

**EXPLORING THE IMPACT OF MENTAL  
HEALTH FIRST AID ON NURSING  
STUDENTS' KNOWLEDGE AND ATTITUDES:  
A RANDOMISED CONTROLLED TRIAL**

**MAK WAI YEE**

**A thesis submitted in partial fulfilment of the  
requirements of the University of the West of England,  
Bristol for the degree of Doctor of Health and Social Care**

**Faculty of Health and Applied Sciences,  
University of the West of England, Bristol  
June 2018**

# ABSTRACT

**Objective:** This study aimed to examine the effectiveness of Mental Health First Aid (MHFA) training to general nursing students in Hong Kong.

**Methods:** This study was a single-site, parallel randomised controlled trial (RCT). Seventy students were randomly assigned to intervention (MHFA plus Usual Education Practice [UEP] or UEP alone). MHFA is education programme, UEP is clinical placement. Primary outcome variable was vignette responses in Mental Health Literacy (MHL) (recognition of disorders, beliefs about treatment); secondary outcome variables were attitudinal scale on mental illness and help-related behaviours (MHFA intentions, confidence in providing help). Assessments were conducted at baseline, post-intervention and six-month follow-up. Intention to treat (ITT) and per protocol (PP) analyses were performed.

**Results:** Statistically significant and meaningful improvements in beliefs about treatment ( $p = 0.01$ ,  $\eta_p^2 = 0.14$ ), attitude ( $p = 0.02$ ,  $\eta_p^2 = 0.10$ ) and MHFA intentions ( $p < 0.001$ ,  $\eta_p^2 = 0.30$ ) were observed among the intervention group in comparison with the control group. Post hoc tests indicated a statistically significant gain from baseline to post-intervention for these variables with  $p < 0.05$ . Mann–Whitney tests indicated the random order of vignettes has no effect on two groups of students. The qualitative results revealed no difference between intervention and control groups for text-based responses. In beliefs about treatment, six categories were identified: seeking professional help, pharmacological intervention, psychiatric assessment, therapeutic communication, problem-solving skills and psychosocial intervention.

**Conclusion:** MHFA training appears to be effective for improving knowledge, attitudes and help-related behaviours for general nursing

students. The strengths of the study were the use of rigorous RCT design and qualitative content analysis. The limitations were the single site, high attrition rate, problems in codebook and coding reliability. Protocol amendments to expand the age range and use a validated tool are recommended for future research.

**Keywords:** nursing students, MHL, MHFA, attitudes, RCT

# **COPYRIGHT**

The dissertation is copyrighted material, and no quotation from this dissertation may be published without proper acknowledgement.

# ACKNOWLEDGMENTS

Firstly, I would like to express my sincere gratitude to my supervisors, Dr Lesley Lockyer, Dr Neil Summers, and Dr Issy Bray, for their insightful comments and valuable guidance that moved my thesis in the right direction.

My sincere thanks also go to Dr Mary Cramp, Dr John Albarran of the UWE, and Ms Priscilla Chan of the AIEHK, as they were fully supportive of me throughout my programme.

I owe sincere and earnest thanks to the staff at Kwai Chung Hospital and to the volunteers for their participation and assistance on this research.

Finally, I would like to thank my family: my mother for her sympathetic ear and my friends. You are always there for me.

# Table of Contents

<b>ABSTRACT .....</b>	<b>i</b>
<b>COPYRIGHT .....</b>	<b>iii</b>
<b>ACKNOWLEDGMENTS .....</b>	<b>iv</b>
<b>LIST OF FIGURES.....</b>	<b>ix</b>
<b>LIST OF TABLES.....</b>	<b>x</b>
<b>ACRONYMS .....</b>	<b>xii</b>
<b>CHAPTER 1 - INTRODUCTION.....</b>	<b>1</b>
1.1 Background to the Study.....	2
1.2 Research Objectives.....	12
1.3 Research Methodology .....	13
1.4 Organisation of the Thesis .....	14
<b>CHAPTER 2 - LITERATURE REVIEW .....</b>	<b>17</b>
2.1 Introduction .....	18
2.2 Social Constructs of Mental Health in Hong Kong Culture .....	20
2.3 Concept of Mental Health Literacy .....	24
2.4 Population-based Mental Health Literacy Studies.....	29
2.5 Population-based Mental Health First-aid Studies .....	32
2.6 Mental Health Literacy Studies for Nursing Students.....	36
2.7 Mental Health First-aid Studies for Nursing Students .....	42
2.8 Other Programmes to Improve Mental Health Literacy .....	45
2.8.1 Applied Suicidal Intervention Skills Training .....	45
2.8.2 Psychosocial Intervention programme .....	46
2.9 Summary.....	47
<b>CHAPTER 3 - METHODOLOGY.....</b>	<b>49</b>
3.1 Introduction .....	50
3.2 Research Design .....	51
3.2.1 Participants.....	52
3.2.2 Interventions.....	52
3.3 Ethical Issues.....	54
3.4 Study Resources.....	55
3.5 Recruitment Procedures .....	56

## Table of Contents

3.5.1	Randomisation .....	58
3.5.2	Blinding .....	59
3.5.3	Instructor training and treatment fidelity .....	60
3.6	Outcome Measures.....	61
3.6.1	Vignette responses on mental health literacy .....	61
3.6.2	Recognition of disorders.....	64
3.6.3	Beliefs about treatment .....	65
3.6.4	Attitudinal scale on mental illness.....	66
3.6.5	Help-related behaviours .....	68
3.7	Data Collection.....	69
3.8	Data Analysis .....	70
3.8.1	Pre-analysis phase.....	71
3.8.2	Preliminary assessments .....	71
3.8.3	Preliminary actions .....	72
3.8.4	Principal analyses .....	74
3.8.5	Interpretative phase.....	75
3.8.6	Randomisation of vignette .....	76
3.8.7	Scoring system of vignette questions .....	77
3.8.8	Content analysis of open-ended responses .....	77
3.9	Vignette Approach.....	80
3.9.1	Validity of vignettes.....	80
3.9.2	Reliability of vignettes.....	82
3.10	Sample Size Calculation.....	83
3.11	Reflexivity and Positionality in Quantitative Research .....	83
3.12	Summary .....	85
	<b>CHAPTER 4 - RESULTS.....</b>	<b>88</b>
4.1	Introduction .....	89
4.2	Characteristics of Participants.....	90
4.3	Eligibility, Recruitment and Retention.....	92
4.4	Adherence to MHFA Course .....	94
4.5	Course Acceptability .....	94
4.6	MHL Outcome Variables .....	100
4.7	Intention to Treat and Per Protocol Analyses .....	101

## Table of Contents

4.7.1	Handling of missing values.....	102
4.7.2	Missing values analysis.....	103
4.7.3	Expectation–maximisation analysis.....	105
4.7.4	Multiple Imputation .....	108
4.7.5	Intention to treat results.....	110
4.7.6	Per protocol results .....	114
4.7.7	Sensitivity analysis .....	116
4.7.8	Validity of vignette methodology.....	118
4.7.9	Attribution model .....	121
4.8	Qualitative Findings .....	123
4.8.1	Recognition of disorders codes .....	124
4.8.2	Beliefs about treatment codes.....	134
4.8.3	MHFA intentions codes.....	139
4.8.4	Analysis of qualitative data.....	139
4.9	Summary of Qualitative Results.....	141
4.10	Adverse Events.....	142
4.11	Overall Summary .....	143
<b>CHAPTER 5 – DISCUSSION AND CONCLUSIONS.....</b>		<b>146</b>
5.1	Introduction .....	147
5.2	Concordance with and Divergence from the Existent Literature .....	148
5.3	Recruitment and Attrition.....	152
5.4	Feasibility and Validity of Vignettes .....	154
5.5	Strengths and Limitations of the Study .....	157
5.6	Implications for Clinical Practice .....	160
5.7	Future Research Directions .....	162
5.8	Conclusions .....	163
<b>REFERENCES .....</b>		<b>165</b>
<b>APPENDIX INFORMATION .....</b>		<b>216</b>
<b>GLOSSARY OF TERMS .....</b>		<b>246</b>



**List of Appendices**

Appendix A: UWE and KCH–REC ethical approval ..... 216  
Appendix B: Logistic plan for MHFA project in KCH ..... 222  
Appendix C: Participant Information Sheet (English & Chinese version)  
..... 225  
Appendix D: Invitation Letter (English & Chinese version) ..... 231  
Appendix E: Consent Form (English & Chinese version) ..... 235  
Appendix F: Questionnaire (Pre-assessment, Post-assessment and  
Follow-up) (English version) ..... 237

**Supplementary Files**

- File 1 (demographic data output)
- File 2 (reliability and test of normality of five variables)
- File 3 (Significant tests ITT(MI) & PP)
- File 4 (Codebook one)
- File 5 (Codebook two)
- File 6 (Attribution model)
- File 7 (Significance tests on outcome variables for eight random  
sequences)
- File 8 (Mann-Whitney tests for text-based responses)

# LIST OF FIGURES

Figure 2. 1: Attribution Model (Corrigan, 2000).....	21
Figure 4. 1: CONSORT Diagram (Schulz, Altman & Moher, 2010).....	93
Figure 4. 2: ITT and PP Diagram.....	102
Figure 4. 3: Overall summary of Missing Values.....	104
Figure 4. 4: Missing Values Pattern .....	105
Figure 4. 5: Line graphs.....	113

# LIST OF TABLES

Table 2. 1: MHL Studies for Nursing Students .....	38
Table 2. 2: MHFA Studies for Nursing Students.....	43
Table 3. 1: Tasks for the Two Research Assistants.....	56
Table 3. 2: Main Content of the Two Educational Treatments.....	61
Table 3. 3: Open-ended Questions and Related Variables in Nursing Student Questionnaires.....	79
Table 4. 1: Comparison of Baseline Parameters of MHFA Plus UEP Group and UEP Group.....	91
Table 4. 2: Satisfaction with MHFA Course and Instructor and Overall Satisfaction .....	95
Table 4. 3: Content Analysis of MHFA Benefits and Suggestions .....	96
Table 4. 4: Codebook of Evaluation Questions .....	98
Table 4. 5: Tests of Normality for the Five MHL Outcome Variables ..	101
Table 4. 6: Demographic Variables of Drop-outs .....	103
Table 4. 7: Missing Values Analysis .....	107
Table 4. 8: Expectation–Maximisation Means.....	108
Table 4. 9: Imputation Results .....	109
Table 4. 10: Values for Outcome Variables for ITT Analysis across Time and Condition .....	112
Table 4. 11: PP Analysis Values for Outcome Variables across Time and Condition .....	115
Table 4. 12: Sensitivity Analysis.....	117
Table 4. 13: Sequences of Vignettes .....	118
Table 4. 14: Significant Tests on Outcome Variables for Eight Random Vignette Sequences .....	120
Table 4. 15: Repeated Measure ANOVA Results to Test Attribution Model .....	122
Table 4. 16: Codebook for All Text Data.....	126
Table 4. 17: Recognition of Disorders (Word Frequency Counts for Depression Vignette).....	132

List of Tables

Table 4. 18: Recognition of Disorders (Word Frequency Counts for Schizophrenia Vignette) .....	133
Table 4. 19: Beliefs about Treatment (Word Frequency Counts) .....	136
Table 4. 20: MHFA Intentions (Word Frequency Counts).....	138
Table 4. 21: Mann–Whitney Tests Analysis in Text-based Responses .....	140

# ACRONYMS

ANOVA	Analysis of Variance
ASIST	Applied Suicidal Intervention Skills Training
ASP	Anti-Stigma Project
C	Contact (face to face)
CAMI	Community Attitudes Towards Mental Illness
CATI	Computer-assisted Telephone Interview
CBT	Cognitive Behavioural Therapy
CC	Complete Case Analysis
CG	Control Group
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CONSORT	Consolidated Standards of Reporting Trials
COSMIN	Consensus-based Standards for the Selection of Health Measurement Instruments
CP	Clinical Psychologist
D	Depression vignette
DF	Degree of Freedom
DLS	Depression Literacy Scale
DOM	Departmental Operational Manager
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders Fourth Edition
E	Education
EM	Expectation–Maximisation
ERMIS	Emotional Reactions to Mental Illness Scale
ES	Effect Size
FET	Fisher’s Exact Tests
GP	General Practitioner
HA	Hospital Authority
HC	Healthcare
HKMMS	Hong Kong Mental Morbidity Survey
ICD	International Classification of Diseases

ICR	Intercoder Reliability
IE	Interaction Effect
IG	Intervention Group
IRR	Interrater Reliability
ITP	Individual Training Programmes
ITT	Intention to Treat
KCH	Kwai Chung Hospital
LOCF	Last Observation Carried Forward
M	Mixed (education + contact)
MADD	Mixed Anxiety and Depressive Disorder
MAKS	Mental Health Knowledge Schedule
MAR	Missing at Random
MCAR	Missing Completely at Random
MH	Mental Health
MHAHK	Mental Health Association of Hong Kong
MHAP	Mental Health Ambassador Program
MHFA	Mental Health First Aid
MHKQ	Mental Health Knowledge Questionnaire
MHL	Mental Health Literacy
MHLQ	Mental Health Literacy Questionnaire
MHLS	Mental Health Literacy Scale
MHNCCS	Mental Health Nursing Clinical Confidence Scale
MHS	Mental Health Stigma
MI	Multiple Imputation
MICA	Mental Illness Clinicians Attitudes Scale
ML	Maximum Likelihood
MNAR	Missing Not at Random
NA	Not Applicable
NIHR	National Institute for Health Research
OT	Occupational Therapist
PP	Per Protocol (analysis)
PSI	Psychosocial Intervention programme
PSQ	Perceived Stigma Questionnaire

## Acronyms

PTSD	Post-Traumatic Stress Disorder
RA	Research Assistant
RC	Response Consistency
RIBS	Reported and Intended Behaviour Scale
RCT	Randomised Controlled Trial
S	Schizophrenia vignette
SA	Sensitivity Analysis
SCILO	Social Contact Intended Learning Outcomes
SD	Standard Deviation
SMI	Severe Mental Illness
SN	Student Nurse
SPSS	Statistical Program for Social Science
SR	Systematic Review
TE	Time Effect
TUNS	Temporary Undergraduate Nursing Student
UEP	Usual Education Practice
UK	United Kingdom
USA	United States of America
V	Video/film
VE	Vignette Equivalence
WHO	World Health Organization

# CHAPTER 1

## INTRODUCTION



## 1.1 Background to the Study

Hong Kong government statistics show an estimated 14–24% of the city's 7.1 million residents live with mental illness, and approximately 70,000–200,000 residents suffer from a severe/serious mental illness (SMI) (Hong Kong Hospital Authority [HA], 2011). SMI refers to a diagnosis of schizophrenia, psychosis, bipolar disorder or major depression specified in the DSM-IV-TR (American Psychiatric Association [APA], 2000; Ruggeri *et al.*, 2000). However, only 1% of the population currently receives psychiatric services (Health Check, 2011). Young people aged 16–24 years have the highest prevalence of mental health problems (Rickwood *et al.*, 2007), but they tend to delay in help-seeking behaviour (Wright *et al.*, 2011). There are 25,000 new psychiatric cases every year in Hong Kong (Chiu & Chan, 2007), and the Early Assessment Service for Young People with Psychosis Programme receives a mean of 1,267 referrals each year. Around 1,026 (80.9%) of the referred cases receive psychiatric assessment (Tang *et al.*, 2010).

Mental health is a state of well-being in which every individual realises his/her potential, can cope with daily life stresses, can work productively and can contribute to his/her community (World Health Organization [WHO], 2016). Labels such as 'mental illness', 'mental disorder' and 'mental health problem' are used in the media and on the Internet by mental health professionals, the lay public and people with mental disorders (Szeto *et al.*, 2013). Mental illness is a health problem that significantly affects people's cognitive, affective and behavioural functioning. Mental disorders include common conditions such as depression and anxiety, conditions due to substance abuse, and severe disorders such as schizophrenia and bipolar disorder (WHO, 2011). Mental health professionals suggest that the terms mental illness

and mental disorder can be used interchangeably (Arnush, 2011; Ceusters & Smith, 2010).

Psychiatric services in Hong Kong are mainly provided by the public health-care system, the HA. A referral letter issued by a general practitioner (GP) is required to access public psychiatric services. The duration of untreated illness (DUI) is the period between the onset of the first non-psychotic symptoms and the first effective psychiatric treatment received. The duration of untreated psychosis (DUP) is a measure of treatment delay in psychosis, and it can be conceptualised into waiting time and help-seeking duration (Hui *et al.*, 2013). Waiting time is the time between the occurrence of the first psychotic symptoms and the first help-seeking behaviour. Help-seeking duration is the period from the first help-seeking behaviour until the receipt of effective psychiatric treatment (Hui *et al.*, 2013).

