry residency with other specialties</td>
<td>50.4%</td>
<td>Positive factors: greater intellectual challenge, lifestyle, effectiveness of treatment, and humanities background; students not interested were influenced by poor psychiatry clerkship and wanting to use clinical skills.</td>
</tr>
<tr>
<td>1994; Caldera and Kullgren; Sweden and Nicaragua (41)</td>
<td>To analyze influence of different variables between students in Sweden and Nicaragua; Year level not given.</td>
<td>RR not given</td>
<td>Overall, all students reported positive attitudes; Nicaragua more positive toward patients than Sweden; fewer Swedish students interested in career; no cross-cultural differences in attitudes.</td>
</tr>
<tr>
<td>1993; Alexander and Kumaraswamy; India (42)</td>
<td>To determine attitudes of final-year students to psychiatry and career interest</td>
<td>93%</td>
<td>4.1% stated psychiatry as career choice; overall positive views of psychiatry and psychiatrists; negative views toward social prestige and financial reward items.</td>
</tr>
<tr>
<td>1993; Baptista et al; Venezuela (43)</td>
<td>To assess attitudes to psychiatry of final-year students and physicians</td>
<td>Students: 99%; Physicians: 39%</td>
<td>4% and 5% from each university reported psychiatry as first choice; overall positive view in both groups; women more positive than men.</td>
</tr>
<tr>
<td>1992; Soufi and Raoof; Saudi Arabia (44)</td>
<td>To assess attitudes of students to psychiatry after introduction of new course; year level not given.</td>
<td>~50%</td>
<td>Only 1 student thinking about psychiatry career; 28% said psychiatry socially unacceptable; psychiatry not seen as medical specialty; more exposure to psychiatry needed; treatment should be left to traditional healers.</td>
</tr>
<tr>
<td>1990; Koh; Korea (45)</td>
<td>To assess interest and attitudes to psychiatry of final-year students</td>
<td>92.8%</td>
<td>9.1% stated psychiatry as current career choice; overall, positive attitudes with no differences between men and women; clerkships and lectures and contact with faculty staff and patients improve interest.</td>
</tr>
<tr>
<td>1990; Pan et al; Hong Kong (46)</td>
<td>To investigate career preference of different specialties in preclinical and clinical students</td>
<td>Preclinical: 94.7%; Clinical: 96.7%</td>
<td>5% of preclinical and 4% of clinical students listed psychiatry as first choice; clinical students more positive attitude toward psychiatry, psychiatrists, and patients than preclinical.</td>
</tr>
</tbody>
</table>
attitudes remained consistent between cultures and countries where studies were undertaken. The main trends to emerge were the following: 1) positive factors included the merits, intellectual challenge, and efficacy of psychiatry (14, 22, 25, 31, 32, 40); career factors and personal reward (38); and perception of psychiatrists as professionals (42); 2) negative factors included the lack of scientific foundation (15, 19, 20, 32, 34); perceived low status, prestige, and financial reward of psychiatry (22, 25, 32, 33, 42), psychiatrists as poor role models (20), difficulties with the patient population and treatment (15, 19, 31–33, 37), depressing and frustrating perception of psychiatry (34), and loss of opportunity to use clinical skills (40). As expected, students expressing interest in psychiatry had more positive attitudes than those with no interest. Furthermore, students more interested in psychiatry were likely to be female, have an arts/ non-science background, and to have had a family member with a history of mental illness (24, 26, 28, 30, 34, 36–40, 43).

Some studies made comparisons between preclinical and clinical students as a means of assessing the impact of exposure to psychiatry through clinical attachments and rotations. Results were varied, with three studies showing improved attitudes (18, 26, 35) in clinical students compared with preclinical, and six finding more negative attitudes among students in clinical years (17, 27, 30, 31, 36, 39). Only three studies found no difference between the two groups of students (20, 22, 38).

**Discussion**

Direct comparisons between the reviewed studies is difficult because of the variety of questionnaires used and differences in analyses of data and reporting of results. However, the trends to emerge from the information provided demonstrate that students’ attitudes to psychiatry, while mixed, are, in general, positive. Despite this, however, interest in psychiatry as a career is low. Students’ attitudes tend to be multidimensional, and a specialty that is regarded as highly positive on one dimension may be regarded negatively on another (47), and this observation is reflected in the reviewed studies.

Intrinsic factors aimed at improving student attitudes about the quality and excellence of psychiatric education are within the governance of each medical school (48). Positive experiences of psychiatry in medical school are important in eventual career choice (49), and it is imperative that innovative approaches at both the preclinical and clinical stages of the course are developed (50) that focus on the acquisition of relevant skills, knowledge, and attitudes (1).

Differences in learning between preclinical and clinical students need to be recognized (2), with emphasis on the teaching of behavioral science made in the preclinical years (3, 48).

Several of the reviewed studies reported that poor-quality teaching was a factor in students’ forming negative attitudes toward psychiatry while at medical school (20, 33). Description of psychiatry curricula was provided in some studies, but determining the course components that students liked and disliked was not specifically investigated. Career decision-making among medical students is an ongoing process, with some students deciding on their area of specialization during medical school (49, 51, 52) and others not choosing until completion of Postgraduate Years 1 or 2 (53–55). A clearer understanding of course content and delivery techniques to determine the most effective way of teaching psychiatry, including a focus on the preclinical years, will be a step toward designing curricula that can more effectively improve attitudes while students are in medical school.

The implementation of creative and novel programs, and the availability of elective options for students who have performed well in clerkships or expressed a particular interest in psychiatry, may be valuable in increasing recruitment (56–59). The relationships between students and teachers during medical school is as important as curriculum content and teaching methods in providing a positive experience of psychiatry. Mentoring of students (57, 60, 61), charismatic teachers, and a well-staffed, resourced, and supportive faculty (48) all contribute toward ensuring that psychiatry is positively perceived.

A number of suggestions to improve attitudes toward psychiatry have been proposed. There should be more focus on the medical school admissions process and its relevance to psychiatry (14, 37), particularly in the selection of students to graduate medical courses from humanities and non-science backgrounds, who typically show more interest in psychiatry (3, 30). The development of educational strategies enabling initial interest shown during the preclinical years to be maintained is important (30). In order to promote psychiatry as a career, students who are interested need to have increased access to an in-depth experience of psychiatry (40), including “enrichment activities” such as psychiatry electives and summer institutes (5, 56, 58).

Stigma toward mental illness has been raised as an influential factor in negative views that students have toward psychiatry (14, 25, 62, 63). Medical students share similarly stigmatizing opinions of mental illness as those found in surveys of the general public (64), and this may be an insidious factor that shapes attitudes and frustrates the
potential for career recruitment. Awareness of stigma needs to be acknowledged and openly discussed with students in order to overcome these views.

Conclusions

Decades of research aimed at identifying attitudes toward psychiatry have found that, overall, medical students have positive attitudes toward psychiatry. However, recruitment rates to psychiatry training programs remain low in many countries. Replication of research in this area has reached a saturation level, and there is little more to learn from further student surveys using similar methods and instruments. Although the information from such studies has raised awareness of the factors that attract students to and detract them from psychiatry, attention now needs to focus more closely on psychiatry curricula, development of innovative teaching strategies, and reduction of stigma toward mental illness. This may be helpful in overcoming the negativity that students have toward psychiatry as a career, improving recruitment rates to psychiatry training programs, and putting psychiatry on a more positive foundation for the future.

No conflicts of interest are identified in the preparation of this article.

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34. Rajagopal S, Rehill K, Godfrey E: Psychiatry as a career choice compared with other specialties: a survey of medical students. Acad Psychiatry 2004; 28:444–446
42. Alexander PJ, Kumaraswamy N: Senior medical students’ attitude towards psychiatry: relationship with career interest. Indian J Psychiatry 1993; 35:221–224
46. Pan PC, Lee PW, Lieh-Mak FF: Psychiatry as compared to other career choices: a survey of medical students in Hong Kong. Med Educ 1990; 24:251–257
Objective
The psychiatry clerkship forms part of the core curriculum of medical schools worldwide and provides psychiatric educators with an ideal opportunity to positively influence students. The aim of this paper is to systematically review literature on the impact of the psychiatry clerkship to determine the effect on attitudes towards psychiatry and to psychiatry as a career.

Method
A systematic review was undertaken. The following key search words were used to search a number of electronic databases: medical student/s, attitude/s, psychiatry and clerkship. Studies published in the English language from 1990 to the present were included. Studies were included if they were based on a pre-/post-design, i.e. the same students must have participated in the study both before and after the clerkship.

Results
Twenty-six studies from 19 countries were identified for the review. Sixteen studies reported an overall improvement in attitudes towards psychiatry post-clerkship, and ten found no change in attitudes. In terms of career choice, nine studies reported an increase in the number of students interested in psychiatry as a career post-clerkship, nine found no impact on career choice and, in eight studies, it was not assessed. A number of positive and negative factors regarding the clerkship were identified.

Conclusion
Overall, the psychiatry clerkship has a positive impact on students' attitudes towards psychiatry, but does not improve interest in psychiatry as a career option. For those students particularly interested in psychiatry, the challenge is to maintain their enthusiasm post-clerkship. Charismatic teachers, mentorship and stigma reduction may be effective strategies. Future research needs to more clearly identify specific components of the clerkship that are viewed favorably by students.

Keywords
Medical student · Impact · Clerkship · Attitudes · Psychiatry

Attitudes of medical students towards psychiatry have been extensively studied over the last three decades. A recently published review of 32 studies showed that, overall, students' views are generally more positive than negative; however, the proportion who choose psychiatry as a career remains low [1]. Psychiatry is now firmly embedded as part of the core curriculum in all medical courses [2]. A combination of different teaching techniques, including problem-based and didactic learning, and clinical clerkships is used to teach students the skills, attitudes and knowledge relevant to the discipline of psychiatry [2].

For students in the clinical years, clerkships provide a more realistic view of psychiatry than may have been gained through lectures and tutorial sessions during the pre-clinical years. These experiences can become important factors in later career decision making [3, 4]. Clerkships are usually between 4 and 8 weeks in length (average 6.3 weeks) [5] and, in most courses, are the only clinical exposure that students have of psychiatry. This provides a narrow window to ensure that the experience is positive and emphasis on 'getting it right' becomes imperative. The clerkship gives psychiatric educators an ideal opportunity to positively influence students, and while there is no doubt that the experience has an impact on attitudes, there is less clarity from the existing literature on the strength and direction of this change [6].

The aim of this systematic review is to determine the impact of the psychiatry clerkship on attitudes of medical...
students towards psychiatry and to psychiatry as a career choice. A more comprehensive viewpoint of the effectiveness of clerkships may enable psychiatric educators to use the clerkship effectively to ensure that it provides students with a beneficial learning experience and improves their attitude towards psychiatry and to psychiatry as a career choice.

It should be noted that, for consistency in terminology, the word clerkship is used throughout this paper and is synonymous with rotation, attachment, posting and other similar terms that may be used as local equivalents.

Method

The method used was consistent with the previous systematic review undertaken by the author [1]. The following electronic databases were searched: MEDLINE, EMBASE, Web of Science, ScienceDirect, AustHealth (Informit), CINAHL Plus (Ebsco), Global Health (Ovid), Health and Medical Complete (Proquest) and PsychInfo. In addition, the reference lists of studies included in the review were hand searched. Finally, using the available online archive search functions, each available issue from key journals was hand-searched. These were Academic Psychiatry, Medical Education, Medical Teacher and Academic Teacher. Searches for personal communications and conference data were not undertaken.

Search words used were medical student/s, attitude/s, psychiatry and clerkship. In order to include words synonymous with ‘clerkship’ the following terms were also acceptable: rotation, attachment, posting, affiliation, training programme and education.

The following criteria were used to determine inclusion of papers for the review: (1) must have been published in an English language, peer reviewed journal from 1990 onwards; (2) all the search words to appear in the title and/or abstract; and (3) reporting primary research with medical students as respondents.

Studies were included if they were based on a pre-/post-design, i.e. the same students participated in the study both before and after clerkship. This was to ensure that only studies specifically assessing the impact of the clerkship were included. The previous review [1] focused on the cross-sectional assessment of students’ attitudes towards psychiatry and did not include clerkship studies.

The following information was extracted from each paper: year of publication, country where the study was conducted, aim/s, sample size and response rate, year of course in which the clerkship took place, length of clerkship and main results. A global ‘yes/no’ assessment to indicate if overall attitudes to psychiatry had improved post-clerkship was made.

The electronic search identified 315 papers that had any one of the key search words in its title. An initial screening of these articles to identify those meeting the selection criteria was undertaken by the author and resulted in the identification of 42 papers. In order to minimize selection bias, a senior colleague undertook a further independent assessment of these papers. They were then were read in full to determine suitability for inclusion in the review. Sixteen papers were excluded, leaving 26 that were finally selected. Papers were excluded if they were not based on a pre-/post-design; students were surveyed retrospectively; or pre/post measures were performed on different student cohorts.

Results

Summary of Main Findings

All 26 studies assessed the impact of the clerkship on student attitudes and were based on a pre-/post-design, where students were asked to complete questionnaires at the beginning and end of the clerkship. Eighteen studies also assessed the impact on career choice. A summary of each study including author, country where conducted, aims, year level surveyed, length of clerkship and overall improvement post-clerkship is shown in Table 1.

Overall, 16 studies reported an improvement in attitudes towards psychiatry post-clerkship. The remaining ten concluded that the clerkship had not changed attitudes. In terms of career choice, nine studies reported an increase in the number of students interested in psychiatry as a career post-clerkship, nine found no impact on career choice and, in eight studies, it was not assessed.

The reviewed studies were conducted in 19 different countries. There were four from Nigeria, two each from Malaysia, UK, Israel and USA, and one study from each of the following countries: Australia, Sri Lanka, Portugal, Saudi Arabia, Pakistan, Oman, Germany, Denmark, Iran, Spain, Greece, Turkey, Ireland and Chile.

Design of Studies

Several different validated questionnaires were used to survey students. Eight studies [7, 8, 13, 17, 21, 24, 26, 29] used the ATP-30 [33], four [9, 10, 14, 23] used the Balon questionnaire [34], two [15, 19] the Nielsen and Eaton questionnaire [35] and two [31, 32] a questionnaire designed by Wilkinson [36]. One study [27] used the Libertarian Mental Health Scale [37] and one [16] a questionnaire by Das and Chandrasena [38]. The remaining eight developed their own questionnaires.