The DUI median waiting time for patients in Hong Kong is 255 days. For younger patients aged 15–25 years, the DUP median waiting time and help-seeking delay are 83 and 42 days, respectively (Hui *et al.*, 2013). For mental health services in Hong Kong, longer DUP is related to more severe positive and negative symptoms, such as hallucinations, delusion, avolition/apathy and anhedonia/asociality (Birnbaum *et al.*, 2017), poorer response to treatment, and poorer social and occupational functioning (Norman *et al.*, 2007; Norman *et al.*, 2012; Wunderink *et al.*, 2006). It has been suggested that over half of first-episode patients are unaware of their psychotic illness (Segarra *et al.*, 2012). In other words, successful help seeking relies heavily on families and friends (Hui *et al.*, 2013). Additional obstacles to care stem from stigma, inadequate knowledge and service barriers that keep patients-in-need from timely interventions (Tang *et al.*, 2010).

In Hong Kong, the prevalence of depression in adolescents is between 4% and 8% (Ng & Hurry, 2011), compared with 20% in survey populations in the West. Suicide is the leading cause of death in Hong Kong for those aged 15–24 years (Yip *et al.*, 2004), and it has been suggested that depression is the dominant mediator of suicidal behaviour (Chan *et al.*, 2009). The recent Hong Kong Mental Morbidity Survey (HKMMS) undertaken in 2015 with 5,719 Chinese adults in the general population revealed that the prevalence of mixed anxiety and depressive disorder (MADD) was 7.6% for young people aged 16–25 years (Lam *et al.*, 2015). Based on this study, 16% of MADD patients had consulted mental health services in the past 12 months, including 3.5% who had consulted with a GP and 6.3% who had contacted a social worker/counsellor (Lam *et al.*, 2015). Service utilisation in Western countries ranges from 4.3% in Italy to 17.9% in the United States of America (USA) (Wang *et al.*, 2007), compared with 5% in China (Phillips *et al.*, 2009). The under-utilisation of mental health services in Hong Kong and China may be due to the public stigma regarding people with mental illness and inadequate mental health literacy (MHL) (Chien *et al.*, 2014).

Social stigma can be viewed as *'the discrediting or blemishing of one's behaviour, identity or status'* (Goffman, 1963, p. 3). Stereotypes represent the expectations society holds towards a particularly stigmatised status (e.g. the mentally ill are dangerous and unpredictable) (Gyllensten *et al.*, 2011) and contribute to an individual's stigmatised status (e.g. mentally ill) (Sickel, Seacat & Nabors, 2014). Stigma and discriminatory attitudes towards people with mental illness that are widespread across nations and cultures (Ngui *et al.*, 2010) are known as mental health stigma (MHS).

MHS is an attitudinal barrier that affects the basic human needs of SMI patients, including self-perception (e.g. self-esteem),

employment and housing, interpersonal relationships, and physical and mental health, including help seeking (Sickel, Seacat & Nabors, 2014). One consequence of social stigma is that consumers often internalise stigmatising beliefs and ultimately self-stigmatise (Corrigan, Watson & Barr, 2006). These internalised notions consist of the extent to which community members believe that people with mental illness will be devalued and discriminated against (Yang *et al.*, 2012). Self-stigmatising has been found to have negative impacts on a patient's life, such as reduced quality of life. It also increases psychiatric symptoms in both Western (Boyd *et al.*, 2014; Gerlinger *et al.*, 2013) and Chinese (Fung *et al.*, 2007; Young & Ng, 2015) societies. A study in Hong Kong shows there are severe stigmatising attitudes in the Chinese community (Siu *et al.*, 2012). Examples of these attitudes include beliefs about patients causing the illness, strong opposition to setting up psychiatric community facilities near residences (Siu *et al.*, 2012), and limited opportunities for employment and health care (Chiu & Chan, 2007) for people with mental illness (Tsang *et al.*, 2003).

Three general strategies have been identified to combat stigma: protest, education and contact (Corrigan, 2000; Corrigan & Penn, 1999). Protest aims to challenge inaccurate and negative representations of mental illness in the media, but such intervention can be expensive (Watson & Corrigan, 2001). Education involves overcoming the myths of mental illness and replacing them with facts. Examples of educational interventions are lectures and seminars (Bayar *et al.*, 2009). Contact involves introducing people with mental illnesses who are stigmatised to the public, either in person or on video (Brown *et al.*, 2010; Thonon *et al.*, 2016). An example of contact is clinical placement. Direct and indirect social contact interventions are known to

reduce MHS. Examples of social contact include live experiences and films (Clement *et al.*, 2012a).

It can be argued that the stigma imposed on people with mental illness by health-care professionals results in disparities in access, treatment and outcomes (De Hert *et al.*, 2011). People with mental illnesses often experience unequal treatment for physical health conditions due to diagnostic overshadowing. This is the process by which the physical problems of a patient are overshadowed by the patient's psychiatric diagnosis, which may contribute to detrimental effects on physical and mental health (Jones, Howard & Thornicroft, 2008). Illnesses that are more prevalent within the population of people with SMI include metabolic syndrome, diabetes, cardiovascular disease and obesity. It is estimated that people with SMI have a lifespan of 10–30 years less than the general population (De Hert *et al.*, 2011).

Nursing students, medical students, pharmacy students and social work students (Covarrubias & Han, 2011) have been shown to endorse stigmatising attitudes/beliefs regarding people with mental illness (Nguyen, Chen & O'Reilly, 2012; Ross & Goldner, 2009; Serafini *et al.*, 2011; Wallace, 2012). Such stigmatising attitudes affect the practitioner–patient relationship and may have adverse consequences for patients engaging with the health-care system (Sickel, Seacat & Nabors, 2014). These stigmatising attitudes can act as a barrier to help seeking by people with mental illness and their family members (Clement *et al.*, 2012b).

Hayman-White and Happell (2005), who examined 802 nursing students in Australia before their mental health clinical placements, suggested that student nurses' fear of or discomfort with mentally ill people may result in dissatisfaction with their clinical experience and lead them to regard mental health nursing as an unpopular career option. A range of international research has suggested

nursing students view people with mental illness negatively (Happell & Platania-Phung, 2012; Hoekstra *et al.*, 2010; Poreddi *et al.*, 2014). These negative attitudes may contribute to stress (Hamdan-Mansour & Wardam, 2009; Happel, 2008); ultimately, they may have negative effects on the nursing workforce and lead to poor patient care (Watson *et al.*, 2008). The socialisation process of nursing students at nursing schools enhances the perpetuation of stigma related to psychiatric nursing (Halter, 2008; Shattell, 2009). Local surveys in Hong Kong reported that more than half of mental health patients believe they experience public stigma and discrimination (Chung & Wong, 2004). Stigmatising attitudes have also been found to be common among Hong Kong community residents (Tsang *et al.*, 2003), and health-care and mental health professionals (Chien *et al.*, 2014; Lee *et al.*, 2006).

MHL<sup>1</sup> is defined as *'knowledge and beliefs about mental disorders which aid their recognition, management or prevention'* (Jorm *et al.*, 1997a, p. 182). Enhancing MHL, that is, the ability to obtain, access and use mental health information, can play a role in stigma reduction by improving public knowledge and attitudes for recognition and help seeking (Jorm, 2000). The concept of MHL in the current study is defined as the capability to recognise depressive or psychotic symptoms as depicted in a case vignette (Jorm *et al.*, 1997a, 2005a). Younger ages of 15–34 years and participation in higher education have been shown to be related to better MHL and higher rates of recognition of common mental disorders in Shanghai (Wang *et al.*, 2013; Yu *et al.*, 2015). There is also growing evidence showing that higher MHL is associated with better access to and utilisation of mental health services (Jorm *et al.*, 2006; Mendenhall, 2012; Wong *et al.*, 2012a).

---

<sup>1</sup> Permission granted by Professor Anthony Jorm to use MHL.

MHFA<sup>2</sup> is defined as *'the help provided to a person developing a mental health problem or in a mental health crisis'* (Kitchener & Jorm, 2008, p. 5). Betty Kitchener and Professor Anthony Jorm developed the MHFA programme in Australia in 2000 (Kitchener & Jorm 2002a) to improve MHL in first-aid responses to people with mental disorders. MHFA involves recognising the symptoms of mental illness, assisting with a mental health crisis, offering support and information, and encouraging and facilitating professional help seeking (Kitchener, Jorm & Kelly, 2013). MHFA is a 12-hour mental health promotion educational programme, which is currently taken by general student nurses in Hong Kong on a voluntary basis.

General nurses have been affected by the international move towards mainstreaming mental health services into general hospital settings (Brunero *et al.*, 2015). Deinstitutionalisation has been a worldwide trend since 1950 (Hundertmark, 2002; Talbott, 2004), with an increasing prevalence of patients requiring mental health services being cared for and treated in general hospital settings. This type of treatment accounts for 20–40% of mental health patients in Australia and Denmark (Ndetei *et al.*, 2009). In the United Kingdom (UK), it is estimated that around half of all in-patients in a general hospital setting have a mental health problem (Parsonage, Fossey & Tutty, 2012). It has been argued that nursing professionals can no longer ignore mental health, as it plays an increasingly important role in the care of all patients (Poreddi *et al.*, 2015).

In Hong Kong, nearly all psychiatric in-patients receive care in public hospitals across seven geographical clusters under the HA. The HA is a statutory body established under the Hospital Authority Ordinance to manage all public hospitals in Hong Kong,

---

<sup>2</sup> Permission granted by Betty Kitchener to use MHFA.

which have a provision of 3,607 psychiatric hospital beds (HA Statistical Report, 2013–2014). In 1999, the Hong Kong government directed that psychiatric in-patient services shift to community care. Due to a reduced number of in-patient beds, an increasing number of people with mental illness presented to hospital services in emergency departments, general hospital wards, and general community and primary health services (Brunero *et al.*, 2012). This reality is reflected across many countries (Ndetei *et al.*, 2009).

As a consequence of the reduction in in-patient beds for patients with mental illness, general nursing students are required to care for a significant number of people with mental health issues (Byrne, McGowan & Cousins, 2015). However, many general registered nurses and student nurses lack the knowledge and skills to identify and competently treat mental disorders. It has been suggested that additional education regarding mental health issues is required for both entry-level and practicing nurses to upgrade their mental health knowledge (Ross & Goldner, 2009). Therefore, an important aim of psychiatric placements for student nurses in Hong Kong is to assist in the development of their clinical skills, enabling them to care effectively for people with mental illness in a general hospital setting (Callaghan *et al.*, 1997).

A survey of 850 nurses conducted by Cheung and Yip (2015) found that the prevalence of depression, anxiety and stress in Hong Kong nurses was 35.8%, 37.3% and 41.1%, respectively. Chen *et al.*'s (2015) study of junior college nursing students in Taiwan showed that 32.6% had depressive symptoms, which is higher than the percentage of college nursing students in China with depressive symptoms (22.9%) (Xu *et al.*, 2014). Untreated depression can have a significant impact on students' quality of life and can result in decreased academic productivity, poor exam results and absenteeism (Hysenbegasi, Hass & Rowland, 2005).



In Hong Kong, younger and inexperienced nurses between 25 and 34 years old tend to exhibit more psychiatric symptoms than their older, experienced counterparts (Cheung & Yip, 2015; Yoon & Kim, 2013). Nursing students experience different levels of stress during the education process, particularly in clinical placements (Chen & Hung, 2014; Suresh *et al.*, 2012), and final-year nursing students are more likely to rate their mental health as poor (Timmins *et al.*, 2011). Negative attitudes towards disclosing stress and help seeking are common among nursing students, and help seeking may be influenced by concerns about confidentiality and career (Galbraith *et al.*, 2014).

In Hong Kong, four local universities provide preregistration general nursing training. However, the mental health curriculum currently comprises only three to six credits out of 120 to 200 credits during the four or five years required for a bachelor's degree. The mental health clinical practicum is a component of all contemporary undergraduate nursing education programmes (Ganzer & Zauderer, 2013). However, extensive literature documents the under-representation of mental health nursing content internationally (Happell & Platania-Phung, 2005; Happell *et al.*, 2014; McCann *et al.*, 2010).

For example, a literature review suggested there are considerable criticisms surrounding the lack of mental health content in the preregistration nursing curriculum in Australia (Barry & Ward, 2017). In the UK, nursing students who are training to be adult or children's nurses have admitted fears over their lack of knowledge about helping people who have mental health problems (McKew, 2017). In the USA, it has been suggested that increasing the amount of time in a clinical setting and adding content to the curriculum, particularly on mental health nursing, may help retain psychiatric or mental health nurses (Hunter *et al.*, 2015). In Turkey, the preparation of student nurses regarding

mental health issues can be challenging because limited time is devoted to mental health issues in generic training programmes (Tee & Üzar Özçetin, 2016). A qualitative study in Iran suggested that nursing students do not have sufficient knowledge of mental health issues because their clinical placement is only nine days, which they felt was inadequate (Karimollahi, 2012).

In Hong Kong, general nursing students are required to complete a 10-day mandatory clinical placement in Kwai Chung Hospital (KCH) to fulfil the general nursing registration requirements of the Nursing Council of Hong Kong. Clinical practice in mental health settings can contribute significantly to the development of competent and confident health-care practitioners and can assist in challenging the prejudices that nursing students commonly hold about people with mental health problems (Happell *et al.*, 2015). Clinical placements for generic nursing students spanned a variety of mental health settings, including in-patient acute care, outpatient care and community psychiatric centres (Barrett & Jackson, 2013; Yamauchi *et al.*, 2010). The knowledge presented to students in mental health settings includes the natural course of mental illness, epidemiology, symptomology, psychopharmacology currently in use and common side effects (Romem *et al.*, 2008). However, there is a lack of consensus on standardised curricula for mental health nursing practice (Choi *et al.*, 2016).

Many factors may impact the quality of clinical placements, such as limited resources to provide supervision (Carrigan, 2012) and support from clinical staff (Henderson, Happell & Martin, 2007). Clinical practice provides real-world experience to complement classroom learning, but short placements can result in a decreased sense of belonging and limited learning opportunities for student nurses (Gillert & Brown, 2015; Levett-Jones *et al.*, 2008). For the 10-day mental health nursing placement in KCH,

clinical mentors have commented that many nursing students lacked enthusiasm and avoided communicating with mentally ill patients. On the eve of psychiatric practice, general nursing students have indicated they feel not only nervous but also fearful (Koskinen *et al.*, 2011; Nolan & Ryan, 2008).

## 1.2 Research Objectives

Clinical placements in mental health facilities have consistently resulted in positive changes in nurses' attitudes towards people with mental illness (Happell & Platania-Phung, 2012). The documented benefits of psychiatric clinical experience are increases in skills and knowledge, decreases in stigma regarding people with mental health problems and increases in confidence working with mental health patients (Happell & Platania-Phung, 2012; Happell *et al.*, 2015; Hayman-White & Happell, 2005; Song, 2015). Evidence also suggests that student nurses' attitudes towards the mentally ill are more positive after they have experienced a mental health clinical placement (Gyllensten *et al.*, 2011; Happell & Gaskin, 2013). In the current study, the psychiatric clinical placement is referred to as Usual Education Practice (UEP), which is the 10-day clinical placement for students in KCH to gain mental health nursing experience.

Randomised controlled trials (RCTs) are recognised as the gold standard for testing the effectiveness of an intervention (Kaptchuk, 2001). The aim of the current study was to examine the effectiveness of MHFA training for general student nurses in Hong Kong. The primary outcome variable was MHL in terms of knowledge (recognition of disorders, beliefs about treatment). The secondary outcome variables were attitudinal scale on mental illness and help-related behaviours (MHFA intentions, confidence

in providing help). The present study aimed to answer the following research questions:

1. Is MHFA plus UEP more effective in MHL in terms of knowledge than UEP alone?
2. Is MHFA plus UEP more effective in terms of attitudes and help-related behaviours than UEP alone?
3. Is there any difference in text-based responses for vignette questionnaires between MHFA plus UEP and UEP alone?

### **1.3 Research Methodology**

The study design was a single-site, parallel RCT following Consolidated Standards of Reporting Trials (CONSORT) guidelines. The participants included 70 general nursing students who were randomly assigned to a three-week MHFA plus UEP group ( $n = 35$ ) and a UEP control group ( $n = 35$ ). Validated instruments were used to assess the changes in MHL and attitude towards mental illness. Assessments were conducted for a baseline, post-intervention and for a 6-month follow-up. Intention to treat (ITT) and per protocol (PP) analyses were used to examine treatment efficacy.

Group differences in demographic data and pre-treatment measures were analysed using Chi-square tests and two-tailed  $t$ -tests. Within- and between-group changes of each group used repeated measures analysis of variance (ANOVA) for the pre-test, post-test and follow-up scores and were compared with the control group. Effect sizes were calculated for within- and between-group changes. Pairwise differences were measured using paired  $t$ -tests with a Bonferroni correction. The qualitative data were analysed using content analysis.

## 1.4 Organisation of the Thesis

The thesis comprises the following chapters:

Chapter 1 provides general background on the research, including the rationale and outlines the methodology used as well as current research on general nursing students' practice in the areas of mental health nursing, clinical placements and social stigma. It also justifies the use of an RCT as a study design. It explores the relationship between clinical experience, mental health knowledge and attitudes of general nursing students. It briefly discusses the aims and objectives of the study, the study design, outcome measures and statistical analysis.

Chapter 2 illustrates two leading models of stigma: Corrigan's attribution and perceived stigma. Stigmatising attitudes regarding mental illness commonly exist among nursing students. The chapter highlights the MHL concept and MHFA. MHL and MHFA research have been undertaken in various populations and with different study designs. The literature review was conducted on MHL and MHFA studies for nursing students, and 14 studies were reviewed. However, only one RCT study has been conducted to evaluate the MHFA programme for first-year nursing students in Australia. The statistically significant results were certainly plausible but also questionable due to methodological quality issues. Therefore, the current RCT sought to bridge the knowledge gap in MHFA research. The final section examines other programmes to improve MHL.

Chapter 3 outlines the RCT, which follows CONSORT guidelines. It provides details on the study design and methodology in terms of the study location, target participants, recruitment, random assignment, intervention group, control group, research assistants' roles and responsibilities, and the *a priori* sample size calculation.

It also examines primary and secondary outcome variables, data collection and data analysis (pre-analysis phase, preliminary assessments, preliminary actions, principal analyses and interpretive phase) in great detail. Quantitative data are analysed using ITT and PP analyses. Missing data are assumed to be missing at random. Vignettes are used as data collection tools, and the chapter considers issues regarding their validity and reliability. It also examines two assumptions of response consistency and vignette equivalence, as well as randomisation. Open-ended questions in the vignette questionnaire provide qualitative findings for the primary and secondary outcome variables. Coding units rely on expert consensus guidelines. Challenges and practical issues encountered while conducting RCT are reflexivity and positionality in the quantitative research.

Chapter 4 reports on the findings of both the quantitative and qualitative data. The CONSORT diagram illustrates participant flow, recruitment, and retention and attrition rates. Five MHL outcome variables are formed and tested for normality, homogeneity and sphericity for repeated measures ANOVA. RCT and statistical concepts such as ITT, PP analysis, handling of missing values, multiple imputation (MI) and sensitivity analysis (SA) are performed. Significance tests are used to detect any order effects in vignettes and to confirm attribution model in this dataset. The chapter examines the concept of content analysis for primary and secondary variables using coding, codebooks, coding sheets, word frequency counts and inter-coder reliability (ICR). Finally, the chapter examines adverse events for participants.

Chapter 5 discusses the quantitative and qualitative findings in terms of concordance with and divergence from the existing literature, as well as the obstacles encountered during recruitment such as attrition and how to deal with drop-outs. It considers the

feasibility of using a vignette methodology to critically evaluate concepts such as order effects, social desirability bias and measurement errors. The factors affecting generalizability of results are explored in terms of Hawthorne effect, code reliability issues and internal validity of the vignette methodology. Finally, the results support the attribution models, as negative attitudes have a significant impact on clinical practice. The findings can be replicated in future studies for improvement and amendments of protocol.

# CHAPTER 2

# LITERATURE REVIEW



## 2.1 Introduction

Two leading models of stigma are Corrigan's attribution (Corrigan, 2000) and perceived stigma (Link & Phelan, 2001). The mental health system in Hong Kong is based on the same diagnostic classifications as Western countries. People with mental health problems are placed in a psychiatric setting where they can receive treatment. Stigmatising attitudes are commonly found among Hong Kong people and health-care professionals such as nursing students, and people with mental illness are often perceived as unpredictable and dangerous.

Jorm *et al.* (1997a) defined the MHL concept that can be grouped into recognition of and knowledge and attitudes about mental disorders. MHFA is an MHL programme used to measure outcome variables: knowledge (recognition of disorders, beliefs about treatment), attitudes and help-related behaviours (MHFA intentions and confidence in providing help). Jorm and his team developed the Mental Health Literacy Questionnaire (MHLQ) using a vignette methodology. The MHLQ asks participants questions based on a case vignette and is used to correctly code content from open-ended responses to measure knowledge. This tool has been used in most studies on MHFA for health-care students (Bond *et al.*, 2015; Martin, 2016; O'Reilly *et al.*, 2011), even though its psychometric validity has been criticised by the academics (O'Connor, Casey & Clough, 2014). The attitude scales commonly used are personal stigma, perceived stigma and social distance. Jorm *et al.* (2005a) used a vignette to assess participants' attitudes towards recognition and open-ended questions to assess the public's intentions for MHFA responses regarding help-seeking behaviour and intentions.

Many MHL and anti-stigma intervention studies have been undertaken in various countries with distinct populations, such as adolescents or young people, the Chinese population and health-care students. The first evaluation studies for the MHFA programme in Australia were published in 2002. Since then, MHFA research has been undertaken among various populations and with different study designs, such as RCT, quasi-experimental, single-group pre-test and post-test, and qualitative studies.

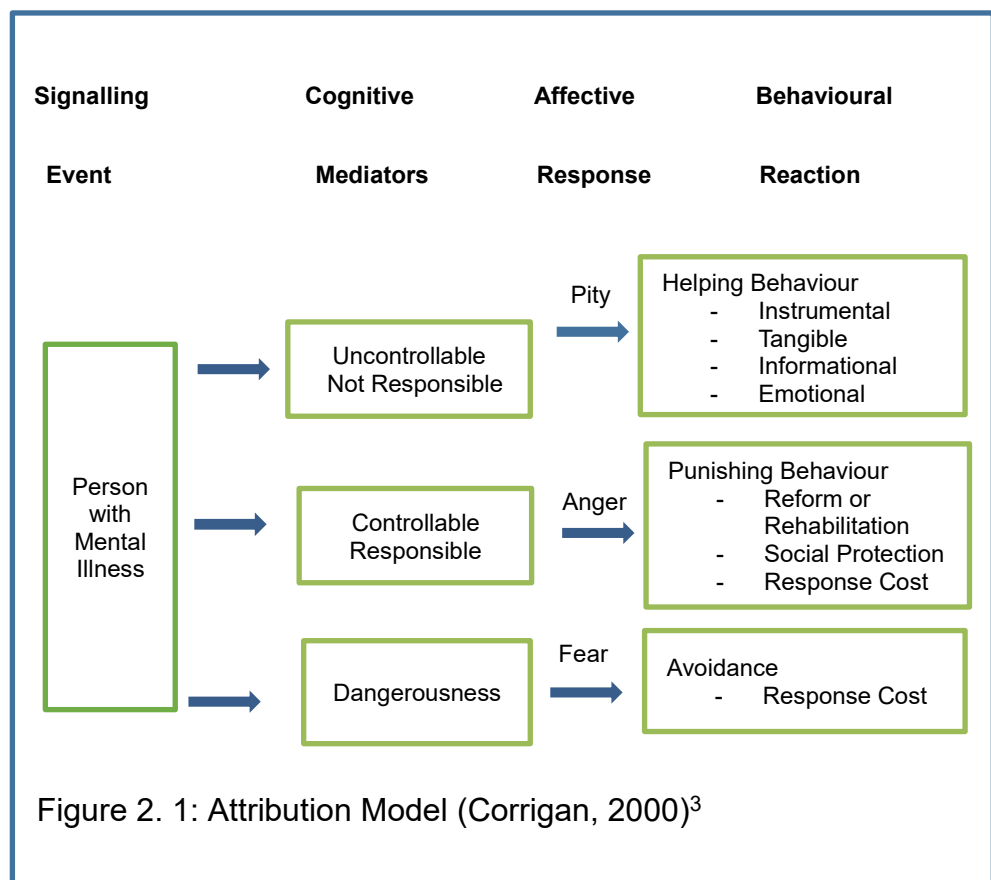
MHL has a short history as a topic for research and action (Jorm 2011). A literature review was conducted on MHL and MHFA studies for nursing students. Four bibliographic databases (CINAHL, PsycINFO, PubMed and MEDLINE) from biomedical, nursing, psychology and social sciences were searched from 1997 to May 2017. The search was limited to 1997 onwards (being the year when MHL first appeared in peer-reviewed literature). Only papers written in English and Chinese could be read and were searched. The keywords used were 'nursing students', 'mental health literacy', 'MHL', 'mental health first aid', 'MHFA', 'attitude', 'RCT' and 'randomised controlled trial'. The aim of this literature search was to obtain original research reporting outcomes of both the MHL and MHFA programmes for nursing students. Fourteen studies were reviewed to provide a summary of the existent literature on MHL (10 studies) and MHFA (four studies) for nursing students. Among these, only one RCT study has been undertaken to examine the MHFA programme among nursing students in Australia. This section evaluates the limitations of the existing literature on MHFA studies among nursing students. The current RCT was conducted to bridge the knowledge gap in MHFA research. The final section looks at other programmes seeking to improve MHL.

## 2.2 Social Constructs of Mental Health in Hong Kong Culture

In Hong Kong, the public may intellectually accept people with mental illness, but people tend to desire social distance and avoid working or living with them. The Cantonese term '*Chi Sin*', which means short-circuited in the brain or going crazy, denotes insanity in a derogatory, scornful sense and is widely used in everyday life to describe stigma towards psychiatric/psychotic patients (Ng & Chen, 2015). For example, '*his brain had gone insane*' and '*he stabbed himself to death with a knife*' (Ng & Chen, 2015, p. 19). This belief contributes to stigmatising representations of mental illness in Hong Kong Chinese culture. In 2001, the term '*Si Jue Shi Tiao*', which literally means 'dysregulation of thought and perception', was used as a new name for schizophrenia or psychosis (Ng & Chen, 2015, p. 17). Other lay beliefs about mental illness include that it is a result of a moral lapse (Geaney, 2004) or a punishment for one's transgressions in this life (Lee & Wang, 2003). These beliefs contribute to stigmatising representations of mental illness in Hong Kong culture (Lam *et al.*, 2010).

The two leading models for conceptualising and measuring stigma (Rüsch *et al.*, 2005) are Corrigan's attribution model (2000) and Link and Phelan's (2001) perceived stigma model. Moral models yield beliefs that mental illness onset is controllable and people with mental illness are to blame for their symptoms. Biological models yield beliefs that mental illness onset is uncontrollable (Weiner, 1985, 1995). Weiner's theory suggests that controllability and responsibility are attributes associated with emotional and behavioural responses (Corrigan, 2000). It can be seen from Figure 2.1 that the attribute of the uncontrollability of an event can lead to pity and helping behaviours (Menec & Perry, 1998; Zucker & Weiner, 1993) and that the attribute of controllability can lead to anger and punishing behaviours

(Graham *et al.*, 1997). Fears about the danger of mental illness yield avoidance behaviours and further manifests in response costs. Response costs for people with mental illness may include withholding opportunities for jobs and housing and preventing them from marrying or having children (Corrigan, 2000).



The findings of a previous study (Callaghan *et al.*, 1997) on general nursing students' attitude towards people with mental illness, which was based on Corrigan's model, indicated that 64% of 215 participants believed that psychiatric hospitals should not be located in their residential area. In addition, 64% of

<sup>3</sup> First produced by Clinical Psychology Science and Practice, 5, 201-222. Adapted with copyright permission from Wiley.

participants agreed that the mentally ill should be prevented from having children, and 97% strongly believed that SMI patients should be in an institution (Callaghan *et al.*, 1997). However, overall attitudes of this sample were positive regarding the belief that nursing should be a profession with tolerance towards people with mental illness (Callaghan *et al.*, 1997). Ewalds-Kvist *et al.* (2013) identified student nurses' dual identities: cognitive appreciation of the human race and emotional identification with the vulnerability of a mental disorder. The current study primarily focused on nursing students' attitudes and helping behaviours, so punishing behaviour was considered less important.

Nurses play the roles of perpetrators and the recipients of stigma towards mental illness (Ross & Goldner, 2009). Stigma is defined as the co-occurrence of the following components: labelling, stereotyping, separation, status loss and discrimination, including self-stigma (Link & Phelan, 2001). Self-stigmatisation in Chinese society is influenced by the severity of mental illness symptoms and an individual's function level, and it is negatively related to recovery and empowerment (Young & Ng, 2015). The mental health system in Hong Kong is based on the same diagnostic classifications from the USA and the UK, such as the APA's *Diagnostic and Statistical Manual of Mental Disorders* (APA, 2000) and the WHO's *Classification of Mental and Behavioural Disorders* (WHO, 1993), as these are central to psychiatry. Hong Kong's Mental Health Ordinance Chapter 136<sup>4</sup> is an expression of society's determination to remove mentally disturbed deviants from its midst and place them in controlled settings, where they can receive treatment (Cockerham, 2006).

---

<sup>4</sup> Mental Health Ordinance Chapter 136:  
[http://www.legislation.gov.hk/blis\\_pdf.nsf/6799165D2FEE3FA94825755E0033E532/4D4C0652AC60B789482575EE00433474?OpenDocument&bt=0](http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/4D4C0652AC60B789482575EE00433474?OpenDocument&bt=0).

Modern psychiatric practice is shifting from institutional to community care in Hong Kong (Lee *et al.*, 2015). However, the closure of large mental hospitals has resulted in a social nuisance (Tsang, 2007). For example, an increased number of patients have moved to community hostels, and family members often reject having people with SMI at home because they are at high risk of domestic violence (Lamb & Weinberger, 2005). This deinstitutionalisation movement has impacted hospital readmission and treatment non-compliance (Montgomery & Kirkpatrick, 2002).

In Chinese society, it is fairly common for people with mental illness to experience public stigma. For example, local surveys in Hong Kong have reported that many mental health patients have experienced public stigma and discrimination (Chung & Wong, 2004; Lee *et al.*, 2005). Stigmatising attitudes are commonly found among Hong Kong community residents (Tsang *et al.*, 2007), family caregivers (Lee *et al.*, 2005) and mental health professionals (Chien *et al.*, 2014; Lee *et al.*, 2006). People with mental illness are perceived as unpredictable, dangerous, abnormal or weird (Chien *et al.*, 2014; Lee *et al.*, 2005; Tsang *et al.*, 2007). A local survey on community attitudes towards discriminatory practices against people with SMI in Hong Kong suggested that the elderly and a patient's family members tolerate discrimination (Chiu & Chan, 2007). In fact, the stigmatisation of mental illness and lack of information on symptoms are the main barriers to seeking help for mental health problems (Siu *et al.*, 2012).

### 2.3 Concept of Mental Health Literacy

MHL has many components, including the ability to recognise specific disorders; knowing how to seek mental health information; knowledge of risk factors and causes, of self-treatments and of professional help available; and attitudes that promote recognition and appropriate help seeking (Jorm *et al.*, 1997a). The recognition of mental disorders is the first step to help seeking from professional sources. The inability to recognise mental disorders is associated with delayed help seeking (Gulliver *et al.*, 2010). Seow *et al.* (2017) suggested that nursing school factors such as the years spent in nursing education or the training in psychiatric nursing were not significantly associated with the correct recognition of mental disorders. Knowledge and beliefs about helpfulness of treatments/interventions also impact on help seeking and treatment compliance (Reavley *et al.*, 2014b). Stigmatising attitudes are associated with mental disorders and these may hinder help seeking (Jorm, 2000). McCann and Berryman (2009) identified that undergraduate nursing students have low MHL, including limited knowledge about and unfavourable attitudes towards service users.

MHFA is an MHL programme used to measure outcome variables. These variables are as follows:

- MHL in terms of knowledge (recognition of disorders; beliefs about treatment);
- Attitudes; and
- Help-related behaviours (i.e. MHFA intentions and confidence in providing help) (Hadlaczky *et al.*, 2014; Jorm & Kitchener, 2011; Kitchener & Jorm, 2006).

Jorm and his team used a vignette-based method to examine the ability to recognise mental disorders in a national population

survey in Australia in 1995. They later used open-ended questions to assess participants' knowledge on pharmacological and non-pharmacological treatments based on questions about the vignettes (Jorm *et al.*, 1997a).