A total of 3,747 students participated in completing baseline and follow-up questionnaires. One study used a control group of students doing an ophthalmology clerkship [28], and two assessed different courses resulting from recent curriculum changes [24, 26]. Two studies surveyed other year levels.
<table>
<thead>
<tr>
<th>Year, author, country</th>
<th>Aims, year/s surveyed, length of clerkship</th>
<th>Response rate, sample size</th>
<th>Overall improvement post-clerkship</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012, Adebowale et al., Nigeria [7]</td>
<td>To examine the impact of clerkship on attitudes to psychiatry and career. Year 5; 4 weeks</td>
<td>66.9% (81) pre</td>
<td>Attitudes—yes</td>
</tr>
<tr>
<td>2012, Rodrigo et al., Sri Lanka [8]</td>
<td>To assess the effect of new clerkship on career choice and attitudes towards psychiatry. Final year students; 8 weeks</td>
<td>88% (106) post</td>
<td>Career—who</td>
</tr>
<tr>
<td>2010, Xavier, Portugal [9]</td>
<td>To evaluate attitudes to psychiatry and as a career. New curriculum and clerkship model. Year 6; 4 weeks</td>
<td>91% (93) pre</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2010, El-Gilany et al., Saudi Arabia [10]</td>
<td>To understand changes in attitudes to psychiatry post clerkship. Year 5; 6 weeks</td>
<td>100% (153) pre and post</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2010, Aghukwa, Nigeria [11]</td>
<td>To examine impact of clerkship on beliefs and attitudes towards mental illness. Final year students; 4 weeks</td>
<td>N=35 pre and post</td>
<td>Beliefs and attitudes—who</td>
</tr>
<tr>
<td>2009, Sajid et al., Pakistan [12]</td>
<td>To determine change in attitudes following clerkship. Year 4; 4 weeks</td>
<td>75% (67) pre</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2008, Ramamurthy et al., Malaysia [14]</td>
<td>To assess the impact of the clerkship on attitudes to psychiatry. Year level not stated; 6 weeks</td>
<td>100% (126) pre</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2008, Fischel, Israel [15]</td>
<td>To assess the impact of the clerkship on attitudes to psychiatry of Israeli students and US students studying in Israel. Year level not stated; 5 weeks</td>
<td>100% (135) post</td>
<td>Career—who</td>
</tr>
<tr>
<td>2008, Al-Adawi et al., Oman [16]</td>
<td>To explore attitudes and career intentions. Year level not stated; 8 weeks</td>
<td>78% (91) pre</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2007, Kuhnigk et al., Germany [17]</td>
<td>To examine students attitudes in 4 different semesters to psychiatry and determine if these change during medical school. Students in year 5 only surveyed pre and post clerkship. Length of clerkship not stated</td>
<td>76% (89) post</td>
<td>Career—who</td>
</tr>
<tr>
<td>2007, Holm-Petersen et al., Denmark [18]</td>
<td>To assess change in attitudes after clerkship and impact on career. Years 4 and 5 at 3 universities; 4 weeks</td>
<td>70% (214) post</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2006, Samimi et al., Iran [19]</td>
<td>To assess impact of clerkship on changes in attitudes and career. Year 5; 4 weeks</td>
<td>87% (109) pre</td>
<td>Career—who</td>
</tr>
<tr>
<td>2006, Niedermier et al., US [20]</td>
<td>To assess attitudes towards clerkship and various aspects of the curriculum and teaching. Year 3; 4 weeks</td>
<td>87% (109) post</td>
<td>Career—who</td>
</tr>
<tr>
<td>2005, Reddy et al., Malaysia [21]</td>
<td>To examine the impact of clerkship on attitudes to mental illness and psychiatry. Year 4; 8 weeks</td>
<td>(184) pre</td>
<td>Attitudes—who</td>
</tr>
<tr>
<td>2005, Galka et al., US [22]</td>
<td>To examine attitudes to mental illness before and after clerkship. Year 3; 6 weeks</td>
<td>(184) post</td>
<td>Career—who</td>
</tr>
<tr>
<td>2005, Bulbena et al., Spain [23]</td>
<td>To gain understanding of choosing psychiatry as a career and how attitudes change during academic year. Year 4; 6 weeks</td>
<td>100% (48) pre and post</td>
<td>Career—who</td>
</tr>
<tr>
<td>Year, author, country</td>
<td>Aims, year/s surveyed, length of clerkship</td>
<td>Response rate, sample size</td>
<td>Overall improvement post-clerkship</td>
</tr>
<tr>
<td>----------------------</td>
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</tr>
</tbody>
</table>
| 2003, McParland et al., UK [24] | To assess attitudes to psychiatry, career intentions and experiences during the clerkship. Year 4; 8 weeks. 2 cohorts—one traditional content, one PBL | 84 % (379) pre and post | Attitudes—yes  
Career—yes |
| 2001, Oluto & Osahon, Nigeria [25] | To evaluate impact of clerkship on beliefs and attitudes towards psychiatry. Year 5; 8 weeks | (105) pre and post  
RR not given | Attitudes—no  
Career—no |
| 1998, Singh & Baxter, UK [26] | To compare efficacy of new curriculum (vs old) of students attitudes to psychiatry and mental illness. Year 4; 8 weeks (old); 6 weeks (new) | 90 % (110) pre and post | Attitudes—yes  
Career—N/A |
| 1998, Garyfallos et al., Greece [27] | To compare attitudes of a previous sample (1985) of students with current students (1993) before and after clerkship. Year 4; 16 weeks (1 day/week) | 90.3 % (140) 1993  
(51) 1985 | Attitudes—yes  
Career—N/A |
| 1997, Arkar & Eker, Turkey [28] | To compare attitudes to mental illness between students doing psychiatry clerkship with those doing ophthalmology clerkship. Year 5; 3 weeks | (75) psyc group  
(60) opth group  
RR not given | Attitudes—no  
Career—N/A |
| 1996, Sloan et al., Ireland [29] | To measure the impact of clerkship on attitudes. Final year students; 8 weeks | 95 % (110)—from 3 med colleges | Attitudes—yes  
Career—yes |
| 1996, Guttmann et al., Israel [30] | To evaluate student attitudes before and after clerkship. Year 5; 5 weeks | 88 % (53) pre  
72 % (43) post | Attitudes—no  
Career—N/A |
| 1995, Galletly et al., Australia [31] | To assess changes in attitudes after clerkship. Final year students; 4 weeks | (153) pre and post  
RR not given | Attitudes—no  
Career—no |
| 1992, Arya et al., Chile [32] | To assess changes in attitudes after clerkship and determine if these change over time. Year 3 (no exposure); Year 5; 8 weeks; interns | Year 3:  
94 % (75) pre  
100 % (80) post  
Year 5:  
80 % (48) pre  
90 % (54) post  
Interns:  
85 % (86) pre  
74 % (49) post | Attitudes—yes  
Career—no |
as well as the year group undertaking the clerkship as a means of determining changes in attitudes at different stages of training [17, 32]. Two studies surveyed students from more than one medical school [18, 29]. Response rates ranged from 100 to 50%.

The average length of clerkship was 5.5 weeks, range of 3–16 weeks. In nine studies (35%), it was 4 weeks; in seven studies (30%), it was 8 weeks; in five studies (19%), it was 6 weeks, two studies (8%) had 5 week clerkship; and two others (8%) had 3 and 16 week clerkships, respectively (NB; students in this study spent only 1 day/week in a clinical setting). In one, the length of clerkship was not stated. It is not possible from the information provided to determine if the clerkship described in the study represented the only clinical exposure to psychiatry that students had, or if further clerkships occurred at different times. There was no identifiable trend between length of clerkship (shorter or longer) and improvement in attitudes or career choice.

Impact of Clerkship on Attitudes and Career Choice

Attitudes were often positive at the beginning of the clerkship and improved further post-clerkship. Inevitably, most studies reported a mix of views that improved, deteriorated or showed no change post-clerkship. Some studies found that students with more positive attitudes correlated with greater interest in psychiatry as a career and higher exam results. Female students showed greater improvement in attitudes post-clerkship. Some studies found that students reported a mix of views that improved, deteriorated or showed no change post-clerkship. Inevitably, most studies described in the study represented the only clinical exposure to psychiatry that students had, or if further clerkships occurred at different times. There was no identifiable trend between length of clerkship (shorter or longer) and improvement in attitudes or career choice.

Discussion

Despite differences in both the length and structure of the clerkship between medical schools that make it difficult for direct comparisons to be made, of the 26 studies reviewed, 16 (61%) showed that students' attitudes improved post-clerkship. However, the impact on career choice was less positive, with only nine out of 18 studies that assessed career choice finding that the clerkship increased students' interest in psychiatry as a career. While the improvement in attitudes post-clerkship is positive, these effects decay as students' progress through the medical course and into internship [39–41]. Career preferences also fluctuate as students advance through the clinical years, as exposure to different areas of specialization and acquisition of new skills and knowledge enables them to assess their interest in each area and determine its suitability as a career [42].

Positive Clerkship Factors

The basic structure of the clerkship combines lectures, tutorials and other non-clinical activities with the clinical attachment, usually based in hospitals and outpatient clinics. The experiences gained during the clinical component of the clerkship, however, are more likely to influence students' attitudes than the non-clinical teaching activities. Different settings (outpatient clinic, hospital based consultation liaison service, and acute inpatient ward) have been found to have little impact on eventual career choice, examination marks or psychiatric knowledge [43]. However, an outpatient clerkship may have a more positive effect on career choice [44]. Other factors that constitute a good clerkship experience have been identified as the quality of the clinical teaching, the organisation of the
clerkship and its supervision and learning activities [45]. The opportunity to develop close personal relationships with patients, deal with challenging diagnoses and a diversity of clinical experiences are also influential aspects in specialty choice [46].

From a student's perspective, an important aspect of any clerkship is patient contact and the relationship with patients that develops during the clerkship [46]. Some studies have shown that students' attitudes towards patients improved post-clerkship, and patient contact was regarded as a rewarding aspect [12, 18, 20, 26]. Others, however, have not shown improvement [13, 28] and patient behaviour, particularly in acute inpatient settings, has been described as a stressful, intimidating and frightening experience [47]. A survey of consultant psychiatrists in Scotland described as a stressful, intimidating and frightening experience [47]. A survey of consultant psychiatrists in Scotland also found that difficult patient behaviour was a negative influence on career choice of medical students [48]. Seeing patients recover is associated with positive views, and while this can be unpredictable, the clerkship should attempt to provide opportunities for students to have involvement in situations where the positive outcomes of treatment and management can be seen [49]. While acknowledging that local factors play a part in the clinical experience and are largely unmodifiable at a faculty level, an understanding by teachers of how students learn and basic pedagogic theory may be helpful in overcoming negative views developed during the clerkship [50].

In many of the reviewed studies, attitudes to psychiatry were positive at the beginning of the clerkship, suggesting that the pre-clinical years play an important role in fostering attitudes ahead of the clinical clerkship. Positive attitudes pre-clerkship often improve further post-clerkship, and this is a strong predictor of specialisation in to psychiatry. Timing of the clerkship (if it takes place at the beginning or end of the academic year) [44, 51] and clerkship length appear to have no impact on eventual choice of psychiatry as a career [52].

Clerkship and Recruitment to Psychiatry

The question of the role of the clerkship as a recruitment tool has been raised [6]. As only a small proportion of students will eventually specialise as psychiatrists perhaps, there should be more focus on what makes a good clerkship for the majority of students who will end up in primary care or generalist settings. To achieve this, the clerkship experience needs to equip students with the basic skills and competencies important for all doctors, regardless of eventual area of specialisation. The ability to assess suicide risk, manage alcohol withdrawal, diagnosis and management of depression and assessment of substance misuse have been identified as important skills for students to learn in the clerkship [53].

As psychiatric educators, we need to target strategies to positively influence students towards a career in psychiatry, both pre- and post-clerkship. Addressing stigma throughout the curriculum could play an important role in overcoming negative perceptions towards psychiatry and mental illness, particularly when students are exposed to clinical situations during the clerkship [54, 55]. Students are often influenced by a particularly charismatic and enthusiastic consultant or registrar involved in the clerkship [20, 24, 40, 49]. Identifying positive role models, mentorship [3, 46, 50] and the implementation of enrichment programmes to nurture and encourage interested students [56, 57] may prevent the deterioration in attitudes that occurs post-clerkship.

Limitations of this review are that only papers published in English were included, which may have excluded some relevant studies. Due to variations in the length and structure of clerkships, local nuances and differences in methodologies between studies, the conclusions drawn from the reviewed studies need to be interpreted with caution. Specific elements found to be successful in one university may not necessarily translate to another. Finally, in order to make the synthesis of studies of greater significance to contemporary teaching, the review was restricted to studies from 1990 onwards. Despite these limitations, the review has highlighted a range of factors, both positive and negative regarding the impact of psychiatry clerkships.

Career decision making for medical students is a competitive process. For an unpopular specialty such as psychiatry, the clerkship provides a crucial opportunity to positively influence students. However, fostering positive attitudes must begin in the pre-clinical years. Destigmatisation strategies and effective teaching of communication and history taking skills will help prepare students for the realities of the clerkship and enable them to make the most of the experience. Maintaining interest post-clerkship so that these students are not lost as they progress through the course is essential. While this may be considered as an additional workload, with administrative and departmental assistance, it could become a constructive factor in increasing recruitment rates. Finally, future research needs to identify components of the clerkship that are rated positively in order to improve student attitudes and encourage a career in psychiatry.

Implications for Educators

- Clerkships provide educators with the opportunity to positively influence students’ attitudes towards psychiatry.
- Clerkships need to be structured so that students have a variety of clinical experiences that limit exposure to the more negative aspects of clinical psychiatry such as acute and emergency settings.
- Teaching and learning activities in the pre-clinical years have the potential to foster positive attitudes to psychiatry and address pre-existing stigmatising attitudes to mental illness.
Implications for Academic Leaders

- Awareness of stigma and its role in adversely impacting on psychiatry as a career choice needs to be recognised.
- While attitudes towards psychiatry are positive, the clerkship does not serve as an effective strategy to recruit students to a career in psychiatry.
- Identifying students who are interested in psychiatry during the clerkship and introducing them to positive role models and mentoring relationships could play an important part in increasing recruitment rates.

Disclosures No conflicts of interest are identified in the preparation of this article.

References

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Impact of a psychiatry clerkship on stigma, attitudes towards psychiatry, and psychiatry as a career choice

Zaza Lyons* and Aleksandar Janca

Abstract

Background: Mental illnesses are a major public health problem around the world [1]. They are common, disabling and debilitating conditions [2] that impact negatively on a person’s quality of life, their ability to lead productive and fulfilling lives and form meaningful family, social and personal relationships [3]. Furthermore, people with mental illness are among the most stigmatised, marginalised and vulnerable members of society and suffer from discrimination in many areas of daily life as a consequence of their illness [4]. The prevalence and incidence of common mental disorders are predicted to rise in the coming decades. In particular, age related conditions including dementia will increase and add significantly to the overall global burden of disease caused by mental illness [5, 6].

Method: Year 4 medical students at the University of Western Australia completed two questionnaires, the Balon Attitudes Towards Psychiatry and the Mental Illness Clinicians Attitudes (MICA), at the beginning and end of the psychiatry clerkship. Interest in, knowledge of, and consideration of psychiatry as a career were also assessed. Non-parametric tests were used to compare baseline and follow-up differences on the Balon and MICA. Unpaired t-tests compared mean differences for interest, knowledge and psychiatry as a career.

Results: Attitudes towards psychiatry were positive at the beginning of the clerkship. Overall, there was a significant decrease in negative and stigmatising views towards mental illness post clerkship measured by the MICA, but the follow-up mean score remained close to the neutral value with views in some areas becoming more negative. There was no significant improvement in students’ interest in psychiatry post clerkship, however, knowledge of psychiatry improved significantly. Numbers of students ‘definitely considering’ psychiatry as a career increased significantly from 7 (4.6%) students at baseline to 17 (10.5%) at follow-up.

Conclusion: The clerkship made a modest impact on students’ attitudes to psychiatry, stigma and consideration of psychiatry as a career. Integration of strategies to overcome stigma towards mental illness and the mental health profession into pre-clinical teaching may provide students with skills to prepare them for the clerkship. This may assist in improving attitudes towards psychiatry and encourage more students towards a psychiatry career.

Keywords: Medical students, Stigma, Career, Attitudes, Psychiatry, Clerkship
In order to ensure that the psychiatric workforce remains sustainable into the future, new generations of motivated and enthusiastic young doctors need to be encouraged towards a career in psychiatry. However, a recent systematic review concluded that while medical students attitudes towards psychiatry are generally positive, psychiatry as a potential career choice is unpopular [7]. A comprehensive international survey of medical students in 20 countries found that overall, only 4.5% of students were ‘definitely considering’ psychiatry as a career [8]. As a result of this ambivalence towards psychiatry, recruitment to postgraduate psychiatry training has been consistently low for decades. Analysis of the career choices of newly qualified doctors in the UK found that from 1974 to 2009 psychiatry was the first career choice for around 3-5% of medical graduates per year [9] and similar trends have been reported in other countries [10]. In its 2012 report, Health Workforce Australia reported a current shortage of psychiatrists, and estimated that by 2025 this would worsen significantly and result in a shortage of up to 452 psychiatrists, one of the highest levels of shortage across all areas of medical specialisation [11].

Stigma towards mental illness has increasingly been identified as a factor that influences medical student attitudes towards psychiatry and detractions from considering psychiatry as a career [12-14]. Medical students often have stigmatised views towards mental illness prior to commencement of their medical training [15,16]. Negative views can be further strengthened when students start clinical clerkships in psychiatry and have contact with mentally ill patients [12,17]. Clerkship studies have found that students feel uncomfortable with patients [18], feel that mentally ill patients have a poor prognosis [19] and that interacting with patients is stressful [20]. In other studies, students have reported that working with patients is dangerous [21], disturbing, emotionally draining and overwhelming [15,22].

Medical students considering psychiatry as a career will often be subject to stigmatising comments regarding their choice from others, including family members and friends [15,23], further alienating them from psychiatry as a career. For psychiatrists, stigma often persists throughout their career [10] with the profession perceived as having a negative image, both in the community and by other medical specialists [24,25].

Clerkships (also called attachments, placements or rotations) form a core component of clinical teaching in medical schools. Psychiatry clerkships are often the first exposure that students have to patients with mental illness, psychiatric wards and mental health services more generally. A U.S. study found that the length of the psychiatry clerkship varied between medical schools ranging from 4–8 weeks, averaging around 6.2 weeks [26].

A systematic review of the impact of the psychiatry clerkship that assessed 26 studies from 19 countries found that the average length of clerkship was 5.5 weeks with 4 weeks the most common length [27]. Clerkships provide a good opportunity for academics and others involved in clinical teaching to promote psychiatry to students, including its career potential. However, while they have a positive effect on students attitudes towards psychiatry, there is mixed evidence of their impact on psychiatry as a career choice [27].

In order to investigate this apparent disparity between positive attitudes towards psychiatry as a discipline and negative attitudes towards psychiatry as a career, and explore the role that stigma may play, a survey of medical students was undertaken. The aim of the study was to assess the impact of the eight week clinical clerkship in psychiatry on i) student knowledge and interest in psychiatry; ii) psychiatry as a career choice; iii) attitudes towards psychiatry; and iv) perceptions of stigma towards mental illness.

This paper will report on the results of this study and discuss strategies that may assist to improve students attitudes towards mental illness and psychiatry as a career choice.

Method
The psychiatry clerkship
The current medical course at the University of Western Australia (UWA) is a six year undergraduate Bachelor of Medicine, Bachelor of Surgery (MBBS) degree. During Year 4 students rotate through four different eight week clinical clerkships, including psychiatry, in groups of approximately 60. These clerkships are the first opportunity that students have to experience working in hospitals and other clinical settings. For the psychiatry clerkship students are divided into smaller groups of 4–8 and allocated to a clinical teaching site that is attached to a psychiatric inpatient unit. During the eight weeks they have several additional shorter visits to old-age and alcohol and drug rehabilitation services. As well as ward work with a clinical team including consultants and registrars, students also have a three hour tutorial per week which is facilitated by an academic staff member and covers theoretical components of psychiatry. These tutorials cover a range of case based learning scenarios including mood disorders, anxiety disorders, schizophrenia, substance abuse, personality disorders and organic disorders. A two day introductory course of lectures is given at the beginning of the clerkship. The main component of assessment is a case presentation where students are required to interview a patient for an hour followed by a presentation of the findings and discussion with the examiner.

Study design and procedures
Study participants were Year 4 MBBS medical students at UWA who were undertaking their eight week
psychiatry clerkship. Students were asked to complete two questionnaires on the first day of the clerkship (baseline) and again towards the end of the clerkship (follow-up). Questionnaires were distributed during tutorial contact time and participation was voluntary. To ensure confidentiality no identifying information was collected.

Ethics approval for the study was granted from the UWA Human Research Ethics Committee. Consent to participate in the survey was implied if students decided to complete the survey.

The Balon Attitudes Towards Psychiatry questionnaire [14] and the Mental Illness Clinicians Attitudes Scale (MICA) (medical student version) [28] were used in the study. The Balon questionnaire was developed in 1999 and has been used in a number of studies that have been conducted in different countries to measure medical students attitudes toward psychiatry. It has 29 items and is rated on a 4 point scale – strongly agree, agree, moderately agree, moderately disagree, strongly disagree. The following themes are covered: i) overall merits of psychiatry; ii) efficacy; iii) role definition and functioning of psychiatrists; iv) possible abuse and social criticism; v) career and personal reward; and vi) specific medical school factors.

The medical student version of the MICA was developed and validated in 2010 [28]. It has 16 items and is rated on a 6 point Likert scale – strongly agree, agree, somewhat agree, somewhat disagree, disagree, strongly disagree. The minimum total score is 16, maximum 96. A lower score indicates a less stigmatising attitude towards mental illness and psychiatry.

In addition to the Balon and MICA, demographic data was collected. Students were also asked to rate their interest in, and knowledge of psychiatry on a 10 point visual analogue scale (1 = low interest/knowledge; 10 = high interest/knowledge) and their extent of consideration of psychiatry as a career on a 10 point scale (1 = definitely not considering; 10 = definitely considering).

Statistical analyses were carried out using IBM SPSS software, Version 22.0. Unpaired t-tests were used to compare mean differences on the visual analogue scale questions. Non-parametric tests were used to compare baseline and follow-up differences on Balon and MICA items. As the full range of responses on the 4 point Balon rating scale had not been utilised by many respondents on a number of the questions, the rating scale was dichotomised into ‘agree’ and ‘disagree’ variables and the percentage agreement/disagreement for each item was calculated. McNemars test was used to determine significance between baseline and follow-up on each item. For the MICA, the negatively worded questions were reverse scored and the mean total baseline and post scores calculated. An unpaired t-test was used to determine statistical significance on the mean scores, a Mann–Whitney U tests found that they were no significant changes between baseline and follow-up on each item. The significance level for all statistical testing was set as p = <0.05.

Results
Approximately 238 students were invited to participate in the baseline survey, and 230 to the follow-up survey. One hundred and fifty one students responded to the baseline survey (63% response rate), and 161 responded to the follow-up survey (70% response rate). At baseline, 68 (45%) respondents were male and 83 (55%) female. At follow-up 77 (48%) were male and 84 (52%) female. The mean age was 23 years, range 20–40 years.

Interest, knowledge and psychiatry as a career
The baseline means for interest and knowledge of psychiatry, and psychiatry as a career were 5.7/10, 3.5/10, and 3.9/10 respectively. The follow-up means for interest and knowledge of psychiatry, and psychiatry as a career were 6.1/10, 6.0/10, and 4.8/10 respectively. An unpaired t-test found that there were no significant changes at follow-up on the level of interest in psychiatry t(310) = 1.6133, p = 0.1077. There was, however, a significant improvement on the level of knowledge of psychiatry, and interest in psychiatry as a career, t(310) = 15.4053, p = 0.0001 and t(310) = 3.3804, p = 0.0008 respectively. Details are shown in Table 1.

Mann–Whitney U tests found that there were no significant differences between male and female students at either baseline or follow-up in interest in psychiatry (baseline p = 0.123; follow-up p = 0.394), knowledge of psychiatry (baseline p = 0.240; follow-up p = 0.663) or psychiatry as a career (baseline p = 0.756; follow-up p = 0.451).

The number of students definitely considering a career in psychiatry (those who scored the question as 8, 9, or 10) rose from 7 (4.6%) students at baseline to 17 (10.5%) at follow-up.

Attitudes towards psychiatry
Overall, students reported positive attitudes towards psychiatry, both at baseline and follow-up. Only three Balon items showed a statistically significant change post clerkship, all of which were in the positive direction.

| Table 1 Changes in interest, knowledge and psychiatry as a career |
|-----------------|-----------------|--------|--------|
|                 | Baseline mean (sd) | Follow-up mean (sd) | t     | p value |
| Interest in psychiatry | 5.7 (1.8)       | 6.1 (2.0)       | 1.6133 | 0.1077  |
| Knowledge of psychiatry  | 3.5 (1.6)       | 6.0 (1.3)       | 15.4053 | 0.0001  |
| Psychiatry as a career   | 3.9 (2.0)       | 4.8 (2.2)       | 3.3804 | 0.0008  |
These were, ‘I feel uncomfortable with mentally ill patients’; ‘Teaching at my medical school is interesting and of good quality’; and, ‘Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school’. Items that assessed the overall merits of psychiatry and the efficacy of psychiatry were all favourably rated. Eighty-seven percent at baseline and 91% at follow-up agreed that, ‘Psychiatry is a rapidly expanding frontier of medicine’ and 84% at baseline and 81% at follow-up disagreed with the statement, ‘Psychiatry is unscientific and imprecise’.

With one exception, the items that measured the role, definition and functioning of psychiatrists were all positively rated at baseline, with little capacity for significant improvement at follow-up. One item, ‘Among mental health professionals, psychiatrists have the most authority and influence’ showed a more divergent viewpoint. Agreement at baseline was 59%, increasing to 68% at follow-up, however, this was not significant.

Students’ were positive about the teaching of psychiatry during the rotation. Seventy-five percent agreed at baseline that teaching was of a good quality and this increased significantly to 93% at follow-up, McNemars p = 0.001. Approximately 90% reported that residents, registrars and consultants they met during the rotation were good role models. There was significant improvement in students views on the level of encouragement to pursue psychiatry as a career, 60% disagreed at baseline with the statement, ‘Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school’ compared with 77% at follow-up, McNemars p = 0.001.

Several of the ‘career and personal reward’ items showed less positive attitudes, specifically those that assessed how students and others perceive psychiatry as a discipline and career. Fifty-two percent at baseline agreed that psychiatry has a low prestige among the public and there was no significant change in this at follow-up (47%). Approximately a third of students at baseline agreed that their family and friends would discourage them from a career in psychiatry and there was no change in this at follow-up. There was only a 22% agreement with, ‘Psychiatry has a high status among other medical disciplines’ dropping to 17% at follow-up, but the difference was not significant.

The percentage agreement/disagreement relating to each item and McNemars test are shown in Table 2 below.

### Mental illness stigma

The baseline mean total score for the MICA was 48.2 (sd 8.3) and the follow-up mean total score was 43.5 (sd 7.5). An unpaired t-test found that this was a significant change, t(310) = 15.4053, p = 0.0001 indicating an overall improvement in attitudes towards psychiatry and mental illness stigma post clerkship. The baseline mean score for male students was 49.4 (sd 9.1) and 47.2 (sd 7.4) for females. A Mann–Whitney test found no significant differences between males and females at baseline (p = 0.068). However, at follow-up, the mean score for males was 42.0 (sd 6.0), and 44.8 (sd 8.4) for females, Mann–Whitney (p = 0.015).

The median scores and level of agreement/disagreement for each MICA item are shown in Table 3. Baseline and follow-up comparison of each MICA item was undertaken using Wilcoxon signed rank tests. Five items showed a significant change post clerkship. Two of these, ‘I feel as comfortable talking to a person with a mental illness as I do those with physical illness’; and ‘It is important that any doctor supporting a person with a mental illness also assesses their physical health’ showed a significant improvement in attitudes post clerkship. Three showed a more negative attitude post clerkship. These were, ‘People with a severe mental illness can never recover enough to have a good quality of life’; ‘Psychiatry is just as scientific as other field of medicine’; and ‘The public does not need to be protected from people with a severe mental illness’. Refer to Table 3 for details.