Jorm and his colleagues developed the MHLQ using vignette interviews to ask a series of questions relating to participants' understanding of a person suffering from a mental disorder, either depression and schizophrenia (Jorm *et al.*, 1997a, 2005a), for instance, '*What would you say, if anything, is wrong with John/Mary?*' and '*How do you think John/Mary could best be helped?*' These two open-ended questions asked for the respondents' knowledge and beliefs about treatments for depression and schizophrenia (Jorm *et al.*, 1997a). Jorm and his colleagues used this MHLQ to generate correct content coding for open-ended responses regarding knowledge measures such as recognition of disorders and belief about treatments.

Widely used knowledge measures are as follows:

- MHLQ (Burns *et al.*, 2017; Jorm *et al.*, 1997a, 2005a, 2010a; Kitchener & Jorm, 2002b, 2004; Lam, 2014; O'Reilly *et al.*, 2011; Svensson & Hansson, 2014; Wong & Li, 2012);
- Mental Health Knowledge Schedule (MAKS) (Evans-Lacko *et al.*, 2010); and
- Depression Literacy Scale (DLS) (Kiriopoulos *et al.*, 2011).

However, some critiques of the MHLQ have suggested that the tool does not provide a thorough assessment of MHL because there is no subscale to measure knowledge attributes accurately, and participants' answers based on vignette characters do not reflect their knowledge of the aetiology and treatment of these particular disorders (O'Connor, Casey & Clough, 2014).



For instance, O'Connor and his colleagues (2014) reviewed 13 studies on MHL measures for psychometrics based on the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) (Mokkink et al., 2006, 2010). The COSMIN is a valid and reliable tool that uses a quality rating system of nine domains: internal consistency, reliability, measurement error, content validity, structural validity, hypothesis testing, cross-cultural validity, criterion validity and responsiveness (Abma *et al.*, 2011). The O'Connor, Casey and Clough (2014) review contains two studies using the MHLQ (Jorm *et al.*, 2010a; Kitchener & Jorm, 2002b) and one study using MAKS (Evans-Lacko *et al.*, 2010). The reviewers found that the MHLQ satisfied two domains (i.e. hypothesis testing and responsiveness) while the MAKS met three domains (i.e. internal consistency, reliability and content validity) (O'Connor, Casey & Clough, 2014). However, the MAKS is an instrument designed as a general measure of stigma-related mental health knowledge to evaluate a range of anti-stigma interventions (Evans-Lacko *et al.*, 2010). The DLS is a scale to test knowledge about depression only (Griffiths *et al.*, 2004) and is to be used in conjunction with a schizophrenia questionnaire. The MHLQ is a more appropriate tool to use here, as the current study was intended to explore the concept of MHL for undergraduate nursing students. Wei *et al.* (2015) stated that the MHLQ by Jorm and colleagues (1997a) was the most widely used knowledge measure, and the vignette questionnaire has been used extensively across the world, providing valuable results.

To assess the MHFA outcome measures such as changes in attitudes, Jorm *et al.* (2005a) used vignette questions to evaluate respondents' attitudes towards recognition and their help-seeking behaviours. The attitude scales often used by researchers involve personal stigma, perceived stigma and social distance.

Studies that have used these attitude measures include Burns *et al.* (2017), Hadlaczky *et al.* (2014), Jorm *et al.* (2004, 2010a, 2010b), Kitchener and Jorm (2004, 2006), Svensson and Hansson (2014) and Wong *et al.* (2015). Siu *et al.*'s (2012) attitude scale was selected for the present study as a culturally relevant instrument to measure stigmatising attitudes in the Hong Kong Chinese population. Studies of attitudes in the Chinese population towards mental disorders are relatively scarce (Siu *et al.*, 2012). The statements '*I oppose the building of residential hostels for people with mental illness near my house*' and '*It is difficult for me to make friends with people with mental illness*' are used to assess social distance.

Mental health help-seeking measures are multidimensional and evaluate help-seeking intentions, beliefs towards seeking psychological help for mental health problems, beliefs towards treatments, actual help-seeking behaviours and help-seeking efficacy (e.g. knowledge about where, from whom and how to get help) (Wei *et al.*, 2015). To evaluate MHFA outcome measures, such as changes in behaviours (e.g. MHFA intentions) and changes in intentions (e.g. greater confidence in providing help to others) (Jorm & Kitchener, 2011; Kitchener & Jorm, 2006), Jorm *et al.* (2005a) assessed respondents' intentions for mental health first-aid responses by asking the open-ended question, '*Imagine John is someone you have known for a long time and cared about. You want to help him. What would you do?*' and '*How confident are you in the ability to help?*'. Previous research has shown that the quality of MHFA intentions predicts the quality of subsequent actions in young people (Yap & Jorm, 2012).

In addition, some Delphi studies with expert panels of mental health professionals, mental health patients and caregivers have established the best strategies in providing MHFA good practice

(Jorm, 2015; Kelly, Jorm & Kitchener, 2009, 2010; Langlands *et al.*, 2008). Eight common elements of MHFA good practice are: approach the person, assess the situation, assist with any crisis, listen non-judgmentally, offer support, offer information, encourage the person to get professional help and encourage other support (Kitchener, Jorm & Kelly, 2010). Minas *et al.* (2009) used MHFA responses with five actions. The actions, known as ALGEE, are as follows:

- Assess risk of suicide or harm;
- Listen non-judgmentally;
- Give reassurance and information;
- Encourage the person to get appropriate professional help; and
- Encourage self-help strategies (Jorm *et al.*, 2005a, 2010a; Kelly *et al.*, 2011; Minas *et al.*, 2009; Rossetto, Jorm & Reavley, 2014, 2016; Yap & Jorm, 2012; Yap, Wright & Jorm, 2011b; Yoshioka *et al.*, 2015).

A scoring scheme for this action plan was developed through a series of Delphi studies on mental health first-aid guidelines (Kelly *et al.*, 2009; Kingston *et al.*, 2009; Langlands *et al.*, 2008). To assess the reliability of these five action plans, Pearson correlations were rated A (0.98–1.00), L (0.89–0.90), G (0.78–0.8), E1 (0.76–0.81), E2 (0.87) and Total (0.95–0.96); the ratings were highly correlated with four MHFA experts' consensus ratings (Jorm *et al.*, 2005a; Kelly *et al.*, 2011; Minas *et al.*, 2009; Yap *et al.*, 2011b). Some studies used another version with six MHFA components (Davies *et al.*, 2016; Jorm *et al.*, 2005a; Kelly *et al.*, 2011; Rossetto, Jorm & Reavley, 2014; Yap *et al.*, 2011b; Yap & Jorm, 2012). These components, known as AALGEE, are as follows:

- Approach the person;
- Assess and assist with any crisis;

- Listen non-judgmentally;
- Give support and information;
- Encourage appropriate professional help; and
- Encourage other support.

## 2.4 Population-based Mental Health Literacy Studies

Since the inception of the MHL concept in 1995, studies assessing MHL have been conducted in many countries, including Australia (Jorm *et al.*, 1997a, 1997b; Kelly, Jorm & Wright, 2007; Lam, 2014; Reavley & Jorm, 2011; Reavley, McCann & Jorm, 2012; Wright *et al.*, 2007), Canada (Wang & Lai, 2008), Germany (Angermeyer, Holzinger & Matschinger, 2009), Hong Kong (Lui, Wong & Furnham, 2016; Wong & Li, 2012; Wong & Xuesong, 2011; Wong *et al.*, 2012b, 2012c), India (Kermode *et al.*, 2009), Portugal (Loureiro *et al.*, 2013, 2015), Sri Lanka (Ediriweera *et al.*, 2012), Sweden (Melas *et al.*, 2013; Svensson & Hansson, 2016), Switzerland (Lauber *et al.*, 2003; 2005), the UK (Furnham *et al.*, 2011; Furnham & Hamid, 2014; Klineberg *et al.*, 2011) and the USA (Mendenhall *et al.*, 2013; Sadow & Ryder, 2008). Results from these studies have consistently shown that the public has relatively poor recognition and beliefs regarding mental health treatment compared with health-care professionals (Melas *et al.*, 2013).

Kelly, Jorm and Wright (2007) conducted a systematic review of 12 studies that examined interventions to improve MHL for young people from Australia, Germany, the UK and the USA. They identified four categories of anti-stigma inventions/campaigns: whole-of-community, youth community interventions, school-based interventions and individual training programmes (ITPs). MHFA is an example of an ITP used to combat stigma within the

public (Kitchener & Jorm, 2006). Jorm *et al.* (1997a) assessed MHL in Australia with a sample of 2,031 members of the public and 2,409 health professionals, such as GPs, psychiatrists and clinical psychologists (CPs). The correct recognitions of depression and schizophrenia were as follows:

- 39% and 27% for the public (Jorm *et al.*, 1997a);
- 72% and 87% for generally trained nurses in Singapore (Yeo *et al.*, 2001); and
- 85% and 46% for nursing students in Singapore (Seow *et al.*, 2017), respectively.

The majority of Australian lay population and health professionals believed that seeing a GP, attending counselling and taking anti-depressants were helpful for depression and that seeing a GP, psychiatrist, CP, taking antipsychotics and admission to a psychiatric ward were helpful for schizophrenia (Jorm *et al.*, 1997a, 1997b). Many researchers (Li *et al.*, 2014; Liu, Gerdtz & Liu, 2011; Lui, Wong & Furnham, 2016; Melas *et al.*, 2013; Reavley, McCann & Jorm, 2012) have carried out similar MHL studies in various countries with varying target populations, for instance, adolescents/young people, university students, health-care students and the public.

Chinese people are poor at recognising mental disorders (Lui, Wong & Furnham, 2016). Furnham and Hamid (2014) conducted a systematic review of 28 MHL studies from 2000 to 2014 from English and non-English-speaking countries. Fourteen of the studies were from Asian countries, with only 7% undertaken in China. Therefore, there is a lack of MHL literature focused on China and the topic can be considered under-researched (Furnham & Harmid, 2014). Two studies (Liu, Gerdtz & Liu, 2011; Li *et al.*, 2014) have addressed knowledge gaps in the field of MHL in China.

Research on MHL has shown that about half of adolescents and young adults aged 12–25 years identified depression correctly and about a quarter identified schizophrenia correctly (Klineberg *et al.*, 2011; Melas *et al.*, 2013; Reavley & Jorm, 2011; Reavley, McCann & Jorm, 2012). It is very common for adolescents to have stigmatising attitudes; the development of stigmatising attitudes and behaviours occurs in childhood and early adolescence, and intervention with mental health education can be effective in reducing stigma (Chisholm *et al.*, 2016). Young people are often fearful of professional treatment and some view consultation with mental health experts as an option of last resort (Jorm *et al.*, 2007; Yap *et al.*, 2011a). They often believe GPs, family members and friends are helpful when experiencing depression (Loureiro *et al.*, 2015). Nursing students generally belong to this age group and thus have a similar perception of mentally ill individuals (Schafer, Wood & William, 2011).

Five MHL studies have been conducted in Hong Kong (Lui, Wong & Furnham, 2016; Wong & Li, 2012; Wong & Xuesong, 2011; Wong *et al.*, 2012b, 2012c). Combined, these studies have compared differences between 522 Chinese adults in Hong Kong and Shanghai. The results reveal that the correct recognition of depression and schizophrenia from vignettes in Shanghai and Hong Kong were 12.2% versus 36.3% for depression and 8.3% versus 18.4% for schizophrenia, respectively. Chinese people in Shanghai and Hong Kong have different attitudes about the usefulness of professional help for both depression and schizophrenia. A far lower percentage of Shanghai Chinese endorsed seeing a counsellor or GP for depression and schizophrenia (Wong & Xuesong, 2011). Hong Kong Chinese were more inclined to Western norms and practices and thus had positive attitudes towards seeking professional help (Chen & Mak, 2008). Shanghai Chinese adhered more strongly to a belief in

the psychosocial causes of mental illness, such as 'stress', 'family conflicts' and 'traumatic childhood experience', and tended to perceive depression as a form of personal and social distress (Wong & Li, 2012).

The limitations of these MHL studies among adolescents, young adults and Chinese adults may pose problems regarding methodological quality, such as selection bias in observational studies (Klineberg *et al.*, 2011; Melas *et al.*, 2013; Reavley & Jorm, 2011; Reavley, McCann & Jorm, 2012; Wong & Li, 2012; Wong & Xuesong, 2011), and the use of vignette methodology, which may not accurately represent real-life situations. Selection bias means the comparison groups differ in terms of important baseline characteristics that are important outcome predictors due to selection error (Pandis *et al.*, 2014). This type of bias may lead to incorrect associations between exposure and outcome variables.

## **2.5 Population-based Mental Health First-aid Studies**

The MHFA programme began in Australia in 2002 and the first evaluation was published in the same year (Kitchener & Jorm, 2002a). Since 2002, there has been significant literature published on MHFA worldwide. MHFA research has been undertaken with various populations, including adolescents and young people, high school students, university students, health-care professionals, and diverse groups such as Australian Chinese (Lam, Jorm & Wong, 2010), Australian Vietnamese (Minas *et al.*, 2009) and Bhutanese refugees in the USA (Subedi *et al.*, 2015).

Studies on MHFA among youth, secondary and university students include those by Davies *et al.* (2016), Hart *et al.* (2016),

Yap and Jorm (2012), Yap, Wright and Jorm (2011b) and Yoshioka *et al.* (2015). These studies have measured the outcome variables of MHFA intentions and first-aid actions. In a quasi-experimental pilot evaluation of MHFA among adolescents in an Australian secondary school (Hart *et al.*, 2016), 988 students completed MHFA training: 53% completed the baseline questionnaire, 34% completed the post-test and 24% completed the three-month follow-up. Help-seeking intentions were assessed using a vignette-based questionnaire with open-ended responses and were coded into three categories (i.e. 'talk tell ask', 'seek help' and 'non help') at three time points. The results of this study suggest that the students had statistically significant improvements over time in help-seeking intentions after they received the teen MHFA programme (Hart *et al.*, 2016). The results confirmed that MHFA intentions and beliefs were valid indicators for young people in another Australian study (Yap & Jorm, 2012). However, the limitations were the uncontrolled nature of the study and the high attrition rate in the sample.

Research on MHFA among the public has found mainly statistically significant results. Results have suggested changes in knowledge, attitudes, behaviours and intentions after completion of MHFA. These studies include Hart *et al.* (2016), Jorm *et al.* (2004), Jorm *et al.* (2010a, 2010b), Kelly *et al.* (2011), Kitchener and Jorm (2002b, 2004, 2006), Minas *et al.* (2009) and Wong *et al.* (2015). The results of Kitchener and Jorm's (2006) study were supported by a recent meta-analysis conducted in Sweden (Hadlaczky *et al.*, 2014). However, some researchers have criticised that most MHFA studies have a low-to-moderate or high risk of bias (Hanisch *et al.*, 2016). From a meta-analysis study, the mean sample sizes for these 15 studies ranged from 23 to 753. (Hadlaczky *et al.*, 2014). Three out of 15 studies were underpowered (sample size of 23 to 61) (Hossain *et al.*, 2009;



Pierce *et al.*, 2010; Sartore *et al.*, 2008). It is well-known that small studies included in a meta-analysis tend to report greater intervention effects than larger studies (Turner, Bird & Higgins, 2013). The small-study effect is the phenomenon that smaller studies are more likely to be published when they show significant positive results (Nygard *et al.*, 1995). This small-study effect may arise from biases caused by methodological flaws in small studies (Kjaergard, Villumsen & Gluud, 2001). Some researchers have argued for excluding small studies from meta-analyses to reduce the effects of publication bias (Stanley, Jarrell & Doucouliagos, 2010).

There are currently five RCT MHFA studies (Jorm *et al.*, 2004, 2010a, 2010b; Kitchener & Jorm, 2004; Svensson & Hansson, 2014). Four out of the five studies were undertaken in Australia by the founders of MHFA (Jorm *et al.*, 2004, 2010a, 2010b; Kitchener & Jorm, 2004). The shortcomings of these RCT studies suggest that the use of simple imputation methods, such as mean imputation and last observation carried forward (LOCF), to deal with missing data. These methods may cause biased estimates (Eekhout *et al.*, 2012). Simple imputation methods remain popular, partly because they are simple and easy to understand, but they are overused (Little *et al.*, 2012) despite warnings from many statisticians against their use, particularly LOCF (Bell *et al.*, 2014). Their validity hinges on assumptions that are often unrealistic. For example, the LOCF method assumes that the outcomes of participants do not change after they have dropped out of a study (Molnar *et al.*, 2009). The LOCF and mean imputation methods impute a single value for missing data; these methods do not propagate imputation uncertainty and thus yield inappropriately low estimates of standard errors and *p* values (Little *et al.*, 2012). Researchers should update their skill sets and use modern methods (multiple

imputation) that increase statistical power and, in some cases, reduce bias (Bell *et al.*, 2014).