### Discussion

This study explored the impact of an 8 week psychiatry clerkship on medical students’ attitudes towards psychiatry and mental illness stigma. Several different measures assessed interest and knowledge of psychiatry; attitudes towards psychiatry; and perceptions of stigma, both towards mental illness, people with mental illness, the discipline of psychiatry, and psychiatry as a career.

Knowledge and interest in psychiatry were poorly rated at the beginning of the clerkship. At the end of the clerkship there was no significant change in the level of interest in psychiatry, however, there was a significant improvement in students’ knowledge, which indicates that despite low interest in psychiatry, the teaching of the clerkship which was highly rated, resulted in an increase in knowledge.

Attitudes towards psychiatry measured using the Balon questionnaire showed that a number of items were positively rated at baseline, leaving little capacity for significant improvements at follow-up. Similar findings have been reported in other studies [29-32]. In particular, attitudes towards mentally ill patients improved significantly post clerkship and there was a correlation between similarly worded items on the Balon and MICA questionnaires, demonstrating a level of internal consistency between the two instruments. Improvements in attitudes towards patients post clerkship have been found in other studies [33,34] supporting the contact theory which proposes that contact with people with mental illness improves attitudes and acceptance towards mental illness [35]. There was also agreement between
<table>
<thead>
<tr>
<th>Table 2 Balon attitudes towards psychiatry – baseline and follow-up agreement, and significance</th>
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<tbody>
<tr>
<td><strong>Baseline Agree (%)</strong></td>
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<tr>
<td><strong>Baseline Disagree (%)</strong></td>
</tr>
<tr>
<td>1. Psychiatric research has made good strides in advancing care of the major mental disorders</td>
</tr>
<tr>
<td>2. Psychiatry is a rapidly expanding frontier of medicine</td>
</tr>
<tr>
<td>3. Psychiatry is unscientific and imprecise</td>
</tr>
<tr>
<td><strong>Efficacy</strong></td>
</tr>
<tr>
<td>4. If someone in my family was very emotionally upset and the situation did not seem to be improving, I would recommend a psychiatric consultation</td>
</tr>
<tr>
<td>5. Psychiatric consultation for medical or surgical patients is often helpful</td>
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<tr>
<td>6. Psychiatric treatment is helpful to most people who receive it</td>
</tr>
<tr>
<td><strong>Role, definition and functioning of Psychiatrists</strong></td>
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<tr>
<td>7. Psychiatry is not a genuine and valid branch of medicine</td>
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<tr>
<td>8. Most psychiatrists are clear, logical thinkers</td>
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<tr>
<td>9. With few exceptions, clinical psychologists and social workers are just as qualified as psychiatrists to diagnose and treat emotionally disturbed persons</td>
</tr>
<tr>
<td>10. Among mental health professionals, psychiatrists have the most authority and influence</td>
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<tr>
<td>11. Psychiatrists are too frequently apologetic when teaching psychiatry</td>
</tr>
<tr>
<td>12. Psychiatry is too ‘biologically’ minded and not attentive enough to the patient’s personal life and psychological problems</td>
</tr>
<tr>
<td>13. Psychiatry is too analytical, theoretical, and psychodynamic, and not attentive enough to patient’s physiology</td>
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<tr>
<td><strong>Possible abuse and social criticism</strong></td>
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<tr>
<td>14. Psychiatrists frequently abuse their legal power to hospitalise patients against their will</td>
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<tr>
<td>15. On average, psychiatrists make as much money as most other doctors</td>
</tr>
<tr>
<td><strong>Career and personal reward</strong></td>
</tr>
<tr>
<td>16. Psychiatry has a low prestige among the general public</td>
</tr>
<tr>
<td>17. Psychiatry has a high status among other medical disciplines</td>
</tr>
<tr>
<td>18. Many people who could not obtain a residency position in other specialties eventually enter psychiatry</td>
</tr>
</tbody>
</table>
instruments regarding the scientific basis of psychiatry, which was positively rated on both the Balon and MICA, however, the MICA detected a small but significant negative change in this post clerkship. The baseline and follow-up means for the MICA were close to the neutral value, (48.2 and 43.5 respectively). Despite a significant improvement at follow-up, this shows only weak evidence that the clerkship decreased stigma towards mental illness. The items regarding recovery of people with mental illness and the protection of the public from people with mental illness were more negatively rated post clerkship, and this has also been observed in other studies [19,36]. This could reflect the clerkship structure which exposes students to patients with more severe symptoms in acute public inpatient settings, where recovery is not captured or witnessed over the clerkship duration. The post clerkship improvement in students feeling comfortable talking to people with mental illness may be due to psychiatric history taking and assessment skills learned during the clerkship which resulted in increased confidence in interviewing and assessing patients. However, despite this improvement, the disturbed behaviours of patients observed in an acute setting may be interpreted by students as dangerous and could account for the view that the public need to be protected. Changes to the current clerkship structure to provide opportunities for students to work with patients in outpatient and community settings may provide a more realistic view of mental illness enabling students to see positive aspects of treatment and management.

The clerkship, which includes ward work with patient contact, and the weekly tutorial sessions decreased students’ perceptions of stigma to some extent, however, there is room for improvement. Addressing stigma through educational interventions is essential for psychiatry to overcome its negative status among students [23], but evidence of the effectiveness of anti-stigma training is mixed. Friedrich and colleagues found that an educational package of lectures, personal testimonies and role play activities improved short term knowledge, attitudes and behaviour, but these effects were not maintained over time [37]. A similar training package found improvements in knowledge, but not in attitudes and behaviour [38]. In order to maintain the positive benefits of anti-stigma training over a longer period of time, these strategies need to be embedded and integrated throughout the curriculum.

It was encouraging that the quality of the psychiatry teaching during the clerkship was highly rated and psychiatrists regarded as good role models. There was a significant increase in the consideration of psychiatry as a

<table>
<thead>
<tr>
<th>Specific medical school factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. Teaching of psychiatry at my medical school is interesting and of good quality</td>
</tr>
<tr>
<td>25. During my psychiatry rotation, psychiatry residents were good role models</td>
</tr>
<tr>
<td>26. Attending psychiatrists during my psychiatry rotation were good role models</td>
</tr>
<tr>
<td>27. Most psychiatrists at my medical school are clear, logical thinkers</td>
</tr>
<tr>
<td>28. Most non-psychiatry staff at my medical school are respectful of psychiatry</td>
</tr>
<tr>
<td>29. Although I am interested in psychiatry, no effort was made to encourage my becoming a psychiatrist at my medical school</td>
</tr>
</tbody>
</table>

Table 2 Balon attitudes towards psychiatry – baseline and follow-up agreement, and significance (Continued)

19. Psychiatry is a discipline filled with international medical graduates whose skills are of low quality 5 9 NS
95 91
20. My family would discourage me from entering psychiatry 32 37 NS
68 63
21. Friends and fellow students would discourage me from entering psychiatry 28 35 NS
72 65
22. If a student expresses interest in psychiatry, he or she risks being associated with a group of other would-be psychiatrists who are often seen by others as odd, peculiar or neurotic 30 30 NS
70 70
23. I feel uncomfortable with mentally ill patients 44 16 0.001
56 84
career which resulted in an additional 10 students who were ‘definitely considering’ psychiatry as a career post clerkship. Evidence of the impact of the clerkship on career preference is mixed, with some studies finding increases in the level of career interest post clerkship [34,39-41] and others finding no differences [32,33,42]. The clerkship structure, length of clerkship and specific cultural factors may account for the differences in career interest found in these studies that have been conducted in medical schools internationally. While attitudes post clerkship have been found to deteriorate over time as students continue with their studies and internship [43], a positive clerkship experience can have an enduring and positive effect if interested students receive ongoing encouragement from consultants, registrars and other academic staff members [44] as they progress through

Table 3 MICA baseline and follow-up median disagreement and significance

<table>
<thead>
<tr>
<th>Q</th>
<th>Baseline (Median)</th>
<th>Follow-up (Median)</th>
<th>Baseline (%)</th>
<th>Follow-up (%)</th>
<th>Wilcoxon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. I just learn about psychiatry because it’s in the exam and would not bother reading additional material on it</td>
<td>4</td>
<td>4</td>
<td>1; 2, 5; 30; 2, 7; 5; 17</td>
<td>24; 32; 10, 5</td>
<td>38, 5; 24; 11</td>
</tr>
<tr>
<td>Q2. People with a severe mental illness can never recover enough to have a good quality of life</td>
<td>5</td>
<td>4, 5</td>
<td>1, 3; 5; 2</td>
<td>6, 4; 25; 2</td>
<td>7, 35, 5; 27</td>
</tr>
<tr>
<td>Q3. Psychiatry is just as scientific as other field of medicine</td>
<td>3</td>
<td>3</td>
<td>6; 4; 25; 2</td>
<td>7; 35, 5; 27</td>
<td>0, 046**</td>
</tr>
<tr>
<td>Q4. If I had a mental illness I would never admit this to any of my friends for fear of being treated differently</td>
<td>3</td>
<td>4</td>
<td>4; 13; 39; 2, 5; 9; 32</td>
<td>18; 20; 6</td>
<td>28, 5; 23; 5</td>
</tr>
<tr>
<td>Q5. People with a severe mental illness are dangerous more often than not</td>
<td>5</td>
<td>5</td>
<td>0; 4, 5; 15</td>
<td>0; 6, 0; 14, 5</td>
<td>NS</td>
</tr>
<tr>
<td>Q6. Psychiatrists know more about the lives of people treated for a mental illness than do family members of friends</td>
<td>3</td>
<td>3</td>
<td>2; 16; 44; 5</td>
<td>4, 5; 15; 34</td>
<td>NS</td>
</tr>
<tr>
<td>Q7. If I had a mental illness I would never admit this to any of my colleagues for fear of being treated differently</td>
<td>3</td>
<td>3</td>
<td>8; 23; 42; 9, 5; 20, 5; 37, 5</td>
<td>18; 7, 2</td>
<td>20; 10, 5; 2</td>
</tr>
<tr>
<td>Q8. Being a psychiatrist is not like being a real doctor</td>
<td>5</td>
<td>5</td>
<td>0; 2; 10; 1; 1; 8, 5</td>
<td>18; 14; 28</td>
<td>21; 41, 5; 27</td>
</tr>
<tr>
<td>Q9. If a psychiatrist asked me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions</td>
<td>2</td>
<td>2</td>
<td>36; 42; 15; 39; 40, 5; 11, 5</td>
<td>25; 25; 2</td>
<td>4, 5; 2; 2, 5</td>
</tr>
<tr>
<td>Q10. I feel as comfortable talking to a person with a mental illness as I do those with physical illness</td>
<td>4</td>
<td>3</td>
<td>4, 5; 18; 23; 12, 5; 36; 27</td>
<td>38, 5; 15; 1</td>
<td>19; 4, 5; 1</td>
</tr>
<tr>
<td>Q11. It is important that any doctor supporting a person with a mental illness also assesses their physical health</td>
<td>2</td>
<td>1</td>
<td>31, 5; 53, 5; 14; 52; 40, 5; 6, 5</td>
<td>0; 1; 0</td>
<td>1; 0; 0</td>
</tr>
<tr>
<td>Q12. The public does not need to be protected from people with a severe mental illness</td>
<td>4</td>
<td>4</td>
<td>1; 11; 24, 5; 2; 10; 20; 34; 19; 12</td>
<td>34; 22, 5; 11, 5</td>
<td>0, 041**</td>
</tr>
<tr>
<td>Q13. If a person with a mental illness complained of physical symptoms, I would attribute it to their mental illness</td>
<td>5</td>
<td>5</td>
<td>0; 1; 7</td>
<td>0; 2; 6, 5</td>
<td>NS</td>
</tr>
<tr>
<td>Q14. GP’s should not be expected to complete assessment for people with psychiatric symptoms as they can be referred to a psychiatrist</td>
<td>5</td>
<td>5</td>
<td>0; 2; 11; 1; 5; 3; 7</td>
<td>29; 46; 12</td>
<td>32, 5; 42; 14</td>
</tr>
<tr>
<td>Q15. I would use the terms ‘crazy’, ‘nutter’, ‘mad’ etc. to describe people with a mental illness who I have seen in my work</td>
<td>5</td>
<td>5</td>
<td>1, 5; 4, 5; 11; 1, 5; 7; 15; 5</td>
<td>18; 35; 30</td>
<td>23; 26, 5; 26, 5</td>
</tr>
<tr>
<td>Q16. If a colleague told me they had a mental illness I would still want to work with them</td>
<td>2</td>
<td>2</td>
<td>21; 57, 18; 31, 5; 48, 5; 15</td>
<td>2; 1; 1</td>
<td>3, 5; 15, 0</td>
</tr>
</tbody>
</table>

MICA – Mental Illness Clinicians Attitudes scale SA = strongly agree (1); A = agree (2); SWA = somewhat agree (3); SWD = somewhat disagree (4); D = disagree (5); SD = strongly disagree (6).

*Significance demonstrates less stigma post clerkship; **Significance demonstrates more stigma post clerkship.
their training. This is particularly important as career decisions regarding specialisation in general are often made up to three years after graduation from medical school [25].

In recent decades, lifestyle factors have been more closely considered by medical students and junior doctors when making career decisions. These include maintaining a work-life balance; choosing a career with a family friendly image; having the opportunity to work part-time; and a manageable, controllable and flexible workload [15,18,20]. Psychiatry is well placed to provide positive lifestyle factors for its potential professionals [45], yet it remains an unpopular career choice. Negativity expressed towards psychiatry among friends, family, the public and other medical specialists, psychiatry’s poor social prestige and lower earning potential found in this, and other studies [14,20,46,47] may explain why some students do not regard psychiatry favorably as a potential career. Stigma on this level may exert a greater influence over career decision making processes and act to negate the more positive aspects that the discipline has to offer.

In order to mitigate these views, a further role of the clerkship could be to identify students who have a particular interest in psychiatry and provide them with support and mentorship to ensure continued interest over the remainder of the medical course and into internship [18]. Enrichment programmes such as Summer Schools, Psychiatry Institutes and electives can play an important part in targeting students interested in psychiatry and provide them with a more in depth educational exposure to the speciality [48-51]. These types of programmes have been successful in enhancing career interest in psychiatry and in psychiatry as a discipline and could be implemented by medical schools more widely. In addition, the encouragement of student led mental health interest groups also have the potential to encourage positive views towards psychiatry among students, destigmatise mental illness and demystify psychiatry [8].

### Study strengths and limitations

While a number of studies have identified stigma as an issue [12,17], our study was strengthened by the use of a relatively new instrument to measure stigma, the MICA. This adds a new dimension to what is known about the role that stigma plays on students attitudes towards psychiatry and to psychiatry as a career choice.

Limitations of the study are that in order to maintain confidentiality it was not possible to match baseline and follow-up responses as identifying information was not provided by respondents. For students, providing identifying information in surveys is perceived negatively as, despite assurances by staff, they are concerned that their responses, in particular negative responses, may influence their assessment results or treatment by clinical and academic staff in some way. It can also impact negatively on the response rate. For these reasons, it was decided not to use a matched design which would have resulted in a more robust study design but compromised response rates and biased responses to some of the items in the questionnaires, particularly those relating to the treatment of patients and quality of teaching. Not all students in the year group participated in the study and it is possible that selection bias towards those students who are more interested in psychiatry may have contributed towards the improvement in attitudes reported in the results.

This 8 week clerkship takes place in the fourth year of a six year medical course and is the first real exposure that students have to the practical aspects of working with patients with mental illness. At the end of the clerkship there were improvements in attitudes and overall perceptions of mental illness stigma, however, while we can conclude that the clerkship may have contributed towards this improvement, we cannot assume that these views will remain constant as students’ progress through the course. There is no certainty that the students at follow-up who stated that they were ‘definitely considering’ psychiatry will go on to pursue it as a career. Longer term follow-up of the same cohort of students will enable attitudes to be tracked over time to determine how to maintain the gains made during the clerkship and develop appropriate teaching resources that will provide opportunities to further improve attitudes and stigma.

The clerkship is comprised of a number of different components including ward work and tutorials. Future research in this area that specifically assesses each component to find out what works best from a student perspective will help psychiatric educators to structure clerkships that address both the required and relevant educational outcomes and maximise opportunities to improve attitudes towards psychiatry, reduce stigma and increase the number of students who are considering psychiatry as a career.

### Conclusion

The discipline of psychiatry must be able to recruit and retain a viable workforce of psychiatrists that will adequately meet the future needs of the profession. This clerkship made a modest impact on students’ attitudes to psychiatry, stigma and consideration of psychiatry as a career. The integration of strategies to overcome stigma, both towards people with mental illness and the mental health profession, into pre-clinical teaching may provide students with skills to better prepare them for the negative aspects of the clerkship and could assist in improving attitudes towards psychiatry and encourage more students to consider psychiatry as a career. Finally, psychiatry is an integral part of the practice of medicine and it is important that, regardless of future area of specialisation, all students foster a positive attitude towards mental illness in order to provide holistic treatment for their patients.
Competing interests
The authors declare that they have no competing interests.

Authors' contributions
The study was designed and carried out by ZL and AJ. ZL collected and analysed the data. ZL and AJ both worked on drafts and gave approval for the final version of the paper.

Acknowledgement
The authors would like to thank UWA colleagues and students who participated in the study. This was an unfunded study.

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Psychiatry Enrichment Initiatives: A Review of Current Programs, Summer Schools, and Institutes

Zaza Lyons

Psychiatry is an integral component of undergraduate and graduate medical courses around the world. Preclinical teaching can serve as a valuable learning experience and introduction to psychiatry that can be positively predictive of students choosing psychiatry as a career [1]. Clinical clerkships in the later years of medical training provide students with experience of working with patients in clinical settings, and for most will be the only exposure they have to the clinical psychiatry at the time of graduation. However, with clerkships becoming shorter, between 4 and 6 weeks in most medical schools [2], designing curriculum that adequately covers the core knowledge and skills required by all medical graduates is a challenging process. For a diverse speciality such as psychiatry this inevitably results in difficult choices regarding what teaching content can be included in the time available [3]. This places a greater onus on academic departments to offer students who are interested in psychiatry additional opportunities to extend their knowledge and interest beyond the teaching curriculum [4].

In an attempt to improve recruitment to psychiatry and the image of psychiatry more generally, in the last 10 years or so there has been a growing interest in the development of enrichment programs, activities, and initiatives specifically designed to attract more medical students towards a career in psychiatry [5, 6]. Some of these are more formally implemented at a departmental and/or faculty level, for example, the integration of psychiatry electives into the existing curriculum, and some involve the establishment of extracurricular psychiatry institutes and summer schools. Other activities are student organized and led such as psychiatry student societies (PsychSocs), mental health interest groups, and coffee clubs [7].

Enrichment programs that target students who are interested in psychiatry and considering it as a career have potential to address the recruitment and image problems that have plagued psychiatry for so long. In this review, an enrichment program is defined as any extra curricula program that is targeted specifically towards medical students who have an interest in learning more about psychiatry as a discipline, and as a potential career pathway. Programs can be designed as an elective to complement or supplement the content of an existing psychiatry curriculum, or implemented as a summer school or institute either during the vacation break or in semester time. Programs can also be implemented as a weekend workshop. The aim of this paper is to review, describe, and summarise results of existing enrichment programs in psychiatry.

Literature Search

In order to identify relevant peer-reviewed, published literature, the following databases were searched - EMBASE, PsycINFO, and PubMed. Key words used in the search were medical student, psychiatry, institute, summer school, enrichment program, and recruitment. A gray literature search was also carried out to identify unpublished programs and initiatives. This included firstly, a Google search using the same key words as in the peer-reviewed search, and secondly, email
correspondence to individual academics referred to in either the published papers or programs that were identified through the Google search. Finally, the citations referenced by the selected published journal articles, and subsequent articles that had cited these published papers were hand searched and any relevant papers followed up. This search strategy was considered to be the most effective method of identifying as accurately as possible the greatest number of enrichment programs currently available.

Articles that described a psychiatry enrichment program as defined above were selected for the review. Papers were included if one of the search words appeared in the title or abstract. Papers were excluded if they described programs offered to postgraduate trainees already specialising in psychiatry or qualified mental health professionals, described educational programs that focused on a specific area or aspect of psychiatry such as addiction training and research methodology and skills, or described individual activities such as student-led societies, coffee and film clubs, and student psychiatry interest groups, unless they were a component of a more formally implemented program. The search was conducted in May 2015 and only English language papers and websites were included.

The database search of the peer-reviewed literature identified a large number of papers. The titles and abstracts were briefly read and it was evident that the majority were not relevant to the review and hence were rejected. In total, seven papers that described psychiatry summer schools, institutes, or programs specifically targeted towards medical students were selected for the review [8–14]. The gray literature search, personal communications through email correspondence, and citation searches identified a further four programs [15–18]. The reviewed programs were from the USA [8], Canada [9], Australia [10, 18], the UK [13, 15, 16], Switzerland [11], Ireland [12], and Finland [14]. Table 1 provides a summary of the programs included in the review.

Most of the reviewed programs were designed as summer schools and took place during the summer vacation period [9, 12, 13, 15–17]. The exception to this was the Claassen Institute which was an intensive week long program run in the southern winter during semester time [10]. Programs were of varying length ranging from 1 [12], 3 [13], or 5 days [9, 10, 15, 17]. The East Midlands Psychiatry Summer School was implemented as a 3-day program bi-annually and a 1-day program in the alternate years [16]. The Royal Australian and New Zealand College of Psychiatry Recruitment Project was implemented as a series of weekend workshops in three major cities across the country [18].

Two programs [8, 11] were embedded in the existing medical curriculum and enabled participating students with a particular interest in psychiatry to have an extended, intensive, and enriched teaching in psychiatry over several years starting at an early stage of their medical studies. The Satakunda Summer School took place over the 2-month summer vacation break and enabled students to work under supervision as ‘substitutes’ for permanent medical staff at the local hospital [14].

Regardless of the structure of each individual program, aims were similar. The main focus was firstly, on increasing student interest in psychiatry, both as a discipline and as a rewarding and fulfilling career choice, and secondly, introducing students to aspects of psychiatry, mainly areas of subspecialisation, that they were unfamiliar with, e.g., forensic, old age, and consultation liaison psychiatry. Most of the summer school programs emphasized the importance of providing students with a positive, inspiring, and stimulating experience.

Individual components and activities undertaken in the summer school programs included seminars presented by inspirational speakers who covered topics not usually taught in the medical curriculum; patient contact through elective site visits; “speed dating” (an activity that involves between 8 and 10 “stations” represented by psychiatrists from different specialties. Students spend 5–10 min at each station to find out as much as possible about each before rotating to the next station), film nights; case discussions, informal opportunities to meet with consultant and registrars, and social events such as dinners and lunches. Not all programs were able to provide students with elective site visits and patient contact [13, 18]. Three programs provided a more structured learning environment that included seminars, tutorials, workshops, and clinical exposure through inpatient and outpatient work [8, 11, 14].

Seven of the eleven programs reviewed reported results of questionnaire based evaluation that had been undertaken to assess the effectiveness of the program [8–10, 12–14, 18]. In all cases, the evaluation showed that attending the program had increased students interest in psychiatry and their consideration of psychiatry as a career. Three programs reported results of longitudinal data that demonstrated the proportion of students who joined psychiatry training programs after graduation. Weintraub and colleagues showed that over a 20-year period, 70 % of Combined Accelerated Program in Psychiatry (CAPP) students who ranked psychiatry first in their freshman year joined psychiatry residency programs after graduation [8]. The Toronto Institute found that between 1994 and 2005 43 % of participants matched into psychiatry [9], and evaluation of the Claassen Institute showed that 21 % of 89 students who attended between 2008 and 2013 and responded to a long term follow-up survey were undertaking postgraduate training [10].

Summary of Reviewed Programs

The Combined Accelerated Program in Psychiatry, which was established in 1970 can be credited as the first example of a psychiatry enrichment program [8], followed by the Toronto...
<table>
<thead>
<tr>
<th>Country/ institution</th>
<th>Program name</th>
<th>Year started</th>
<th>Type, duration, frequency</th>
<th>Content and structure</th>
<th>Eligible students/ number of places</th>
<th>Evaluation results</th>
</tr>
</thead>
<tbody>
<tr>
<td>US University of Maryland [8]</td>
<td>Combined Accelerated Program in Psychiatry (CAPP)</td>
<td>1970</td>
<td>Special extracurricular elective program that runs for 4 years concurrent to the medical course</td>
<td>Focus on basic psychiatric concepts; ward work and patient contact; supervised psychotherapy; small group teaching with senior staff</td>
<td>12 freshmen students recruited to the CAPP each year</td>
<td>High number of CAPP graduates entered psychiatry residency programs</td>
</tr>
<tr>
<td>Canada University of Toronto [9]</td>
<td>The Psychiatry Institute for Medical Students</td>
<td>1994</td>
<td>Annual 5-day intensive summer school program</td>
<td>Informal lectures and seminars each morning; clinical electives in afternoon; patient panel discussion; social activities</td>
<td>Approx. 25 first and second year students accepted from universities across Canada each year</td>
<td>Between 1994 and 2005, 178 students have attended. 43 % matched to psychiatry residency programs</td>
</tr>
<tr>
<td>Australia University of Western Australia [10]</td>
<td>The Claassen Institute of Psychiatry for Medical Students</td>
<td>2008</td>
<td>Annual 5-day intensive program held in June</td>
<td>Seminars on areas of subspecialisation; elective site visits; debate; stigma workshop; social activities including informal meetings with consultants and registrars</td>
<td>Approx. 16 year 5 and year 6 students from UWA and Notre Dame University attend each year. Also, overseas students have attended in some years—New Zealand and Hong Kong</td>
<td>Between 2008 and 2014, 117 students have attended. Significant increase in those considering psychiatry as a career at the end of week; long term evaluation showed that 21 % of participants currently on training program.</td>
</tr>
<tr>
<td>UK Institute of Psychiatry, Psychology and Neuroscience Summer School (IoPPN) [15]</td>
<td>Institute of Psychiatry, Psychology and Neuroscience Summer School (IoPPN)</td>
<td>2009</td>
<td>Annual 5-day intensive summer school program</td>
<td>Seminars; patient interviews; debates; “speed dating”; film club; opportunities to meet clinicians; evening social activities</td>
<td>Medical students and foundation year doctors; number of places not stated</td>
<td>No evaluation data available</td>
</tr>
<tr>
<td>Switzerland University Hospital Zurich [11]</td>
<td>Study Focus on Psychiatry</td>
<td>2011</td>
<td>Intensified training program of elective modules at Masters level integrated in to medical curriculum</td>
<td>Covers key competencies in psychiatry and psychotherapy; research component; mentoring program.</td>
<td>Students in second and third year can apply for course; Masters modules start in year 5 and thesis completed by end of year 6; 56 applications received in first 2 years</td>
<td>No evaluation data available</td>
</tr>
<tr>
<td>Ireland College of Psychiatry of Ireland [12]</td>
<td>Psychiatry Summer School</td>
<td>2011</td>
<td>1-day program run twice over two consecutive days</td>
<td>Informal seminars in the morning; site visits in afternoon; feedback sessions; social event</td>
<td>Students from all Irish medical schools eligible to attend; 62 attended over 2 days</td>
<td>Interest in psychiatry as career and overall attitudes towards psychiatry increased significantly by end of day. Improvements maintained at 3 months follow-up</td>
</tr>
<tr>
<td>UK Tees, Esk, and Wear NHS Foundation Trust [13]</td>
<td>Summer School of Psychiatry</td>
<td>2012</td>
<td>3 days</td>
<td>Clinical case presentations; film club; training and research in psychiatry; speed dating; no clinical contact</td>
<td>19 year 1, 2 3 students from UK schools.</td>
<td>Significant increase in attitudes towards psychiatry and as a career at end of program</td>
</tr>
<tr>
<td>UK St Andrews Healthcare, East Midlands School of Psychiatry, and the East of England School of Psychiatry [16]</td>
<td>The East Midlands Psychiatry Summer School</td>
<td>2012</td>
<td>3-day program run bi-annually; 1-day program run on alternate years</td>
<td>Speed dating; day in the life of a trainee; mock trial</td>
<td>50 participants in 2012; 58 in 2014 (3-day program); 60 in 2013 (1 day)</td>
<td>No evaluation data available</td>
</tr>
</tbody>
</table>
### Table 1 (continued)