Research on MHFA using study designs such as quasi-experimental and pre-test and post-test uncontrolled studies includes work by Hart *et al.* (2016), Kelly *et al.* (2011), Lam, Jorm and Wong (2010), Subedi *et al.* (2015) and Wong *et al.* (2015). The results for these studies were inconclusive to support that MHFA has significant effects on knowledge, attitudes and behaviours. Some studies measured MHFA effectiveness, and others measured scale validity in first-aid responses (Minas *et al.*, 2009). The quality of the findings was affected due to methodological flaws, such as confounding and selection bias in non-randomised studies (Pandis *et al.*, 2014). Confounding bias is caused by factors that causally affect exposure and can blur the associations between exposure and outcomes (Koepsell & Weiss, 2003). Most of the studies have threats to internal validity due to convenience sampling (Lam, Jorm & Wong, 2010; Wong *et al.*, 2015) and confounders that were not controlled (Hart *et al.*, 2016; Subedi *et al.*, 2015).

The qualitative MHFA studies refer to three targeted groups:

- Participants (Jorm, Kitchener & Mugford, 2005b; Svensson, Hansson & Stjernswärd, 2015);
- MHFA graduates (Lucksted *et al.*, 2015; Mendenhall *et al.*, 2013); and
- MHFA instructors (Byrne, McGowan & Cousins, 2015; Crisanti *et al.*, 2015; Mendenhall *et al.*, 2013; Terry, 2010, 2011).

The results of these qualitative studies supported quantitative findings (Hadlaczky *et al.*, 2014; Jorm *et al.*, 2004, 2010a, 2010b; Kitchener & Jorm, 2002b, 2004, 2006; Wong *et al.*, 2015) on

improving MHL and reducing stigmatising attitudes for participants and graduates. Results also indicated that complex strategies are employed in the delivery of MHFA training (Byrne, McGowan & Cousins, 2015). The studies produced a richer text dataset for MHFA research, although the evidence to date remains underdeveloped (Mendenhall *et al.*, 2013; Terry, 2011). Limitations for these qualitative studies involved their subjectivity, which can lead to procedural problems (Denzin & Lincoln, 2011). Qualitative questioning is open-ended and inductive, and it is not an ideal choice for reliably comparing groups (Denzin & Lincoln, 2011). However, there has been only one qualitative MHFA study undertaken for nursing students in Australia (Kelly & Birks, 2017). Therefore, this study was undertaken to bridge the knowledge gap in MHFA research.

## **2.6 Mental Health Literacy Studies for Nursing Students**

A literature review was conducted on MHL and MHFA studies for nursing students. Four bibliographic databases (CINAHL, PsycINFO, PubMed and MEDLINE) from biomedical, nursing, psychology and social sciences were searched from 1997 to May 2017. The search was limited to 1997 onwards (being the year when MHL first appeared in peer-reviewed literature). Only papers written in English and Chinese could be read and were searched. The keywords used were 'nursing students', 'mental health literacy', 'MHL', 'mental health first aid', 'MHFA', 'attitude', 'RCT' and 'randomised controlled trial'. The aim of this literature search was to obtain original research reporting outcomes of both the MHL and MHFA programmes for nursing students. Studies were included if they met the following criteria: (1) included the MHL, standard and teen MHFA programmes, (2) included all quantitative studies for nursing students, (3) included studies with

three outcome measures change in knowledge, attitudes and behaviour. The exclusion criterion was studies printed in languages other than English.

Fourteen studies were reviewed to provide a summary of the existent literature on MHL (i.e. 10 studies) and MHFA (i.e. four studies) for nursing students. Table 2.1 presents 10 published papers on MHL for nursing and midwifery students. Health-care students include those in the fields of medicine, nursing, midwifery, pharmacy, psychology, occupational therapy and medical social work (Bond *et al.*, 2015; Burns *et al.*, 2017; Chung, 2005; Covarnbias & Han, 2011; Friedrich *et al.*, 2013; Happell *et al.*, 2014; Martin, 2016; McCann & Clark, 2010; McCann, Lu & Berryman, 2009; Nguyen, Chen & O'Reilly, 2012; O'Reilly *et al.*, 2011; Thonon *et al.*, 2016).

Stubbs (2014) reviewed 18 studies on anti-stigma interventions for health-care students in Australia; these studies included interventions featuring contact (seven studies), education (five studies) and a mix of education and contact (six studies). The results suggested that direct contact and filmed contact interventions effectively reduced stigma in health-care students (Stubbs, 2014). However, because there were only two studies (11.1%) for nursing students, the results were inconclusive for this group. In addition, Stubbs (2014) searched only two electronic databases—Cochrane Library and PubMed—and did not consider the grey literature to ensure a comprehensive search strategy.

Table 2. 1: MHL Studies for Nursing Students<sup>1</sup>

Study (Country)	Design	Target Population	Interventions or Strategies	Outcome Results
<b>Stubbs (2014)</b> <b>Australia</b>	Literature reviews addressed ASP in HC students.	HC students (medicine, pharmacy, nursing and psychology) Nursing students only two papers (C & M)	Attitudes, social distance, knowledge and behaviour Interventions - Three categories: C, E & M. SR of 18 studies (C = 7, E = 5 and M = 6) was included	The evidence suggests that interventions featuring direct contact, indirect filmed contact or educational emails effectively reduced stigma in health-care students and professionals; however, this effect was lost over time.
<b>Clement <i>et al.</i> (2012a)</b> <b>UK</b>	ITP – RCT for direct social contact interventions 3 groups: V = DVD; S = live experience & E = lecture CG = E; IG1= V; IG2 =S	Student general nurses, university foundation year (N = 216) 85–90% female	SCILO; MICA & ERMIS with a vignette on schizophrenia RIBS	No difference between the DVD and live groups on MICA, ERMIS or RIBS scores. The DVD group had high knowledge scores. The DVD/live group had better knowledge and behaviour scores than the lecture group, which were maintained at four months.
<b>Davies <i>et al.</i> (2016)</b> <b>UK</b>	Online survey Quasi-RCT	University students (HC & non-HC) (N = 483) 74% female	Video-base (male vs female vignette)	Non-healthcare students reported poorer MHFA intentions and less confidence to help and support a friend with depression.
<b>Markström <i>et al.</i> (2009)</b> <b>Sweden</b>	ITP – Six universities, Pre-post study	Three groups of HC students: 1. Nurse students (65%) 2. OT students (20%) 3. Medical students (15%) N = 167 83% female	Level of familiarity Questionnaire Attitudes about people with mental illness Questionnaire to elicit attitudes towards schizophrenia	The results showed that clinical placement could affect attitudes in a de-stigmatising direction.
<b>Sadow &amp; Ryder (2008)</b> <b>USA</b>	ITP – Pre-post CG: Group 1 IG: Group 2	Two groups of SN (3rd semester) Group 1 (n = 27) Group 2 (n = 30) Female (85% vs 90%)	Vignette: schizophrenia Devaluation Discrimination Scale Courtesy Stigma Scale	The control group showed an increase in stigmatising attitudes after their placement, whereas the experimental group showed a significant decrease over time.

Study (Country)	Design	Target Population	Interventions or Strategies	Outcome Results
<b>Cowley <i>et al.</i> (2016) Australia</b>	ITP	Undergraduate Nursing students ( <i>N</i> = 20) clinical placement i.e. recovery camp 85% female	MHNCCS	Participation in the recovery camp was associated with a statistically significant increase in students' level of overall confidence between the pre-test and post-test data.
<b>Ewalds-Kvist <i>et al.</i> (2013) Sweden</b>	ITP – convenience sampling	Nursing students (2 <sup>nd</sup> semester) <i>N</i> = 246 85% female	CAMI Student Nurse Attitude Index	Student nurses who had previous contact with people with mental illness before education in psychiatric nursing exhibited positive attitudes towards mental illness.
<b>Granados-Gómez <i>et al.</i> (2016) Spain</b>	ITP – cross-sectional survey	Nursing students of Nursing Diploma at University of Almeria 1 <sup>st</sup> year ( <i>n</i> = 95) 3 <sup>rd</sup> year ( <i>n</i> = 99) 80% female	Questionnaire of beliefs regarding mental health, Attribution Questionnaire of Mental Health	60.3% of students believed that people with mental illness do not follow recommended treatment. This study found great uniformity of beliefs of nursing students towards people with mental illness, regardless of their academic year.
<b>McCann, Lu &amp; Berryman (2009) Australia</b>	Longitudinal survey	Nursing students Year 1 ( <i>n</i> = 90) Year 2 ( <i>n</i> = 46) Year 3 ( <i>n</i> = 96) Female (82% vs 89% vs 78%, respectively)	Depression vignette Beliefs about help-seeking interventions, medications and treatment interventions	Significant differences over time in helpfulness of professional help, medications, and usefulness of activity and non-pharmacological interventions.
<b>McCann &amp; Clark (2010) Australia</b>	Non-probability sample	Midwifery Student Year 1 ( <i>N</i> = 38) 97% female	Schizophrenia vignette Beliefs about help-seeking interventions, medications and treatment interventions	Students had poor MHL on mental health interventions and treatment.

<sup>1</sup> Abbreviations: ASP: Anti-Stigma Project; C: face-to-face contact; CAMI: Community Attitudes towards the Mentally Ill; CG: control group; CINHAL: Cumulative Index to Nursing and Allied Health Literature; E: education; ERMIS: Emotional Reactions to Mental Illness Scale; HC: health care; IG: intervention group; ITP: individual training programmes; M: mixed (education + contact); MHFA: mental health first aid; MHL: mental health literacy; MHNCCS: Mental Health Nursing Clinical Confidence Scale; MICA: Mental Illness Clinicians Attitudes Scale; OT: occupational therapist; RCT: randomised controlled trial; RIBS: Reported and Intended Behaviour Scale; SCILO: Social Contact Intended Learning Outcomes; SN: student nurses; S: social contact; SR: systematic review; V: video/film.

An online survey was conducted on two groups of university students selected from health-care and non-healthcare students (Davies *et al.*, 2016). Students were randomly allocated based on their month of birth to view a video vignette of either a male or female student depicting symptoms of depression (Davies *et al.*, 2016). The results suggest that non-healthcare students have poorer MHFA intentions ( $p < 0.001$ ) and less confidence to help and support a friend with depression than health-care students to a statistically significant degree ( $p = 0.04$ ). The results are not generalizable due to methodological issues around the convenience sampling. A Swedish study (Markström *et al.*, 2009) compared the attitudes of 167 health-care students from three groups, namely nursing (65%), medicine (15%), and occupational therapy (20%), before the theoretical course and after the clinical placement. The results suggested that clinical placement could affect nursing students' attitudes in a de-stigmatising direction ( $p = 0.03$ ) regarding people with schizophrenia (Markström *et al.*, 2009).

An RCT investigating filmed social contact was undertaken by Clement *et al.* (2012a), who examined whether social contact impacted UK nursing students' stigmatising perceptions. The researchers randomised a total of 216 participants into two groups (i.e. DVD experience and live experience) and a lecture-only group that acted as a control group. The aim was to measure changes in the attitudes and knowledge of nursing students immediately after an intervention and at a four-month follow-up (Clement *et al.*, 2012a). The results suggest that the group with combined direct and indirect social contact with mental health services users and caregivers had statistically significantly better attitude ( $p = 0.003$ ) and behaviour scores ( $p = 0.015$ ) than the education-only group (Clement *et al.*, 2012a). A Swedish survey studied 246 nursing students who had previous contact with

mental health services users. The statistically significant results showed a positive attitude towards mental illness for student nurses who had previous contact before education (Ewalds-Kvist *et al.*, 2013).

A quasi-experimental pre-test and post-test study were carried out in the USA on two groups of nursing students to assess their stigmatising attitudes towards people with mental illness (Sadow & Ryder, 2008). The intervention group received education and clinical placement (interacted with mental patients in recovery), while the control group received only education. The results concluded that the intervention group showed significantly decreased stigmatising attitudes over time. However, the control group showed an increase in stigmatising attitudes (Sadow & Ryder, 2008). The limitations for this study include its small sample size and lack of randomisation. If the sample size is too small, it may be impossible to detect any true differences in outcomes between groups (Akobeng, 2016). Randomisation is used to eliminate selection bias and confounding factors (Akobeng, 2005).

An Australian study undertaken by Cowley *et al.* (2016) invited 20 undergraduate nursing students to evaluate the impact of their clinical confidence after an unconventional clinical placement in mental health (a recovery camp). The results demonstrated a statistically significant increase in the students' level of overall confidence. A survey was undertaken by Granados-Gómez *et al.* (2016) to examine the beliefs and attitudes in Spain towards mental illness before and after a clinical placement for first-year and third-year nursing students. The results demonstrated that 60.3% of 194 students believed that people with mental illness did not follow the recommended treatment. There was uniformity in the beliefs of nursing students about people with mental illness, regardless of their academic year (Granados-Gómez *et al.*, 2016).



Stigmatising attitudes by health-care students were common; however, exposure to mental health patients in the teaching curriculum can be helpful to reduce stigmatising attitudes among these students (Madianos *et al.*, 2005). A problem of this study regarding methodological rigour was related to selection bias.

## **2.7 Mental Health First-aid Studies for Nursing Students**

Table 2.2 presents four published papers on MHFA for nursing and midwifery students. This MHFA course was beneficial to student nurses and other health-care students (Bond *et al.*, 2015; Burns *et al.*, 2017; Kelly & Birks, 2016). Researchers have proposed MHFA as a prerequisite for preregistration nursing education (Happell *et al.*, 2014; Kelly & Birks, 2016). However, the MHFA training programme may be insufficient for undergraduate nursing education (Kitchener & Jorm, 2017) because graduate nurses need to be well-prepared in all health-care settings to administer mental health treatment that is more advanced than basic first aid (Andrews *et al.*, 2000).

Table 2. 2: MHFA Studies for Nursing Students<sup>1</sup>

Study (Country)	Design	Target Population	Interventions or Strategies	Outcome Results
<b>Happell <i>et al.</i> (2014)</b> Australia	Literature review	Peer-reviewed on three databases (CINAHL, MEDLINE, PsycINFO), from Dec 2012 to Feb 2013	Debate about MHFA and its relationship with mental health nursing education	MHFA – prerequisite of preregistration nurse education.
<b>Burns <i>et al.</i> (2017)</b> Australia	RCT CG – online course IG – face-to-face course	Nursing students Year One ( $N = 181$ ) IG ( $n = 92$ ) CG ( $n = 89$ ) Female (83.6%)	Vignette – depression Mental health knowledge, recognition of depression, and confidence MHFA intentions; Stigmatising attitudes – Depression stigma scale & social distance scale	Results revealed a significant improvement in interventions compared to a control group across three-time periods for MHL, MHFA intentions, confidence in helping, and stigmatising attitudes.
<b>Bond <i>et al.</i> (2015)</b> Australia	Survey – evaluation of MHFA	Nursing students ( $n = 292$ ) Medical students ( $n = 142$ ) Female (91% vs 71%)	Vignette – depression MHFA intentions, MHL, confidence in providing help	Results showed that both online and face-to-face MHFA courses improved quality of MHFA intentions in depression vignette, increased MHL and confidence to help, and decreased stigmatising attitudes about people with depression.
<b>Kelly &amp; Birks (2016)</b> Australia	Online survey	Nursing and midwifery students ( $N = 66$ ) 91% female	Questionnaire (experience of MHFA course)	86% regarded an MHFA course as appropriate for nursing and midwifery students. Responses to open-ended questions suggest widespread support for the routine offering of this course for beginning nursing and midwifery students nationwide.

<sup>1</sup> Abbreviations: ASP: Anti-Stigma Project; C: face-to-face contact; CAMI: Community Attitudes towards the Mentally Ill; CG: control group; CINAHL: Cumulative Index to Nursing and Allied Health Literature; E: education; ERMIS: Emotional Reactions to Mental Illness Scale; HC: health care; IG: intervention group; ITP: individual training programmes; M: mixed (education + contact); MHFA: mental health first aid; MHL: mental health literacy; MHNCCS: Mental Health Nursing Clinical Confidence Scale; MICA: Mental Illness Clinicians Attitudes Scale; OT: occupational therapist; RCT: randomised controlled trial; RIBS: Reported and Intended Behaviour Scale; SCILO: Social Contact Intended Learning Outcomes; S: social contact; SN: student nurses; SR: systematic review; V: video/film.

Undergraduate nursing programmes already have a crowded curriculum (McAllister *et al.*, 2011). MHFA training has been demonstrated to improve MHL within the general population (Hadlaczky *et al.*, 2014), but there are limited data on its effective use in educating future health-care professionals (Kitchener & Jorm, 2002b). The value of MHFA in facilitating the mental health knowledge of nursing students above and beyond core mental health nursing components is a topic for further debate (Happell *et al.*, 2014). Only one RCT (Burns *et al.*, 2017) has evaluated the MHFA programme for first-year nursing students. The results showed significant improvement in knowledge, attitude and first-aid intentions for intervention compared to the control group. However, this RCT has issues associated with methodological quality, such as problems with blinding and study contamination.