<table>
<thead>
<tr>
<th>Country/ institution</th>
<th>Program name</th>
<th>Year started</th>
<th>Type, duration, frequency</th>
<th>Content and structure</th>
<th>Eligible students/ number of places</th>
<th>Evaluation results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland Satakunta Hospital [14]</td>
<td>Summer School of Psychiatry</td>
<td>2013</td>
<td>Program run over 2 months</td>
<td>Patient case workshops; teaching and tutoring sessions</td>
<td>14 medical students (working as substitutes for permanent staff during summer vacation) and 8 interns from 4 medical schools</td>
<td>Knowledge in psychiatry and core skills significantly improved; diverse learning environment positively rated</td>
</tr>
<tr>
<td>US Virginia Commonwealth University [17]</td>
<td>Summer Institute in Psychiatry for Medical Students</td>
<td>Unknown</td>
<td>5-day program</td>
<td>Seminars; stigma discussion; boundary issues; inpatient team rounds; information about the Residency program</td>
<td>Max 15 students per year</td>
<td>No evaluation data available</td>
</tr>
<tr>
<td>Australia Royal Australia and New Zealand College of Psychiatrists [18]</td>
<td>Recruitment into Psychiatry Project</td>
<td>2014</td>
<td>Weekend/1 day workshops run in Sydney, Brisbane, and Melbourne</td>
<td>Speed dating; case study presentations; consumer stories; research news; student led debate</td>
<td>78 participants in total</td>
<td>Level of knowledge in psychiatry improved at the end of the weekend; 99 % said they would recommend to others</td>
</tr>
</tbody>
</table>

Institute established as a summer school in 1994 [9], and the Claassen Institute in 2008 [10]. Over the last 5 years, the popularity of enrichment programs has grown significantly. This review identified 11 programs, eight of which were designed as intensive summer schools or psychiatry institutes and implemented as a 1, 2, 3, or 5-day stand-alone program [9, 10, 12, 13, 15–18]; two programs were integrated into the existing medical curriculum [8, 11] and one involved students working at the local hospital as “substitutes” during the summer vacation [14].

Regardless of program type, results from the seven programs that were evaluated showed that participation increased students’ interest, both in psychiatry as a discipline and as a career. This is perhaps unsurprising as students apply to attend on the basis of an existing special interest in psychiatry and are more likely to be considering it as a career option [19]. Furthermore, surveying students who are already interested in psychiatry at the beginning and end of a program that is specifically designed to broaden and extend their interest is likely to show a positive effect. However, whether the interest gained during the program is maintained over time and ultimately leads to residency training is less clear. As there is a time lag between attending a program and making a final career decision, longer term follow-up of students after completion of medical school and any other required internships is needed. Tracking students over time, particularly after they have left medical school can result in loss to follow-up and contribute to difficulties in undertaking longitudinal evaluation. Most of the programs identified for this review had not been established for long enough to determine the eventual career choices of students who have attended.

Of the three programs that reported longitudinal evaluation [8–10], all found that the initial intention to choose psychiatry persisted over time with a high proportion of students matching into psychiatry training/residency courses after graduation from medical school. However, as enrichment programs are specifically targeted towards students who have a preexisting interest in psychiatry, this may distort the impact of their effectiveness as these students may well have matched in to postgraduate psychiatry training regardless of having attended a program.

Measuring the effectiveness of an individual program depends on its specified outcomes and aims, the selection criteria that determine which students are eligible to attend and the specific questionnaires and study design used in the evaluation. Caution in interpreting results of programs is needed as outcomes and aims are varied, and in terms of assessing their effectiveness as a strategy to improve recruitment, longitudinal evaluation is imperative.

In most programs, the number of places available was limited. This means that careful attention needs to be given to the process of which students to select to participate in the program. Career decision making and the timing of when choices are made is variable, with some students choosing their future career during medical school [19], while others remain undecided until completion of the postgraduate year 1 or 2 [20, 21]. Whether to target and select students in the pre-clinical or clinical years, those who are “definitely interested,” in psychiatry as a career, or those who are interested but still “undecided” needs to be considered and will depend on the specific outcomes of the program. In the reviewed programs, there was little consistency regarding the selection of students, year level
at the time of attending the program, and current level of interest in psychiatry as a career. Some programs accepted first year students only [8], others first and second year students [9], others required students to be in the clinical years of the course [10, 14], and some accepted students from any year of the course [12, 13]. Programs that specifically select students who have expressed a degree of interest, or already decided on psychiatry as a career may lead to more students taking up a psychiatry residency, and as a consequence appear more successful compared with those that select undecided or ambivalent students. However, from a student perspective, attending a program inevitably helps to consolidate career decision making, regardless of whether psychiatry is chosen or not.

While this review aimed to identify as many current enrichment programs as possible through the implementation of a comprehensive search strategy that included both peer reviewed and gray literature, it is possible that some programs were not captured in this process. In particular, only publications and information from websites in the English language were included. This may have resulted in programs from non-English speaking countries around the world not being identified. As the enrichment program concept is still in its infancy, a further limitation is the shortage of published papers that explicitly describe the types of programs that are being undertaken and results of any evaluation that has been done. Furthermore, longitudinal evaluation to determine the numbers of students who match into psychiatry residency/training programs was only available for three programs [8–10]. While intuitively it is likely that a significant proportion of students who participate in enrichment programs will ultimately choose psychiatry as a career, the lack of evidence from long term follow-up studies somewhat limits the conclusions that can be made regarding their effectiveness as a recruitment strategy. Finally, a lack of consistency between programs regarding outcomes and aims, selection of students, and evaluation methodology somewhat limits the broader interpretation and generalisation of the existing evidence.

Intrinsic factors such as the quality of educational programs and teaching offered by schools and departments of psychiatry are influential in attracting students towards a career in psychiatry [22]. Introducing an innovative enrichment program enables psychiatric educators to take proactive steps towards improving and extending the teaching and learning options for students who are interested in broadening their skills and knowledge beyond what can be delivered in the standard curriculum. This may also prevent deterioration in interest gained through clerkship experiences as exposure to other speciality areas increases with the progression of their medical studies [23].

Psychiatry enrichment programs are an emerging concept in medical schools that have the potential to improve the profile and image of psychiatry to make it a more attractive and competitive medical speciality. While enrichment programs are proving to be an effective strategy in raising students’ interest in psychiatry, further research is needed to demonstrate their effectiveness as a strategy to attract more students to a career in psychiatry.

Compliance with Ethical Standards

Disclosure The author states that there is no conflict of interest.

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Future-proofing the psychiatry workforce in Australia: evaluation of an innovative enrichment programme for medical students

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Abstract
Objective: The Claassen Institute of Psychiatry for Medical Students (the Institute) is an innovative enrichment programme aimed at attracting medical students to psychiatry. This paper reports on the effectiveness of the Institute as a strategy to increase interest in psychiatry as a career, and the career pathways of students who have attended since 2008.
Method: Students completed a baseline questionnaire on day 1 and the final day of the Institute. A follow-up survey was administered electronically to ex-Institute students to determine their career pathways and current level of interest in psychiatry.
Results: Since 2008, 117 students have attended the Institute. There was a significant increase in those ‘definitely’ considering a career in psychiatry from 57% at baseline to 77% at the end of the week. Eighty-nine ex-Institute students were invited to participate in the follow-up survey, and of these 21% were currently psychiatry trainees.
Conclusion: The Institute has been successful in encouraging medical students to pursue a career in psychiatry. Enrichment programmes are emerging as an effective recruitment strategy and will assist in future-proofing the psychiatric workforce in decades to come.

Keywords: enrichment programme, medical students, recruitment, psychiatry

The declining interest of medical students and junior doctors in a career in psychiatry has been a longstanding cause of concern over the last 3–4 decades, resulting in shortages of psychiatrists both in Australia and other developed and developing countries.1–3 The 2012 Health Workforce Australia report estimated that there is a ‘perceived current shortage’ in the existing psychiatric workforce, a situation that is predicted to worsen over the next 10–20 years if recent trends in supply and demand persist. Analysis of workforce dynamics highlighted concerns for shortages in the future psychiatry workforce up to 2025, with an increase in the average age of the workforce and increasing reliance on Specialist International Medical Graduates identified as particular concerns. In a ‘no change’ scenario, the report estimated that by 2025 there would be a shortage of up to 452 psychiatrists.4

There is growing recognition of the need to act proactively to ensure that the psychiatric workforce remains sustainable in to the future and is able to meet the increasing demand for mental health services.5 Medical schools and academic psychiatrists are well positioned to play an important role in future-proofing psychiatry. One way of achieving this is to implement novel enrichment strategies that deliver extra-curricular programmes to supplement university teaching, and that are more specifically targeted towards the attraction of students to...
a career in psychiatry. Over the last 10 years or so there has been a growing interest in the implementation of psychiatry enrichment programmes. Examples include the University of Toronto’s Institute of Psychiatry for Medical Students, and a special extracurricular elective, the Combined Accelerated Program in Psychiatry (CAPP) run at the University of Maryland. Evaluation of both these programmes has shown that they are effective in increasing the number of students who join postgraduate training.6,7

In 2008, the School of Psychiatry and Clinical Neurosciences at the University of Western Australia (UWA) established the first enrichment programme in Australia, the Claassen Institute of Psychiatry for Medical Students (the Institute).8 The Institute has been run annually since inception and students in the clinical years of the medical course who are thinking about, but not fully committed to a career in psychiatry are invited to apply. The week-long programme provides students with a more detailed and comprehensive exploration of the discipline than is covered in the psychiatry curriculum. Students participate in interactive seminars covering a broad spectrum of topics each morning, and go on visits to community and hospital-based mental health services in the afternoons. During the week they learn more about speciality areas of psychiatry, discuss case studies, and take part in discussions on a variety of contemporary issues. There are also opportunities for them to interact informally with presenters during lunchtimes and the social evening dinner event that takes place mid-week. There are no costs to students, and morning tea and lunch are provided each day.

Presenters are consultant psychiatrists who are encouraged to tell their story of how and why they entered the profession, and to describe some aspects of daily work in their particular area of specialisation. This enables students to gain a range of different perspectives of psychiatry as a career and gives them a ‘real world’ feeling for what working as a psychiatrist might entail.

In response to student feedback, several interactive activities were introduced to the programme in 2011. These included a student-led debate which focuses on contemporary and controversial areas in psychiatry, for example involuntary admission, and an interactive stigma workshop which encourages students to become active mental health advocates, facilitated by a psychiatry registrar.

The main aim of this paper is to describe the long-term effectiveness of the Institute as a strategy to increase interest in psychiatry as a career, the extent that attendance has improved students’ level of knowledge and interest in psychiatry, and the career pathways of students who have attended since 2008.

**Method**

All students who attended the Institute were invited to participate in evaluation by completing hard copy questionnaires on day 1 (baseline) and the final day (post attendance). In order to match baseline and post-attendance data, each student was allocated an identifying number known only to the Institute co-ordinator. Students were informed of the purpose of the evaluation and told that questionnaire responses were anonymous and would not impact on their academic grades. In addition to basic demographic information, the questionnaires asked students to assess the extent that they were currently considering psychiatry as a career; and their interest in, and knowledge of psychiatry and neurosciences, and a number of topic and speciality areas. Each item was rated on a scale of 1–10 where 1 indicates low interest/knowledge and 10 high interest/knowledge. From 2011 onwards, a similar scale was included in the questionnaire to rate the debate and stigma workshop. The post-attendance questionnaire also assessed students’ enjoyment and organisation of the Institute and if they would recommend it to others.

In August 2014, a long-term follow-up electronic survey was administered that aimed to determine the career pathways of students who had attended the Institute between 2008 and 2013. Respondents were asked about their current career and occupational status and how attending the Institute had impacted on their career decision-making process. The survey was conducted using an online survey platform, Qualtrics.9 Respondents were contacted by email and invited to participate by clicking on a link to the online questionnaire.

Ethics approval for this project was granted from the UWA Human Research Ethics Committee.

**Results**

Between 2008 and 2014, 117 students attended the Institute. All students completed both the baseline and post-attendance questionnaires (response rate 100%). Thirty-five (30%) were male and 82 female (70%). The average age of students was 26.2 years, age range 20–53 years. Students from five different universities have attended over the seven years. The majority were from UWA (107 students), followed by five from Notre Dame University (Fremantle), two from New Zealand universities and three from Hong Kong.

**Psychiatry as a career choice**

The number of students who were ‘definitely’ considering a career in psychiatry (those who scored the question as 8, 9, or 10/10) rose from 67 (57%) at baseline to 90 (77%) at the end of the week. The baseline mean increased significantly from 7.6/10 to 8.5/10 post attendance, paired sample t-test, p=0.001. Mann–Whitney U tests tested for statistical differences between male and female students. No gender differences were found regarding consideration of psychiatry as a career at baseline (p=0.497) or post (p=0.699).
Knowledge and interest in speciality areas and topics

Mean baseline scores for ‘knowledge’ ranged from 3.2/10 (forensic psychiatry) to 6.4/10 (mood disorders). The range of mean scores post attendance was 5.6/10 (cultural psychiatry) to 7.2/10 (mood disorders). Paired t-tests found that all knowledge areas had improved significantly by the end of the week.

The mean baseline scores for ‘interest’ ranged from 4.9/10 (old age psychiatry) to 7.6/10 for psychiatry in general. The post-attendance mean scores for ‘interest’ ranged from 6.0/10 for old age psychiatry to 8.8/10 for interest in psychiatry in general. Paired t-tests found that the level of interest across all speciality and topic areas increased significantly by the end of the week. More detailed results are shown in Table 1.

Mann–Whitney U tests on ‘interest’ and ‘knowledge’ found some differences between male and female students. Female students rated significantly more highly than males in five areas including baseline knowledge of neuroscience (p=0.024), baseline interest in child and adolescent psychiatry (p=0.009), post-attendance interest in mood disorders (p=0.030), post-attendance interest in anxiety disorders (p=0.046), and post-attendance interest in child and adolescent psychiatry (p=0.003).

The debate and the stigma workshop were assessed by rating the level of interest in, information gained, and the extent that each had increased knowledge of the topic on a scale of 1–10. The mean rating for both of these activities on each measure ranged from 7.8–8.5/10.

The mean score for ‘enjoyment’ and ‘organisation’ of the Institute were 9.0/10 and 9.5/10, respectively. All students said that they would recommend the Institute to others.

The follow-up evaluation

The 17 students who attended the Institute in 2014 were not included in the follow-up evaluation as they were still in medical school at the time of the survey. Email addresses were not available for 11 of the ex-Institute students, making a total sample size of 89. Of these, 47 responded to the survey: 19 males and 28 females, response rate 53%. The survey found that 10 (21%) respondents were psychiatry trainees, and another 11 (23%) were currently in their intern year. Twelve (26%) were enrolled on other training courses which included nine undertaking GP training, one doing radiology and two anaesthetics. The remaining 14 (30%) were either in PGY3, working as Resident Medical Officers (RMOs) or still at medical school. For the interns, attending the Institute had increased their interest in psychiatry as a career, and seven of them stated that they were currently seriously considering a career in psychiatry.

Discussion

Evaluation of the Institute has shown that it is successful in encouraging students to pursue psychiatry as a career and in raising their overall interest and knowledge in psychiatry and its subspecialties. The number of students ‘definitely’ considering a career in psychiatry rose significantly by 23, from 67 at baseline to 90 at the end of the week. While not all of these will ultimately become psychiatrists, the long-term follow-up survey found that 10 students who had attended the Institute were currently psychiatry trainees and seven interns were ‘definitely’ considering psychiatry as their career. Similar rates of acceptance to training programmes have been found among students who have participated in the University of Maryland CAPP and Toronto’s Psychiatry Institute.6,7

While the Institute has been successful in increasing interest in psychiatry as a career choice, limitations of the study make it challenging to accurately assess the number of past students who ultimately become trainees. The current and future career pathways of ex-Institute students varies, and it is difficult to assess how many are either on the psychiatry training programme or planning to apply. This is due in part to the time lag between attending the Institute and making career decisions regarding area of specialisation. Career decisions are made during medical school or up to three years post graduate,10 and at the time of attending, the 2008 Institute students still had one or two more years of medical school, followed by an intern year and possibly further years as a RMO. This means that it could be up to four or five years before starting as a trainee in psychiatry. For students who attended the Institute in subsequent years, this timeline is even longer. Other difficulties have been in tracking students on a long-term basis as not all stay in Western Australia, and those who leave to go interstate or overseas become lost to follow-up. A further limitation of the study concerns the response rate to the follow-up survey. We do not know for sure if all ex-Institute students included in the sample received the email inviting them to participate, and this may account for the relatively low response rate of 53%. Those who responded may have more interest in psychiatry than non-responders, resulting in possible response bias.

Evaluation of the Institute and feedback received from students, presenters and others involved over the last seven years has been overwhelmingly positive. Enrichment programmes such as the Institute provide academic psychiatrists and other psychiatry educators with a good opportunity to build positive relationships with students who are interested in psychiatry as a career. They enable students to maintain interest in psychiatry as the clinical years of the medical course progress and the career decision-making process begins. The establishment of similar programmes in Australia, New Zealand and overseas has the potential to play an important role in future-proofing the psychiatric workforce in the coming decades.

Disclosure

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.
<table>
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<th>Level of knowledge and interest in speciality/topic area on a scale 1–10</th>
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References
Towards protecting the endangered discipline of psychiatry

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The recent Editorial by Henderson and colleagues (2015) expressed concern that academic psychiatry in Australia and New Zealand is ‘endangered’. Not long ago, a similar international trend was identified by Katschnig (2010), who posed an almost identical question: ‘Are psychiatrists an endangered species’?

Both articles discuss strategies that could assist in reviving psychiatry to become an attractive career pathway for students, interns and clinicians that is adequately remunerated, resource and respected. The authors acknowledge that the first step is to improve recruitment of medical students to psychiatry as a career; however, for decades it has been unpopular the world over. A number of negative factors that detract students from psychiatry have been identified, including a perception that psychiatry is an unscientific, stressful and second-class specialty. Psychiatric patients are perceived as dangerous and emotionally draining, and treatment as questionable and ineffective (Lyons, 2013).

We agree with the view expressed by Henderson and colleagues who suggest that in order to protect academic psychiatry, educators should aim to improve teaching in medical schools to make the student experience as rewarding and stimulating as possible.

Limitations of the psychiatry rotation

The clinical rotation is usually the first exposure that students have of psychiatry, providing them with the opportunity for involvement in patient care and interaction with clinical and academic psychiatrists. Psychiatry rotations are an integral component of medical courses in Australia, and their core role is to teach the basics of the discipline, including patient interviewing, symptom recognition, diagnosis and classification of mental disorders. However, psychiatry rotations are not primarily developed as a recruitment tool, and while they can be effective in improving students’

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Towards protecting the endangered discipline of psychiatry

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attitudes towards psychiatry, evidence of their impact on psychiatry as a career is mixed.

The move by many universities from undergraduate to 4-year graduate courses has resulted in greater competition between disciplines for clinical teaching time and a significant reduction in rotation length. With less time to teach, we need to work harder and do more to promote psychiatry as a rewarding and fulfilling professional career to ensure that the psychiatric workforce is sustainable. In our view, this can be achieved by the implementation of more creative and innovative teaching strategies that deliver enrichment programmes that are over and above expected conventional teaching and more specifically designed and targeted towards attracting students to psychiatry as a career.

Our approach to creative teaching and recruitment

In 2008, the School of Psychiatry and Clinical Neurosciences at the University of Western Australia established an innovative enrichment programme: the Claassen Institute of Psychiatry for Medical Students (the Claassen Institute). The Claassen Institute is an intensive, week-long programme that provides students with an extended view of the discipline with the aim of increasing their interest in psychiatry as a career, and raising awareness of areas for subspecialisation. Students participate in interactive seminars and debates that cover a range of diverse topics and visit local community and hospital-based mental health services. Students are able to interact informally with presenters throughout the week, which provides opportunities for future mentorship. Places are limited to 20 and over the years students from New Zealand and Hong Kong have attended, adding an international perspective and allowing for cross-cultural exchange between students.

An initial evaluation of the Claassen Institute undertaken in 2010 found that students’ interest and knowledge in psychiatry had improved, and that the number of students seriously considering psychiatry as a career had increased significantly (Lyons et al., 2010). The Claassen Institute has now been running for 7 years and 117 students have attended. A recent follow-up evaluation found that, by the end of the Claassen Institute week, 90 (77%) of these students were ‘definitely’ considering a career in psychiatry.

RANZCP attempts to improve recruitment

The importance of recruitment to psychiatry has also been recognised by the Royal Australian and New Zealand College of Psychiatrists (RANZCP) and, in response, a number of initiatives targeted towards medical students and junior doctors have been implemented. These include the development of a section of the RANZCP website specifically targeted towards students and graduates, and the Psychiatry Interest Forum (RANZCP, 2013). An initiative that encourages students to attend the annual RANZCP Congress and participate in a range of special activities has also been implemented. More recently, a series of weekend ‘Introduction to Psychiatry’ workshops have been run, aimed at encouraging students and junior doctors to consider psychiatry as a career (Maria Tomasic, Former President RANZCP, personal communication, 17 October 2014).

In summary, we firmly believe that creative and innovative enrichments programmes such as the Claassen Institute and more recent RANZCP initiatives are proving to be effective strategies to encourage students towards psychiatry as a career. The establishment of similar programmes in Australia and New Zealand will protect our endangered discipline and further strengthen and future-proof the psychiatric workforce for decades to come.

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Declaration of interest

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References


Mental health problems are a major public health issue around the world (World Health Organization (WHO), 2001; Susser and Patel, 2014). They are frequent and disabling and inflict a significant burden on individuals, their families and carers, communities and mental health services.

Many mental disorders are chronic and persistent, and patients require ongoing access to professional rehabilitation, treatment and management. The ageing population is expected to add considerably to the burden of mental illness, with increased psychiatric morbidity from growing rates of dementia and other age-related illness (WHO, 2012). This, combined with a predicted increase in the overall prevalence of mental illness across all age groups in the coming decades will result in a need for greater future investment into psychiatric education and workforce training.

Mental health and stigma in the medical profession

Psychiatrists play a crucial role in the long-term provision of psychiatric care; however, the discipline of psychiatry has for many decades endured a recruitment crisis. Psychiatry is not a popular career choice for medical students and is regarded as a second rate speciality by many.

Difficulties in attracting students to a career in psychiatry is an international problem, with developed and developing countries alike experiencing the same issue (Lyons, 2013). The inevitable consequence of this negativity towards psychiatry is a shortage of psychiatrists to service an ever-growing demand for mental health services.

One of the main drivers of negative attitudes towards psychiatry is stigma, and this may well be an insidious factor that frustrates the potential for recruitment of students to a career in psychiatry. Surveys of medical students have found that they share similarly stigmatised views towards mental illness as the general public (Dixon et al, 2008). Stigmatising views may be pre-existing prior to medical studies commencing, or developed from experiences of psychiatry in medical school, especially during clinical rotations (Cutler et al, 2009).

Derogatory comments expressed by family and friends can also serve to turn interested students against psychiatry due to a feeling that becoming a psychiatrist will not be accepted by those they are close to. Similarly, other medical specialists that students have contact with during medical school training may express negative views towards psychiatry, further alienating interested students (Holmes et al, 2008).

With greater emphasis on recovery from mental illness as an achievable outcome for patients, more attention and focus has been given to psychiatric rehabilitation over the last decade or so. Mental health policy and services in many jurisdictions are responding by providing community-based services that enable patients to minimise their contact with acute hospital-based services (Ramon et al, 2007).

Recovery and successful rehabilitation are aspects of psychiatry not often witnessed by medical students in the clinical years of their studies. Psychiatry clerkships are invariably embedded within the hospital system, which exposes students to acute presentations of severe mental illness in patients admitted to inpatient and emergency facilities, but rarely do they witness the recovery process of an individual patient who has responded positively to treatment and returned to a functioning and productive life.

Students’ awareness of rehabilitation as a component of long-term psychiatric treatment and management may be limited at best, nonexistent at worst. Ironically, exposure to the rehabilitation process has the potential to destigmatise psychiatry by overcoming many of the negative views reported, such as perceptions that patients do not get better, are dangerous and violent.

Responding to the challenge

In response to the recruitment crisis, academic psychiatrists and others involved in psychiatric education need to develop innovative teaching and learning strategies that will serve both to teach the fundamentals of the discipline and promote psychiatry as an attractive, challenging and fulfilling career pathway. One way of achieving this is to develop enrichment programmes that provide students interested in psychiatry with the opportunity to extend their knowledge and skills beyond what can be taught in a generalist curriculum (Greening et al, 2013).

An example of this is the Claassen Institute of Psychiatry for Medical Students, a week-long programme that has been run at the University of Western Australia since 2008. The Claassen Institute was developed to complement and extend the content of the current curriculum, and is targeted towards students who are...
thinking about a career in psychiatry. A combination of interactive seminars, clinical elective site visits and student-led debates that cover controversial topics in psychiatry are undertaken in the course of the week, introducing students to psychiatric subspecialties such as child and adolescent psychiatry, old age psychiatry and community psychiatry.

Throughout the week, students are provided with a realistic view of what working in psychiatry will entail. To date, a total of 140 students have attended the Claassen Institute and evaluation has shown it to be successful in increasing interest in psychiatry as a career (Lyons et al, in press).

In our view, the Claassen Institute and other novel and innovative teaching programmes have the potential to address the recruitment crisis in psychiatry and prevent psychiatrists from becoming ‘an endangered species’, as has recently been suggested (Katschning, 2010; Henderson et al, 2015). These programmes also provide an ideal platform for students to explore concepts such as psychiatric rehabilitation and enable them to gain an appreciation of the depth and breadth of psychiatry that is not always visible during core teaching activities.

‘One of the main drivers of negative attitudes towards psychiatry is stigma, and this may well be an insidious factor that frustrates the potential for the recruitment of students to a career in psychiatry.’


ABSTRACT

Stigma is influential in medical students’ perceptions of mental illness and consideration of psychiatry as a career. The MICA-2 was developed to assess attitudes and stigma towards psychiatry, however, its validity has not been evaluated in a large sample. This aim of this study was to explore the MICA-2’s factor structure in a multicentre international study of medical students. 1544 students completed the MICA-2 and confirmatory factor analysis was undertaken to test three models of varying degrees of complexity: (i) a single-factor model; (ii) a first-order four-factor model; and (iii) a hierarchical model. The three models were compared using model chi-square statistic $\chi^2$ divided by the degree of freedom ($\chi^2$/df), Akaike’s information criterion, Bayesian information criterion, comparative fit index, Tucker-Lewis Index and root mean square error of approximation. Each model parameters and standardized regression weights were estimated by the Maximum Likelihood method using SPSS AMOS version 21. The hierarchical model was found to be the best fit for the data and provided significant improvement in model fit compared to the other models. These results indicate that the MICA-2 carries a hierarchal second-order factor solution and is the first study to show this structure.

1. INTRODUCTION

Many studies have found that medical students report a mixture of positive and negative attitudes towards psychiatry. A 2013 systematic review concluded that while students’ attitudes towards psychiatry overall were positive, it was unpopular as a career choice (Lyons, 2013). Stigma has been identified as a factor in the
formation of negative views towards psychiatry and mental illness among medical students that detracts them from choosing psychiatry as a career. There are several different ways that stigma interacts negatively with medical students’ attitudes towards psychiatry and to psychiatry as a career. Firstly, medical students may hold similarly stigmatizing views towards mental illness as the general community. These pre-existing views prior to the commencement of medical school may negatively influence their attitude towards psychiatry during medical school (Feifel et al., 1999; Mukherjee et al., 2002; Cutler et al. 2009).