The limitations of MHL and MHFA studies on nursing students are as follows:

- Methodological validity (i.e. small sample sizes);
- Non-randomised;
- Survey instruments not psychometrically tested; and
- Lack of qualitative data to capture broader views (Cowley *et al.*, 2016; Granados-Gómez *et al.*, 2016; Markström *et al.*, 2009; Sadow & Ryder, 2008).

Confounders and bias are commonly found in non-randomised studies (Viera & Bangdiwala, 2007). In the 11 discussed studies (Bond *et al.*, 2015; Burns *et al.*, 2017; Clement *et al.*, 2012a; Cowley *et al.*, 2016; Ewalds-Kvist *et al.*, 2013; Granados-Gómez *et al.*, 2016; Kelly & Birks, 2016; Markström *et al.*, 2009; McCann & Clark, 2010; McCann, Lu & Berryman, 2009; Sadow & Ryder, 2008), the average percentage of female participants was 87%.

Thus, these studies over-represent the general population because nursing students constitute a more homogenous group.

## 2.8 Other Programmes to Improve Mental Health Literacy

The literatures include other possible alternatives to improve MHL, such as Applied Suicidal Intervention Skills Training (ASIST) (Terry, 2009) and the Psychosocial Intervention (PSI) programme (Turton, 2014).

### 2.8.1 Applied Suicidal Intervention Skills Training

ASIST, a 'sister' course of MHFA (Terry, 2009), is a two-day interactive and practice-dominated workshop designed to help caregivers recognise and estimate risk and learn how to intervene in the case of immediate risk of suicide (LivingWorks, 2015). Studies have shown that ASIST complements existing professional skills and improves clinical preparedness to help a person at risk of suicide (Lander & Tallaksen, 2007; Macro, 2010; McAuliffe & Perry, 2007). ASIST is now the most used suicide prevention gate-keeper training programme in the world. One million people across 22 countries have been trained as volunteers (Dolev *et al.*, 2008). In Hong Kong, suicide training guidelines are used by the Samaritans<sup>5</sup> and the Suicide Prevention Service<sup>6</sup> to train their hotline volunteers and instructors. However, the lack of efficacy of ASIST is concerning in the context of widespread policies in Canada about the use of gate-keeper training in suicide prevention (Sareen *et al.*, 2013).

---

<sup>5</sup> Samaritans: [www.samaritans.org.hk](http://www.samaritans.org.hk).

<sup>6</sup> Suicide Prevention Service: [www.sps.org.hk](http://www.sps.org.hk).

Unlike MHFA, ASIST focuses on one mental health-related issue (Davies *et al.*, 2016).

### **2.8.2 Psychosocial Intervention programme**

PSI is a group of non-pharmacological therapeutic interventions that address the psychological, social, personal and relational problems associated with mental health disorders (Turton, 2014). Examples of psychosocial interventions are health education, Cognitive Behavioural Therapy (CBT), counselling, family intervention, coping strategies, peer support, social support and social skills training. Redhead *et al.* (2011) concluded that PSI training results in enhanced knowledge and positive changes in nurses' attitudes and clinical practice. This postgraduate programme has been integrated into the undergraduate mental health nursing curriculum in the UK (Stacey & Rayner, 2008). Nursing documentation has reported shortcomings concerning psychosocial aspects of care (Wang, Hailey & Yu, 2011). In an acute care setting, extensive use of basic PSI concepts, such as empathetic attitudes, health education, emotional debriefing and counselling, are used to manage patients' physiological anxiety (Juvé-Udina *et al.*, 2014). Caring for and talking with a patient with complex communication needs can be extremely challenging for nurses who have no training on psychosocial care (Finke, Light & Kitko, 2008). Unlike MHFA, PSI takes an overview of a person's unique situation and requires a comprehensive and collaborative assessment process to promote and maintain recovery (Turton, 2014).

## 2.9 Summary

The attribution model is concerned with the relationship between causal attribution (e.g. controllability, responsibility and danger), emotional responses (e.g. pity, anger and fear), and helping and rejecting responses (Corrigan *et al.*, 2003). Stigma and the knowledge deficit regarding mental health symptoms are the main barriers to seeking help for mental health problems. Thus, the concept of the MHL and MHFA programmes has been developed to bridge the knowledge gap. MHFA is an MHL programme used to measure MHL in terms of knowledge (recognition of disorders, beliefs about treatment), attitudes and help-related behaviours (i.e. MHFA intentions and confidence in providing help). Jorm and his team used vignette methodology to generate a correct coding system for open-ended questions and conducted Delphi studies to establish good MHFA practices.

A significant amount of MHL and MHFA research has been undertaken in various countries with varying populations with different study designs. The findings of MHL studies suggest that stigmatising attitudes are developed in childhood and early adolescence, and educational intervention can be effective in reducing stigma. Chinese people have poor MHL compared with people in Western countries, and MHL in China remains an under-researched topic. Most MHFA studies with various study designs have provided findings that were inconclusive to support the assertion that MHFA training has a significant effect on knowledge, attitudes and behaviours. However, qualitative studies have supported quantitative findings for improving MHL and reducing stigmatising attitudes for participants and graduates.

Studies on nursing students have been undertaken in many countries regarding MHL and MHFA anti-stigma intervention programmes. Moreover, only one RCT study evaluated the

MHFA programme for first-year nursing students in Australia. The statistically significant results were plausible but questionable due to methodological quality issues. Therefore, the present RCT was undertaken to bridge the knowledge gap in MHFA research. Other programmes to improve MHL include ASIST and PSI. However, ASIST is mainly for suicide prevention, and PSI is an advanced course for undergraduate nursing students, so the MHFA programme is more appropriate in this context.

# CHAPTER 3

## METHODOLOGY



### 3.1 Introduction

This study was a single-site, parallel RCT following CONSORT guidelines (Schulz, Altman & Moher, 2010). MHFA has been established since 2005 at KCH, but no evaluation studies have been conducted. Therefore, the current RCT examined the efficacy of the MHFA programme designed for general nursing students with a clinical placement at KCH. MHFA is a three-week mental health education programme; the UEP clinical placement was used as the control group. Participants were recruited from undergraduate nursing students and randomly assigned to the intervention and control groups. An *a priori* sample size calculation suggested that 35 students per group were required.

Two registered mental health nurses volunteered as research assistants and assisted in recruitment, randomisation, data collection and data analysis. The primary outcome measure was the vignette responses on MHL. The secondary outcome measures were the attitudinal scale on mental illness and help-related behaviours.

Five stages—pre-analysis phase, preliminary assessments, preliminary actions, principal analyses and interpretive phase—were examined to analyse quantitative data. Brief, written vignettes have been used in most MHL studies as a data collection tool. Vignette questions can be both quantitative and qualitative. Quantitative data were analysed using ITT and PP analyses. Missing data were assumed to be missing at random (MAR) using MI.

For high validity and reliability of vignettes, researchers consider many factors to ensure the study results are free from bias. The effect of randomness in vignettes may affect study results. Two assumptions of response consistency, vignette equivalence and

randomisation of vignettes were examined at three time points. Three open-ended questions in the vignette responses provided qualitative findings for the primary and secondary outcome variables. The scoring of vignette questions has been conducted extensively in the MHL literature, with coding responses relying on expert consensus guidelines.

The chapter also provides a discussion of challenges and practical issues, such as ethical, financial resource and implementation issues encountered when conducting an RCT in a clinical setting. Reflexivity and positionality in quantitative research are further discussed.

### **3.2 Research Design**

This study was a single-site, parallel RCT following CONSORT reporting guidelines (Schulz, Altman & Moher, 2010). A 2 (group) x 3 (time) design was used with a combination of methods (quantitative and qualitative). The two groups consisted of MHFA plus UEP intervention and UEP alone. Participants were randomly assigned to the intervention or control group. Self-reported outcome assessments were assessed at baseline, post-intervention and 6-month follow-up to evaluate the post-intervention outcomes and durability of change over group and time.

The Hospital Chief Executive established the MHFA programme as a mental health public education project at KCH in 2005. Chinese participants, including the mentally ill, caregivers, hospital volunteers and members of the public, have completed over 100 classes as part of this programme. However, no evaluation study has been conducted to test the effectiveness of this programme. Therefore, the current RCT examined the

efficacy of the MHFA programme designed for nursing students at KCH. KCH was a clinical training centre for undergraduate nursing students, aiding recruitment to the study. This would be valuable for all nursing students and would give parity between mental health and physical first aid in their training (Happell *et al.*, 2015).

### **3.2.1 Participants**

The population for this study were general nursing students in their third or final year of a four-year Bachelor of Nursing programme during their mental health clinical placements at KCH. Six batches of nursing students from three local institutions/universities (Caritas Medical Centre, the Hong Kong Polytechnic University and the Open University of Hong Kong) in Hong Kong completed their clinical placements at KCH from April to October 2015. The study consisted of 250 eligible participants. The inclusion criteria for participants were:

- Aged 18–25 years;
- Provided name, phone number and email address; and
- Agreed to randomisation.

The rationale to recruit young people aged 18–25 years was that the majority of undergraduate nursing students in Hong Kong were within this age range.

### **3.2.2 Interventions**

All participating general nursing students completed a 10-day mental health nursing clinical placement at KCH. A clinical placement in mental health nursing is a prerequisite for completion

of the nursing degree. This placement—known as UEP—formed the control group in this study. Participants in the intervention arm experienced UEP plus MHFA training. These were parallel groups.

### Mental Health First Aid

The standard MHFA course includes 12 hours covering mental health crisis situations, such as people threatening suicide or experiencing an overdose or panic attack and psychotic people exhibiting threatening behaviour (Kitchener & Jorm, 2002b). A course manual (Kitchener, Jorm & Kelly, 2013) is available from the programme website.<sup>7</sup> The course has been adopted in 22 countries, including the UK, Singapore and Hong Kong (Muhammad Gadit, 2012). In 2004, the Mental Health Association of Hong Kong<sup>8</sup> (MHAHK) was established as the national hosting organisation for MHFA in Hong Kong.

The MHFA course material contains detailed action plans that cover depression, anxiety disorders, psychosis and substance use disorders, and interactive case studies for each. The most frequently utilised formats of the MHFA programme are three weekly four-hour sessions (Byrne *et al.*, 2015), depending on venue availability. Classroom teaching involves interactive group discussion with audio–visual case demonstration, group exercises and role-playing to help students learn practical mental health first-aid skills. Students are required to complete a 20-question multiple-choice quiz and an evaluation form at the end of the session. An MHFA certificate is issued upon completion of the course.

---

<sup>7</sup> MHFA course manual: <http://www.mhfa.com.au>.

<sup>8</sup> MHAHK: <http://www.mhahk.org.hk>.

### Usual Education Practice

In Hong Kong, the syllabus for the Fundamentals of Mental Health Nursing course is designed to meet the requirements identified by the Nursing Council of Hong Kong (The Nursing Council of Hong Kong, 2014). Eighty hours of clinical learning is covered in the first semester of the third year, including: mental health nursing and nursing processes, ethical and legal aspects of mental health nursing, knowledge of common treatments, nurse–client relationships, rehabilitation and discharge planning, and professional behaviour.

UEP is the 10-day clinical placement for students during their mental health nursing experience at KCH. Students are required to complete 80 hours of training and learn practical skills with their mentors in the areas of acute psychiatry, psychiatric rehabilitation and outreach units. Students are allocated to different psychiatric settings, such as the in-patient ward, outpatient unit, rehabilitation centre and community psychiatric nursing unit. Through real-life demonstrations and case studies, they learn about different types of mental illness and nurse–patient interactions in mental health nursing. At the end of the clinical practicum, students' clinical knowledge, skills, problem-solving ability and professional attitudes are assessed by their clinical instructors based on the above subject areas, with an overall grade of satisfactory or unsatisfactory.

### **3.3 Ethical Issues**

The University Research Ethics Committee (UWE) and the Kowloon West Cluster Research Ethics Committee (KWC-REC) in Hong Kong approved the study. The reference numbers are HAS/14/09/18 and KW/FR-14-201(82-08) (see Appendix A).

The participants were provided with information on the research procedures; their purposes, risks and anticipated benefits; alternative procedures; expected duration of the study; and a written consent form. They were informed of the confidentiality/anonymity of records and had the freedom to withdraw from the research at any time. No identifying information appeared on the vignette questionnaires (Sargent *et al.*, 2005) used in this study.

The occupational safety and health measures and risk assessments issues were exclusively addressed in the study venues. Part of a video presentation on depression (CSRPHKU, 2012) addressed suicide-related issues and how schizophrenia may involve violence-related issues (Visual Media Limited, 2012). Participants were informed at the beginning of the programme of a trigger warning and provided with psychological debriefing in case they experienced emotional distress during the class. Students were free to leave the classroom at any time if they had any physical complaints or unpleasant feelings.

All participants provided written informed consent at the beginning of the pre-test questionnaire. The researcher followed the ethical principles and the principle of justice. The current RCT supported the ethic principle of beneficence and did no harm to the nursing students.

### **3.4 Study Resources**

Research resources were required for purchasing MHFA copyrighted materials and for the administrative costs to run the programme. The researcher sought help from the hospital management to support this study using negotiation and compromise to balance the interests of the researcher and clinical

needs. An initial meeting with the nursing administrator (Departmental Operational Manager) was carried out a year before the research was undertaken. The research proposal and the logistics plan for the MHFA project at KCH (see Appendix B) were provided to both the Departmental Operational Manager and the General Manager of Nursing. The Hospital Chief Executive of KCH approved this project, and funding was granted. Two MHFA instructors were appointed to join this project as volunteers.

Research assistants (RAs) were accountable for research processes such as recruitment, obtaining consent documents, tracking participants and data collection. Therefore, RAs played an important role in the research. The RAs in the current study were two Registered Mental Health Nurses (RA1 and RA2) who had experience in conducting research as volunteers at KCH. Basic training on research process was provided to the RAs by the researcher one month before the research began. Table 3.1 outlines the tasks of RA1 and RA2.

Table 3. 1: Tasks for the Two Research Assistants

<b>RA1</b>	<b>RA2</b>
<ul style="list-style-type: none"> <li>• Allocation concealment</li> <li>• Recruitment and retention</li> </ul>	<ul style="list-style-type: none"> <li>• Data collection</li> <li>• Data entry</li> </ul>

### **3.5 Recruitment Procedures**

On the nursing students' first day of placement, orientation was held in the lecture theatre at KCH. The clinical co-ordinator from the hospital's Central Nursing Division provided students with research documents, including an information sheet (see Appendix C) and an invitation letter (see Appendix D), which were

written in English and Chinese. The information sheet outlined the following:

- The purpose of the study;
- The potential risks and benefits of participation;
- The right to refuse to participate in or to withdraw from the proposed study;
- Confidentiality and anonymity of records;
- Protocol to safeguard the field data;
- Minimal risks of participation; and
- The outcome of the study, including anonymous publication of any direct quotes made by participants.

The invitation letter briefly introduced the study aims, provided details about the intervention and control arms, discussed issues of informed consent and confidentiality of data protection, and listed email addresses for the researcher and related people for further inquiry. On orientation day, the researcher reinforced the participants' understanding of the study through a visual presentation using simple language in Chinese to explain the randomisation procedure and informed consent process.

On the second day of the nursing students' placement, the researcher provided a second short presentation on the randomisation process to the students, emphasising that they would be randomly assigned to MHFA plus UEP or UEP alone after giving informed consent. They were asked to commit to the research study for six months. At the end of this presentation, students were encouraged to ask questions related to the study, and the researcher provided answers where the information was unclear. As part of the recruitment procedure administered by the clinical co-ordinator, those who agreed to take part were invited to sign an informed consent form (see Appendix E). The participants were asked to provide their name, phone number and



email address. Each student received a signed informed consent form, and the researcher kept a copy. The informed consent form included a statement about consent to randomisation.

The clinical co-ordinator passed along the list of participants who gave informed consent to the researcher. Each participant was assigned a pseudo-anonymized code to ensure anonymity; the researcher performed the randomisation procedure using a computer-generated randomised number assigned to one of two groups (MHFA plus UEP or UEP). Students enrolled in the UEP arm of the trial were given the opportunity to enrol in the MHFA programme once data collection was completed.