Secondly, students interested in psychiatry and psychiatry as a career may be the recipients of externalized sources of stigma. Stigmatizing and negative comments from family members, friends and fellow students can actively discourage students from psychiatry due to a feeling that becoming a psychiatrist will not be accepted by those they are close to (Balon et al., 1999; Cutler et al., 2009; Roberts and Bandstra, 2012). Other sources of stigmatizing views and behaviours come from other medical specialists who express negativity towards psychiatry thus deterring students from considering psychiatry as a career by expressing derogatory comments towards it as an area of specialization (Dogra, 2001; Holmes et al., 2008; Cutler et al., 2009). Stigma also comes from the perception that psychiatry has a low status, lacks prestige within the medical profession, and is less respected among other medical professionals (Brown et al., 2007; Hoschl and Van Niekerk, 2011; Bhugra et al., 2015; Stuart et al. 2015).

A number of questionnaires have been developed to measure students’ attitudes towards psychiatry. Three of the most commonly used are those developed by Nielsen and Eaton in 1981; Burra, the ATP-30 in 1982; and Balon in 1999 (Nielsen and Eaton, 1981; Burra et al., 1982; Balon et al. 1999), and over the past 30 years these questionnaires have been widely used in research of medical student attitudes towards psychiatry (Lyons, 2013). These instruments have been primarily designed to measure attitudes towards psychiatry, and while they capture the concept of stigma, especially when negative attitudes are expressed, the need remains for an instrument that more specifically assesses stigma and its impact on medical students’ views towards psychiatry.
More recently in 2010, the Mental Illness: Clinicians Attitudes scale (MICA) was developed by the SAPPHIRE group in the U.K. as a measure of stigma and attitudes towards people with mental illness, mental health, and working in the discipline of psychiatry (SAPPHIRE, 2015). Two versions of the questionnaire have been designed, one for use with medical students (MICA-2) and the other for healthcare workers (MICA-4). The MICA is a 16 item self-report questionnaire with each item rated on a 6 point Likert scale, 1 = ‘strongly agree’ to 6 = ‘strongly disagree’ (also includes ‘agree’, ‘somewhat agree’, ‘somewhat disagree’ and ‘disagree’ as options. The reliability, validity and responsiveness of the MICA-2 has been assessed by Kassam and colleagues. There was good internal consistency (Cronbach’s alpha coefficient of 0.79) and test-retest reliability was high, concordance coefficient of 0.80. Factor analysis yielded seven factors which accounted for 73.7% of the variance, however, these factors were not described or labeled and the specific MICA-2 item numbers that made up each factor was not given (Kassam et al., 2010). Gabbidon and colleagues conducted principal component analysis to identify the factor structure of the MICA-4. In this analysis a five factor structure was identified that accounted for 53.07% of the total variance. Factor 1 referred to views of the health/social field; Factor 2 knowledge of mental illness; Factor 3 disclosure; Factor 4 distinguishing mental and physical healthcare; and Factor 5 patient care for people with mental illness (Gabbidon et al., 2013).

Kassam and colleagues concluded that the MICA-2 was a responsive, reliable and valid instrument to measure stigma and attitudes towards mental illness and psychiatry among medical students, however, they acknowledged that further testing of its psychometric properties was required (Kassam et al., 2010), in particular its factor structure. Gabbidon and colleagues also suggested that further investigation and replication of the five factor structure of the MICA-4 was needed (Gabbidon et al., 2013). In order to further explore the psychometric properties of the MICA-2 as a measure of stigma among medical students, the aim of this paper was to investigate its factor structure using confirmatory factor analysis (CFA).
2. **METHOD**

The factor analysis testing of the MICA -2 reported in this paper was a component of a cross sectional international, multicentre study that was undertaken to explore the attitudes of medical students, stigma towards mental illness, and students’ interest in, and perceptions of psychiatry as a career. The large sample size of students in this study provided a good opportunity to undertake factor analysis.

2.1 **Participants**

Participants were medical students from eight different universities in six countries (Australia, U.K., Canada, Hong Kong, India and Ghana). Students were invited to participate voluntarily in the study. Ethics approval or Institutional approval where appropriate, was gained from each participating medical school prior to implementation of the survey.

2.2 **Instrument**

The MICA-2 was selected to measure attitudes and stigma towards mental illness in preference to the older attitudes focused questionnaires as it was felt that a more explicit assessment of stigma among medical students could add a new dimension to what is known regarding students attitudes towards psychiatry and mental illness. As the MICA-2 is a relatively new instrument, to date it has only been used in a small number of studies involving medical students (Kassam et al., 2011; Lyons and Janca, 2015), nursing students (Gabbidon et al., 2013) and healthcare professionals (Gras et al., 2015). To our knowledge it has not been used in a larger survey that includes medical students from different universities and countries.

Demographic information including gender, age, and pre-clinical or clinical status was also collected. The survey took around 10 minutes to complete.

2.3 **Procedure**

Students completed either a hard copy of the questionnaires during tutorial time, or an electronic version of the questionnaire using the Qualtrics survey platform (Qualtrics). For logistical and practical purposes, it was necessary to administer the survey electronically at some of the participating medical schools.
2.4 Statistical analysis

Data were screened for univariate and multivariate normality. Three models of varying degrees of complexity were tested: (i) a single factor model in which all 16 MICA-2 items loaded directly onto a one latent variable; (ii) a first-order model in which four latent variables or factors were included and allowed to correlate. In this model items 4 and 7 loaded to a factor labeled as ‘Disclosure’, items 1, 2, 3 and 8 loaded to a factor labeled ‘Psychiatry as subject’, items 5, 6, 10, 12 and 16 loaded to a factor labeled as ‘Views towards patients’, and items 9, 11, 13, 14, and 15 loaded to a factor labeled, ‘Physical and mental health care’; (iii) a hierarchical model in which 3 of the 4 first-order latent factors, ‘Psychiatry as a subject’, ‘Views towards patients’, and ‘Physical and mental health care’ were modeled as loadings on a higher-order factor called ‘Stigma’. The ‘Disclosure’ factor remained as a first-order construct.

A schematic graphical representation of the three models is shown in Figures 1 and 2. Each model parameters and standardized regression weights were estimated by the Maximum Likelihood method using SPSS AMOS version 21.

The three models were compared using the following criterion-based and goodness of fit indices: model chi-square statistic $\chi^2$ divided by the degree of freedom ($\chi^2$/df), Akaike’s information criterion (AIC), Bayesian information criterion (BIC), comparative fit index (CFI), Tucker-Lewis Index (TLI) and root mean square error of approximation (RMSEA). For the AIC, BIC and $\chi^2$/df, lower values indicate better fit. For the CFI, TLI, values $>0.90$ represent a good fitting model. For RMSEA, values $<0.08$ are consistent with acceptable model fitness (Hooper et al., 2008).
Figure 1: The single-factor and 4 factor model

Figure 2: The hierarchal model
3. RESULTS

Across the eight universities 1554 students responded to the survey. Overall, 42% of respondents were male. The mean age of all students was 23 years, range 17-44 years.

The outcome results for the CFA from each of the three models, including fitness indices are shown in Table 1. In the single-factor model, where all 16 items loaded on a single common unobserved/latent factor, all item-factor loadings (standardized regression weights) were significant ($p <0.001$). Only items 5, 8, 10, and 16 exhibited strong loadings onto the common single factor (>0.40). The fit indices indicated that this model was unacceptable as a factor solution.

Table 1: Confirmatory factor analysis results

<table>
<thead>
<tr>
<th>Model</th>
<th>df (no, of est. parameters)</th>
<th>$\chi^2$</th>
<th>$\chi^2$/df</th>
<th>AIC</th>
<th>BIC</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA (90% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-factor</td>
<td>97 (39)</td>
<td>487.12*</td>
<td>5.02</td>
<td>565.14</td>
<td>767.66</td>
<td>0.87</td>
<td>0.84</td>
<td>0.055 (0.050-0.060)</td>
</tr>
<tr>
<td>4-factor</td>
<td>94 (42)</td>
<td>359.77*</td>
<td>3.83</td>
<td>443.80</td>
<td>661.93</td>
<td>0.91</td>
<td>0.88</td>
<td>0.046 (0.041-0.051)</td>
</tr>
<tr>
<td>Hierarchical</td>
<td>95 (41)</td>
<td>350.75*</td>
<td>3.69</td>
<td>432.75</td>
<td>645.69</td>
<td>0.92</td>
<td>0.90</td>
<td>0.045 (0.040-0.050)</td>
</tr>
</tbody>
</table>

AIC, Akaike’s Information Criterion; BIC, Bayesian Information Criterion; CFI, comparative fit index; TLI; Tucker-Lewis Index. RMSEA; root mean square error of approximation. *$p<0.05$

When examining the 4-factor model (correlated factors) in which all item-factor loadings were significant ($p <0.001$), only six items did not load stronger than the loading threshold (>0.40). These were items 3, 6, 9, 11, 12, and 15. The correlations between the four latent factors were significant ($p <0.001$) and ranged from $r = 0.15$ between the ‘Disclosure’ and ‘Physical/mental health care’ factors to $r = 0.69$ between ‘Subject’ and ‘Views towards patients’ factors. The fit indices confirmed the model as a reasonable fit to the data and this 4-factor structure was a better fit than the single-factor model. These results are shown in Table 2.
Table 2: Correlations between first order factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Subject</th>
<th>Views of patients</th>
<th>Physical/mental healthcare</th>
<th>Disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>----</td>
<td>0.70**</td>
<td>0.58**</td>
<td>0.41**</td>
</tr>
<tr>
<td>Views-patients</td>
<td>0.70**</td>
<td>----</td>
<td>0.54**</td>
<td>0.40**</td>
</tr>
<tr>
<td>Physical-mental care</td>
<td>0.58**</td>
<td>0.54**</td>
<td>----</td>
<td>0.15**</td>
</tr>
<tr>
<td>Disclosure</td>
<td>0.41**</td>
<td>0.40**</td>
<td>0.15**</td>
<td>----</td>
</tr>
</tbody>
</table>

**p<0.001

The hierarchal model showed significant factor-loadings, stronger item-factor loadings and factor-factor loadings (>0.40). It further improved the model fitness beyond the 4-factor model (delta $\chi^2 =9.2$, $p <0.01$) and constituted a superior fit to the data with lower information criterion-based and overall fit indices. This demonstrated the appropriateness of the second-order factor labeled as ‘Stigma’ in this model as it improved the structure above the four correlated first-order model and resulted in stronger factor loadings.

4. DISCUSSION

In this study, we used CFA in a large international sample of medical students with the aim to investigate the factor structure of the MICA-2, a 16-item self-report measure of attitudes and stigma towards psychiatry. This was achieved by comparing three models of differing degrees of complexity and reporting their criterion-based and fit indices. These were a single-factor, 4-factor (first-order), and hierarchal model. The results reported above support the hierarchal model as a better fit for the MICA-2 factor solution than the other two models.

Consistent with previous factor analysis on the MICA-2 (Kassam et al., 2010), we included a single-factor model. Although to our knowledge no previously published research has replicated this, we also tested a 4-factor model as it is theoretically plausible and suggested by the initial exploratory factor analysis – refer to Table 3. In this model, four distinct domains representing attitudes towards psychiatry and psychiatric patients were found. One domain related to the students views towards
psychiatric patients; another involved attitudes towards the subject of psychiatry; a third domain dealt with how mental health is different from physical health; and the fourth domain appeared to cover the disclosure of mental illness, an aspect which may not necessarily reflect or be part of stigma and negative attitudes towards psychiatry. In other words, the ‘Disclosure’ factor could be a markedly different construct from the other three domains. This is further confirmed by the weak inter correlations between the ‘Disclosure’ factor and each of the other three factors. To test this further, we then allowed the 3 factors to load on to a theoretically postulated second order factor labeled as ‘Stigma’ to propose a hierarchal model which proved to be a superior fit in explaining the MICA-2’s factor structure.

Limitations of the study are that due to the limited literature on the MICA-2 factor analysis it is difficult to compare or replicate other work. Another limitation is in the cross-sectional study design where test-retest validity could not be established. However, the aim of this study was mainly to assess the CFA structure of the MICA-2. Finally, it is possible that an untested model that was not included in this study may provide a better fit for the data than the hierarchal model.

One of the strengths of this work is the large sample size and diverse nature of the analyzed sample. In addition, this is the first study to our knowledge that investigates that CFA of MICA-2.

In conclusion, this paper suggests that the MICA-2 carries a hierarchal second order factor solution that explains the measured attitude and stigmatized view towards psychiatry among medical students.

FUNDING INFORMATION

This was an unfunded study
Table 3: Factor loadings* from the exploratory factor analysis of the MICA-2 items

<table>
<thead>
<tr>
<th>MICA-2 Item</th>
<th>Disclosure</th>
<th>Views-patients</th>
<th>Physical-mental</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I just learn about psychiatry because it is in the exam and would not bother reading additional material on it.</td>
<td></td>
<td></td>
<td></td>
<td>.39</td>
</tr>
<tr>
<td>2. People with a severe mental illness can never recover enough to have a good quality of life.</td>
<td></td>
<td></td>
<td></td>
<td>.28</td>
</tr>
<tr>
<td>3. Psychiatry is just as scientific as other fields of medicine.</td>
<td></td>
<td></td>
<td></td>
<td>-.46</td>
</tr>
<tr>
<td>4. If I had a mental illness, I would never admit this to any of my friends because I would fear being treated differently.</td>
<td>.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. People with a severe mental illness are dangerous more often than not.</td>
<td>-.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Psychiatrists know more about the lives of people treated for a mental illness than do family members or friends.</td>
<td>.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. If I had a mental illness, I would never admit this to my colleagues for fear of being treated differently.</td>
<td>.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Being a psychiatrist is not like being a real doctor.</td>
<td>.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. If a consultant psychiatrist instructed me to treat people with a mental illness in a disrespectful manner, I would not follow their instructions.</td>
<td>-.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness.</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. It is important that any doctor supporting a person with a mental illness also assesses their physical health.</td>
<td>-.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. The public does not need to be protected from people with a severe mental illness.</td>
<td>.63</td>
<td>.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. If a person with a mental illness complained of physical Symptoms (such as chest pain), I would attribute it to their mental illness.</td>
<td>.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. General practitioners should not be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist.</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I would use the terms ‘crazy’, ‘nutter’, mad etc. to describe people with a mental illness who I have seen in my work.</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. If a colleague told me they had a mental illness, I would still want to work with them.</td>
<td>.51</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Loadings less than 0.2 were suppressed for interpretation
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