### 3.5.1 Randomisation

In early 2015, the researcher, who had no clinical involvement in the trial, randomly allocated the first group of 24 nursing students who consented to participate in the MHFA programme using free software<sup>9</sup> that is easy to execute by inserting treatment labels, block randomisation in blocks of four and the number of subjects per block in a randomisation plan generator. The researcher executed the random assignment using a pseudo-anonymized code for each participant, thus ensuring an equal number of 12 students for each group. The researcher then sent an email along with a text message with the participants' pseudo-anonymized codes and allocation sequence via Wi-Fi (wireless Internet) to RA1, following the suggestion to use portable electronic devices and strong passwords to restrict access to the randomisation schedule (Parker *et al.*, 2012). RA1 then called the participants allocated to the MHFA group to provide course

---

<sup>9</sup> Randomisation software: [www.randomization.com](http://www.randomization.com).

details for the MHFA class. For participants allocated to the control group, RA1 offered to place them on a waiting list for the MHFA class. The second and final MHFA classes were held in July and September 2015, respectively. A total of 70 students were assigned using the randomisation process employed for this RCT. The purpose of randomisation (allocation concealment and random sequence generation) was used to prevent selection bias and control for confounding.

### **3.5.2 Blinding**

Blinding was difficult in this study, given that the consent form describes the different educational interventions being studied. Further, the nature of the intervention means the blinding of participants and instructors was not possible. RA1 was responsible for emailing/telephoning participants after consent was given. RA2 collected completed paper questionnaires (pre-intervention and post-intervention), placed them in envelopes labelled 'experimental group' and 'control group', and then returned the sealed envelopes to researcher for data processing. RA2 was not blinded to the allocation of students. They inputted the questionnaire data in a statistical file for the researcher to carry out data analysis.

The data were labelled '1' for 'MHFA+UEP' group and '2' for 'UEP alone'. During data analysis, the researcher was blinded as to the allocated group. The researcher was also not involved in the clinical teaching/mentoring or MHFA teaching of nursing students. For the six-month follow-up data, the researcher sent an email reminder with an attached questionnaire to 70 nursing students who had enrolled in this RCT. RA1 helped call and follow up with participants who had dropped out of the study.

### **3.5.3 Instructor training and treatment fidelity**

The MHAHK is recognised by MHFA International to organise accredited instructor training. MHFA instructors are required to complete 40 hours of training and to pass oral and written examinations organised by the MHAHK. At KCH, there were nine accredited MHFA instructors; two agreed to join this project as volunteer instructors to teach each class of 12–15 students. To ensure homogeneity in terms of inter-rater reliability (IRR), the same course protocol and teaching materials approved by the MHAHK were used for the three four-hour classes, thereby ensuring that everyone did the same thing. An overview of the main content of the two educational treatments (i.e. MHFA and UEP) is provided in Table 3.2. There are four modules for MHFA and six modules for UEP, respectively. In the MHFA class, four modules (depression and suicide, anxiety disorders, substance abuse, and schizophrenia and psychosis) were split across the three-week programme. The researcher made a suggestion to the instructors about how to split the course content, but they were free to choose at their own discretion.

Table 3. 2: Main Content of the Two Educational Treatments

Educational treatments	Module
<b>MHFA</b>	<ol style="list-style-type: none"> <li>1. Depression and Suicide</li> <li>2. Anxiety Disorders</li> <li>3. Substance Abuse</li> <li>4. Schizophrenia and Psychosis</li> </ol>
<b>UEP</b>	<ol style="list-style-type: none"> <li>1. Introduction to Acute Psychiatric Services</li> <li>2. Introduction to Child and Adolescent Psychiatric Services</li> <li>3. Consultation Liaison Services</li> <li>4. Introduction to Psychiatric Rehabilitation Services</li> <li>5. Psychogeriatric Services</li> <li>6. Introduction to Community Psychiatric Nursing Services</li> </ol>

### 3.6 Outcome Measures

The primary outcome measure was the vignette responses on MHL. The secondary outcome measures were the attitudinal scale on mental illness and help-related behaviours. Open-ended questions were used to provide a text dataset to understand participants' beliefs and experiences from a broader perspective.

#### 3.6.1 Vignette responses on mental health literacy

The vignette technique is a method that can elicit beliefs and attitudes from responses to stories depicting scenarios and

situations (Barter & Renold, 1999). The MHL instrument, which used vignette methodology, has been validated and widely used in many studies (Lam, 2014; Reavley *et al.*, 2014a; Svensson & Hansson, 2014). The vignettes involve descriptions of depression and schizophrenia (Burns *et al.*, 2017; Cotton *et al.*, 2006; Jorm *et al.*, 1997a). These two vignettes are originally designed in Jorm and colleagues' (1997b) study. The depression and schizophrenia vignettes are extensively used in MHL literature for health-care professionals and students (Bond *et al.*, 2015; Burns *et al.*, 2017; Liu, Gerdtz & Liu, 2011; Liu, Li & Peng, 2018; Martin, 2016; O'Reilly *et al.*, 2011; Seow, *et al.*, 2017; Yeo, *et al.*, 2001). Only a few researchers use the anxiety vignette (social phobia and post-traumatic stress disorder) and the substance misuse vignette (alcohol).

The reasons for selecting the depression and schizophrenia vignettes in the current study were to cover the high prevalence of mental health problems in young people (depression), including comorbid substance use problems, and low prevalence but more severe problems (schizophrenia) that have their onset in adolescence (Kessler *et al.*, 2005a, 2005b). A female was depicted in the depression vignette, and a male was depicted in the schizophrenia vignette, based on the prevalence of the disorders by gender. The symptomatic expression of schizophrenia is more severe in men than in women (Van Os & Kapur, 2009). The symptoms described meet both ICD-10 (WHO, 1993) and DSM-IV (APA, 2000), which are the minimum diagnostic criteria for psychosis or depression (Wright *et al.*, 2005). The depression and schizophrenia vignettes are illustrated as follows.

Depression vignette

Wah is 20 years old and emigrated from China five years ago. For the last six months, she always has a low mood with severe social withdrawal. She cannot keep her mind on her studies and her life is centred at home. She shows no interest or willingness to attend school. She puts off making any decisions, and even day-to-day tasks seem too much for her. Her parents and teachers are very concerned about her.

Schizophrenia vignette

Wah is a 22-year old man from Pakistan who lives at home with his parents. Over the last three months, he has dropped out of college and has become involved with a group of teenagers who have introduced him to ketamine, ice and alcohol. His parents hear him walking around in his bedroom at night, shouting and arguing as if someone else is with him. When they encourage him to do more things, he shouts at his parents that he will take revenge because he is being persecuted by the neighbours. His parents worry about his potential for violence.

For the purposes of this study, the schizophrenia vignette included the element of substance abuse. Both the depression and schizophrenia vignettes were modified to be more culturally sensitive, such as changing the name to Wah (gender-neutral) and changing the age slightly to be more applicable and understandable to Hong Kong culture.

Following the vignette, participants were presented with questions that investigated the following:

- Recognition of disorders (depression and schizophrenia);
- Beliefs about treatment; and

- Help-related behaviours (MHFA intentions) (Jorm *et al.*, 2010a; Lam, 2014; Melas *et al.*, 2013).

### 3.6.2 Recognition of disorders

An open-ended question asked, '*Is everything fine with Wah? If not, what would you say is wrong with him/her?*'. This question is related to the recognition of a mental disorder. It is shown in Appendix F (Question six in the pre-assessment questionnaire). This question was developed by Jorm and colleagues (1997a) to assess the recognition of the problem in the vignette. It is a dichotomous variable that consists of two categories: 0 (incorrect diagnosis) and 1 (correct diagnosis) (Jorm *et al.*, 1997a; Minas *et al.*, 2009; Wong *et al.*, 2012b; Wong & Xuesong, 2011; Wright *et al.*, 2007). The correct diagnosis for depression is depression (major/minor) or depressive disorder; for schizophrenia, the correct diagnosis is schizophrenia, psychosis, substance/alcohol abuse or delusional disorder (First, 2014). The content analysis for the theme 'recognition of disorders' was further divided into three subcategories: correct labelling, identification of mental health problem and identification of non-mental health problem (Melas *et al.*, 2013; Weight *et al.*, 2007). The justification of using the labels as correct recognition for depression and schizophrenia vignettes was based on the previous studies on MHL (Jorm *et al.*, 1997a; Jorm *et al.*, 2005a; Sai & Furnham, 2013; Wright *et al.*, 2011). Accurate psychiatric labelling was defined on the DSM IV (APA, 2000) diagnostic category upon which the vignettes were based and validated (Wright & Jorm, 2009).

### 3.6.3 Beliefs about treatment

Nursing students were also asked, '*Do you think the following interventions or treatments are helpful to Wah? If not, what are they?*'. It was shown in Appendix F (Question eight in the pre-assessment questionnaire). The questions used to assess the beliefs about treatment in previous studies were as follows: '*Do you think Mary/John needs professional help?*' and '*Do you think the person need help or not?*' (yes/no) (Jorm *et al.*, 1997b; Kitchener & Jorm, 2002b; Reavley *et al.*, 2014b; Wong *et al.*, 2015). Then followed a list of people, treatments and actions that Mary/John might use, and the participants were asked to rate each of these as likely to be helpful, harmful or neither from a series of questions (Kitchener & Jorm, 2002b). The current study was targeted to final-year nursing students, so only one open-ended question was used to ask their perception for helpful interventions.

The scoring system for responses to this question, which was based on Jorm *et al.* (1997b), shows the extent to which participants agreed with health professionals about which interventions would be helpful (Kitchener & Jorm, 2004). The scoring method for professional consensus followed the suggestions provided by Jorm (2000). In particular, for the depression vignette, a rating of seeing a GP, psychiatrist or CP, taking an anti-depressant, counselling and CBT are helpful. Thus, participants received a score of 0 to 6 according to the number of these interventions they endorsed as helpful, which was converted into a percentage. For the schizophrenia vignette, a rating of seeing a GP, psychiatrist or CP, taking antipsychotics and admission to a ward similarly are helpful. Helpful ratings were summed to provide a score of 0 to 5, which was converted to a percentage (Jorm *et al.*, 1997b; Kitchener & Jorm, 2004; Lam *et al.*, 2010; Loureiro *et al.*, 2015).



IRR was assessed by Jorm and colleagues (2005a) for 100 randomly chosen responses. Kappa values for very good responses were interpreted as 0.8–1.0 (Altman, 1991) for professional consensus such as GP (0.98), counselling (0.93), psychiatrist (0.94) and CP (0.88) (Jorm *et al.*, 2005a). Kappa is the magnitude of agreement between observers, and weighted kappa is a reliability measure for data on ordinal scales (Cohen, 1968). Jorm and his colleagues used an MHLQ containing items on beliefs about treatment with IRR weighted kappa ranging from 0.15 to 1.00 (Jorm *et al.*, 2005a, 2005c; Reavley *et al.*, 2014b). The kappa coefficients suggest that a range of 0.01 to 0.20 indicates poor agreement (Landis & Koch, 1977). Therefore, the IRR for beliefs about treatment has a range of poor agreement to almost perfect agreement.

#### **3.6.4 Attitudinal scale on mental illness**

The social distance scale is often used in previous studies (Kitchener & Jorm, 2002b; Wong *et al.*, 2015). It involves five statements of five types of interpersonal relationship that the participant is willing to have with a person with mental illness: being a neighbour, spending a weekend, becoming a friend, being a workmate and marrying into family. The internal consistency for this scale ranged from 0.81 to 0.98. However, Liu, Gerdtz and Liu (2011) suggested that the use of a Western questionnaire in an Eastern culture raises the issue of cross-cultural validity.

A 15-item scale measuring attitudes towards mental disorder<sup>10</sup> was developed in Hong Kong (Siu *et al.*, 2012). The scale was based on previous studies on stigma and discrimination (Byrne, 2000, 2001; Chong *et al.*, 2007; Pinfold *et al.*, 2003; World

---

<sup>10</sup> Permission granted by Dr Bonnie Siu to use her scale.

Psychiatric Association [WPA], 2005). These questionnaires are as follows: the 29-item Perceived Stigma Questionnaire ([PSQ]; Link *et al.*, 1991), the nine-item Attitudes To Mental Illness Questionnaire used in a national Scottish survey (Glendinning *et al.*, 2002), five attitude statements (e.g. people with mental health problems are unpredictable and four social distance rating scales) (WPA, 2000) and the 40-item Community Attitudes towards Mental Illness Questionnaire ([CAMI]; Taylor & Dear, 1981).

Siu *et al.*'s (2012) scale was used in the current study. This four-point Likert scale ranged from 1 ('strongly agree') to 4 ('strongly disagree'). Items were summed to create a total score ranging from 15 to 60, with a higher score indicating positive attitudes and a lower score representing negative attitudes. This scale was deliberated through expert panel discussions with psychiatrists, with data collected from 1,035 subjects in a local secondary school and two elderly homes. However, no reliability tests were carried out (Siu *et al.*, 2012).

This attitude scale was also used to examine the attribution model. Questionnaire items used to identify these concepts are as follows:

- '*Everyone has the chance to develop mental illnesses*' to identify the uncontrollability concept;
- '*People with mental illness are weak, and they should blame themselves for their illnesses*' to address controllability; and
- '*It is common for people with mental illness to have a propensity for violence*' and '*I feel afraid of talking with people with mental illness*' to assess the danger pathway.

### 3.6.5 Help-related behaviours

To access MHFA intentions, nursing students were asked the following open-ended questions: *'If Wah was a patient that you cared about, what would you do to help?'* Text data was collected using a content analysis approach. The coding scheme utilised by Jorm *et al.* (2005a) to descriptively code the helping intentions of the Australian publics towards their mentally ill associates was used as a guide. Confidence in providing first aid was measured by asking participants *'How confident are you in the ability to help?'* and responded along a four-point Likert scale with items ranging from 1 ('not at all confident') to 4 ('very confident') (Wright & Jorm, 2009).

The responses were scored via a quality scoring system (Yap & Jorm, 2012). In the MHFA curriculum, a structured response is taught, consisting of five action plans (Kitchener *et al.*, 2010; Subedi *et al.*, 2015; Yap & Jorm, 2012; Yoshioka *et al.*, 2015). The revised version of six MHFA components (Kelly *et al.*, 2011), represented with the acronym AALGEE, are coded on a 0–2 scale according to the quality of the response for each of the six actions: 0 = no mention or inadequate response, 1 = superficial response and 2 = specific details. Responses receive a point for each component of AALGEE and an additional point per category with specific details (e.g. encouraging a patient to see a psychiatrist receive two points for *Encourage appropriate professional help*). Participants receive 0–2 points per category, for a total score of 0 to 12, which represents the quality of the response (Bond *et al.*, 2015; Minas *et al.*, 2009; Yap & Jorm, 2012 & Yoshioka *et al.*, 2015). IRR for the AALGEE were: A1 (0.76–0.77), A2 (0.88–0.94), L (0.75–0.81), G (0.68–0.75), E1 (0.86–0.92), E2 (0.81–0.85) and Total (0.81–0.91), which were highly correlated with three other expert MHFA consensus ratings (Davies *et al.*, 2016; Rossetto, Jorm & Reavley, 2014; Yap & Jorm, 2012).

Jorm and his colleagues (2005a) carried out IRR for coding some of the first-aid responses for 100 random answers. The findings were: encourage professional help-seeking (0.89), listen to/talk with/support the person (0.70) and listen to/talk with/support family members (1.0), which ranges from good to almost perfect agreement (Jorm *et al.*, 2005a). Jorm *et al.* (2004) identified the intraclass correlation (ICC) for the MHFA intention was 0.002 and confidence in providing help was 0.003; thus, the correlation was small.

### 3.7 Data Collection

Data were collected at three time points: at baseline, post-intervention and at a six-month follow-up. A self-reported questionnaire in English (see Appendix F) was used.

1. Baseline: This data contains demographic characteristics (i.e. age, gender, race, education level and personal contact with people with mental illness). Participants completed this information only once for the pre-assessment questionnaire.
2. Primary outcome: Vignette responses on MHL. Both the depression and schizophrenia vignettes were randomly distributed to the intervention and control groups (for baseline, post-intervention and six-month follow-up measurements, respectively). For each data collection time point, half of the students received the depression vignette and half received the schizophrenia vignette. The vignettes (depression = D and schizophrenia = S) were randomly distributed to participants at three time points; therefore, some participants received the same or different vignettes at three time points with eight random sequences (i.e. DDD, SSS, SSD, SDD, DSS, DDS, SDS and DSD).

3. Secondary outcome: Attitudinal scale on mental illness and help-related behaviours (for baseline, post-intervention and six-month follow-up measurements).

The pre- and post-intervention questionnaires were administered to participants in both the intervention and control groups at week 1 and week 3. For post-intervention, the MHFA evaluation form was collected at week 3 to evaluate participants' satisfaction with the course and instructor. They were asked to rate their overall satisfaction rated with a 10-point Likert scale ranging from 1 (very unsatisfactory) to 10 (very satisfactory). Participants were also asked to answer two open-ended questions: *'Do you think the MHFA course is useful?'* and *'Do you have any suggestions to improve the course in the future?'*

The follow-up questionnaires were sent by email six months after completion of the course, along with the depression or schizophrenia vignettes. The questionnaires did not reveal a participant's identity. RA2 used the identifier codes '1', '3' and '5' to represent the intervention group at three time points and '2', '4' and '6' to represent the control group at three time points. For example, '1001' represents the identifier code for the first participant in the intervention group at baseline, '2013' represents the identifier code for the 13th participant in the control group at baseline and so on.

### **3.8 Data Analysis**

There are five stages in analysing quantitative data: pre-analysis phase, preliminary assessments, preliminary actions, principal analyses and interpretive phase (Polit & Beck, 2012).

### 3.8.1 Pre-analysis phase

The pre-analysis phase consist of six steps as follows:

1. Log in, check, and edit raw data;
2. Select a software package for analysis;
3. Code data;
4. Enter data onto computer file and verify;
5. Inspect data for outliers/wild codes, irregularities;
6. Clean data; and
7. Create and document an analysis (Polit & Beck, 2012).

A data analysis plan included checking and editing the raw data. All analyses were performed using Statistical Program for Social Science (SPSS) version 22.0 (IBM, 2013a). Quantitative data was coded into numerical values. Decisions about coding and variable naming were documented in a codebook. Data entry is an error-prone process that requires verification and data cleaning. Cleaning involves checks for outliers (values that lie outside the normal range of values) and wild codes (codes that are not legitimate) and consistency checks (checks for internally consistent information) (Polit & Beck, 2012).

### 3.8.2 Preliminary assessments

Preliminary assessments include four steps as follows

1. Assess missing values problems;
2. Assess data quality;
3. Assess bias; and
4. Assess assumptions for inferential tests (Polit & Beck, 2012).

Researchers usually undertake steps to access data quality, such as evaluating scale reliability and analysing the magnitude and

direction of any biases such as selection bias and attrition bias (Polit & Beck, 2012).

ITT analysis is interpreted as including all participants in the groups to which they were randomly assigned, the intervention actually received, and subsequent withdrawal or deviation from the protocol (Fisher *et al.*, 1990; Gupta, 2011). The use of ITT analysis ensures maintenance of comparability between groups as obtained through randomisation, maintains sample size, and eliminates selection bias and confounding factors (Alshurafa *et al.*, 2012; Ranganathan *et al.*, 2016). A PP analysis is an analysis of compliers only and includes only those participants who completed the originally allocated intervention protocol (Sedgwick, 2010). ITT and PP analyses were used to examine treatment efficacy. A PP analysis was performed alongside the ITT approach to investigate the influence of any missing data according to the CONSORT guidelines, which recommend ITT as a standard practice (Sedgwick, 2015a).

### **3.8.3 Preliminary actions**

Preliminary actions consist of four steps as follows:

1. Perform needed transformations and recodes;
2. Address missing values problems;
3. Construct scales and composite indexes; and
4. Perform other peripheral analyses (Polit & Beck, 2012).

Raw data entered into a computer file often need to be transformed for analysis. Examples of data transformations include reversing the coding of items, recoding the values of a variable and transforming data to meet statistical assumptions (Polit & Beck, 2012). Three positive-framed statements in

attitudinal scale on mental illness, namely '*a majority can recover*', '*society should have a tolerant attitude*', and '*everyone has the chance to develop a mental illness*', could be reversed to reflect the negative balance of the scale. It is important to recode these positive-framed statements in reliability and normality tests. Below-mean scores were used as an indicator for stigmatising attitudes (Streiner & Norman, 2002).

Missingness in prospective studies is a result of loss in follow-up, drop-outs or non-adherence (Thabane et al., 2013). Any analysis of RCTs with incomplete data is based on specific assumptions about the mechanism for missing data, such as whether it is missing completely at random (MCAR), MAR or missing not at random (MNAR) (Little & Rubin, 2002; Schafer & Graham, 2002). MCAR means missing values are not significantly related to any other variables in the dataset. This is not related to demographic characteristics. For example, a participant may move away to study and could be absent for a scheduled assessment (Spineli, Fleming & Pandis, 2015). MAR indicates that missingness depends on observed data and not on unobserved data. Under the MNAR mechanism, missingness depends on unobserved data. MCAR or MAR refers to ignorable data, whereas MNAR is non-ignorable missingness (i.e. ignoring the missingness in such data leads to biased parameter estimates) (Graham, 2009).

Two approaches were used to handle missing data: (1) ignoring them using complete case (CC) analysis and (2) imputing them by MI techniques. MI assumes the data are MAR. If the assumption of MAR is valid, then CC analysis that includes predictors of missing observations would provide consistent estimates of the parameter (Graham, 2009; Little & Rubin, 2002; Thabane *et al.*, 2013). Imputation strategies include expectation maximization (EM) imputation and MI (Polit & Beck, 2012).



Missing data were assumed to be MAR and were imputed using MI with five imputed datasets and 200 simulations per imputed variable (Sterne et al., 2009). MI is considered the best methods of addressing missing values problems (Polit & Beck, 2012).

Another strategy is to undertake SAs, which are analyses that test research hypotheses using different assumptions or different strategies. One example involves testing alternative strategies to address missing values problems (Polit & Beck, 2012). Sometimes peripheral analyses involve tests to determine whether pooling of participants is warranted and tests for cohort effects or ordering effects (Polit & Beck, 2012). The peripheral analyses for the current study were considered by testing the order effects of vignettes and attribution model.

#### **3.8.4 Principal analyses**

Principal analyses include four steps as follows:

1. Perform descriptive statistical analyses;
2. Perform bivariate inferential statistical analyses;
3. Perform multivariate analyses; and
4. Perform needed post hoc tests (Polit & Beck, 2012).

Group differences in demographic data and baseline measures were analysed by Chi-square tests and two-tailed *t*-tests. Fisher's exact tests (FETs) were used with small samples with too many low expected cell frequencies (Field, 2013). Assumptions of normality and sphericity tests were performed on the continuous data before running the analysis. If assumptions of sphericity were violated, the Greenhouse–Geisser or Huynh-Feldt correction methods for adjusting degrees of freedom was used (Field, 2013).

Pre- to post-intervention changes in questionnaire scores, such as recognition of disorders, beliefs about treatment, attitudes, MHFA intentions and confidence in providing help, were analysed using repeated measures ANOVA. Main and interaction effects were analysed using repeated measures ANOVA with pre-test, post-test and follow-up scores and compared with the control group. Mixed between-within subjects ANOVA was used to compare the intervention and control group at three time points if there were any interaction effects. Effect sizes were calculated using partial eta-squared and interpreted according to Cohen's (1988) proposed guidelines (0.01, 0.06 and 0.14, denoting small, moderate and large effects, respectively). Pairwise differences are measured using paired *t*-tests with a Bonferroni correction, which is a correction applied to the alpha level to control the overall Type I error rate when multiple significance tests are carried out (Field, 2013). For ordinal data, Mann–Whitney non-parametric tests were performed (Field, 2013).

### **3.8.5 Interpretative phase**

The interpretative phase consists of two steps as follows:

1. Integrate and synthesize analyses, and
2. Perform supplementary interpretive analyses (e.g. power analysis) (Polit & Beck, 2012).

The interpretation of quantitative results typically involves the followings issues: credibility; meaning; magnitude; precision, generalizability and implications for future research; theoretical development; and clinical practice. Credibility assessments involve a careful assessment of study rigour through an analysis of validity threats and various biases that could undermine the accuracy of the results (Polit & Beck, 2012).

### 3.8.6 Randomisation of vignette

Paddam *et al.* (2010) suggested that randomisation enhances the internal and external validity of vignettes and reduces experimenter effects. The reliability of the vignette approach hinges crucially on the validity of two assumptions (King *et al.*, 2004). The assumption of response consistency (RC) means that respondents use the response categories in the same way when rating the vignettes as when rating themselves (King *et al.*, 2004). Vignette equivalence (VE) is the assumption that *‘the level of the variable represented in any one vignette is perceived by all respondents in the same way and on the same unidimensional scale, apart from random measurement error’* (King *et al.*, 2004, p. 194). VE is a critical assumption for any vignette-based adjustment of self-reports, either parametric or non-parametric (King *et al.*, 2004; Van Soest & Vonkova, 2014). Testing VE and RC has proven to be conceptually and statistically challenging due to a lack of strong tests and an availability of data that captures respondents (Grol-Prokopczyk *et al.*, 2015). Testing these two assumptions goes beyond the scope of this study.

If a respondent describes a vignette using specific socio-demographic characteristics such as ethnicity (Pakistani or Chinese immigrant) and a ‘neutral’ gender name, the influence of these characteristics may induce him or her to perceive the vignettes differently from other respondents (Rice, Robone & Smith, 2011). The vignette characters are of similar age, and their sex appears to have an effect on respondents’ vignette rating (Jürges & Winter, 2013). This vignette may represent a violation of VE assumption (Rice, Robone & Smith, 2011). If respondents hold themselves to different standards than vignette characters or use standards inconsistently across vignettes in a series, then RC is violated (Grol-Prokopczyk *et al.*, 2015).

### 3.8.7 Scoring system of vignette questions

The scoring of vignette questions is widely used in the literature (Bond *et al.* 2015; Burns *et al.*, 2017; Jorm *et al.*, 1997a, 1997b; Martin, 2016; Minas *et al.*, 2009; Rossetto *et al.*, 2014; Yap & Jorm, 2012). More recent scoring systems developed to assess adult MHL assign a score for correct and incorrect answers by expert consensus guidelines on MHFA (Reavley *et al.*, 2014b; Rossetto *et al.*, 2014). The open-ended questions in vignettes allowed for one or multiple responses. Cumulative scores and percentages were used to record responses for all categories, with a comparative analysis before and after rankings (Martin, 2016). This exploratory approach provides a rich dataset for the research phenomenon.

### 3.8.8 Content analysis of open-ended responses

Content analysis is a technique of studying responses to open-ended questions by coding written words into categories and patterns (Chambers & Chiang, 2012). Content analysis involved word frequency counts to determine common themes emerging from the data (Chambers & Chiang, 2012). Keywords identified were colour coded as responses were read to identify key points expressed by participants (Jacob, McKenna & D'Amore, 2014). The code is a descriptive label of a unit of meaning, while a category is a description of the phenomenon under investigation (Graneheim & Lundman, 2004). Analysis of data occurs in the context of the coding framework and allows inferences to be drawn relating to the application of the research findings to the current body of knowledge (Krippendorf, 2013).

The transcribed words were read and highlighted based on the understanding of the research question. Meaning units were

condensed and grouped in relation to the study aim. Codes were identified, named and grouped into subcategories (Graneheim & Lundman, 2004). Content validation was agreed upon by a panel of mental health experts to support concept production or coding issues (Elo & Kyngäs, 2008).

Two coders carried out the coding process: the principal investigator (coder 1) and a CP (coder 2) who is a volunteer with experience in content analysis. To avoid bias, the use of expert coders is generally discouraged (Neuendorf, 2002). The principal researcher provided basic training to the volunteer coder regarding the codebook and the coding system (Moreno, Egan & Brockman, 2011).

The codebook specifies all variables of interest and guides the coders concerning the coding sequence for the different variables. The development of the codebook has strong roots in theory (Labrie & Schulz, 2015). The process of coding text entails several steps: segmentation of text, codebook creation, coding, assessment of reliability, codebook modification and final coding (Hruschka *et al.*, 2004). A text segment is the unit of observation; each coding of that segment is a measurement.

Coder 1 and coder 2 created the codebook based on an initial reading of responses. They coded responses independently and discussed and modified problematic codes. They applied reliability tests for either a random sample or the entire dataset until the final coding was completed (Hruschka *et al.*, 2004). The final coding and codebooks were reviewed and validated by the academic teams.

Koch (2006) described qualitative rigour as credibility, transferability and dependability. Credibility relates to the way in which data are interpreted based on theoretical rationale and

consensus validation. A clear description of the context, selection and characteristics of participants, data collection and process of analysis (Graneheim & Lundman, 2004) facilitates the transferability of the results. Dependability involves providing sufficient information on both the data collection and data analysis processes that indicate how the findings are developed (Crowe, Inder & Porter, 2015). The content coding is justified based on the qualitative work of MHFA (Jorm *et al.*, 2005b). Reliability and dependability are supported by intercoder agreement (Patton, 2002). Coder training is relevant to achieve the goal of the investigation and understand a set of coding rules (Popping, 2015).

Table 3. 3: Open-ended Questions and Related Variables in Nursing Student Questionnaires

<b>Survey Questions</b>	<b>Open-ended Questions</b>	<b>Outcome Variables</b>
Text: - Q6 (baseline) - Q1 (post-intervention & six-month follow-up)	<i>'Is everything fine with Wah? If not, what would you say is wrong with her?'</i>	Recognition disorders
Text: - Q8 (baseline) - Q3 (post-intervention & six-month follow-up)	<i>'Do you think the following interventions or treatments are helpful to Wah? If not, what are they?'</i>	Beliefs about treatment
Text: - Q9 (baseline) - Q4 (post-intervention & six-month follow-up)	<i>'If Wah was a patient that you cared about, what would you do to help?'</i>	MHFA intentions

The open-ended questions and related variables in the Nursing Student Questionnaires are shown in Table 3.3. These three open-ended questions provided qualitative findings for related

variables such as recognition of disorders, beliefs about treatment and MHFA intentions. Participants in both groups were asked these questions at three time points.

### **3.9 Vignette Approach**

Brief, written vignettes as a data collection tool have been used in most MHL studies (Burns *et al.*, 2017; Cotton *et al.*, 2006; Jorm *et al.*, 2010a; Lui *et al.*, 2016; Rossetto, Jorm & Reavley, 2014; Wong *et al.*, 2012b; Wright *et al.*, 2007; Yap, Wright & Jorm, 2011a; Yoshioka *et al.*, 2015). Vignettes are valuable in eliciting information about potentially sensitive topics such as drug use or mental illness (Hughes & Huby, 2002; Link *et al.*, 1999). Vignettes can quickly generate considerable amounts of data from a large participant group (Gould, 1996). They also can improve the quality of data by reducing the social desirability bias when participants are asked to assume the role of a vignette character rather than answering questions from their own perspectives (Hughes & Huby, 2002).

#### **3.9.1 Validity of vignettes**

Gould (1996) suggested a three-pronged approach to establishing the internal validity of vignettes. Vignettes should be developed from the literature or based on clinical cases. A panel of experts should comment on them, and vignettes should be pretested to remove ambiguous questions. Among the MHL and MHFA studies, there are many that have used vignette methodology to assess knowledge (recognition of disorders and beliefs about treatment) and help-related behaviours (MHFA intentions and confidence in providing help). To ensure high internal and

external validity in vignettes, researchers have considered the following factors in their studies:

- Adaption from previous studies (Burns *et al.*, 2017; Davies *et al.*, 2016; Lui *et al.*, 2016; Rossetto *et al.*, 2016; Svensson & Hansson, 2014; Wong *et al.*, 2015; Wright, Jorm & Mackinnon, 2011);
- Meet DSM-IV and ICD10 diagnostic criteria (Burns *et al.*, 2017; Jorm *et al.*, 2005a, 2010a; Lui, Wong & Furnham, 2016; Massey *et al.*, 2010; Melas *et al.*, 2013; Minas *et al.*, 2009; Rossetto *et al.*, 2014; Wong & Li, 2012, Wong & Xuesong, 2011; Wong *et al.*, 2012b, 2012c, 2015);
- Match gender (Reavley *et al.*, 2014a; Yap & Jorm, 2012; Yap *et al.*, 2011b), for example, respondents read a vignette describing either a male or a female, with the gender to the character chosen to correspond with the gender of the respondent (Jorm *et al.*, 2007);
- Match age and gender (Davies *et al.*, 2016; Massey *et al.*, 2010; Wright, Jorm & Mackinnon, 2011; Yap, Wright & Jorm, 2011a; Yoshioka *et al.*, 2015), for example, the details of the vignettes were altered to be age and gender appropriate (Jorm *et al.*, 2007);
- Random assignment (Jorm *et al.*, 2004, 2005a; Kitchener & Jorm, 2002b; Massey *et al.*, 2010; Minas *et al.*, 2009; Rossetto, Jorm & Reavley, 2014; Yap & Jorm, 2012; Yap *et al.*, 2011b; Yoshioka *et al.*, 2015);
- Blind assignment (Hart *et al.*, 2016);
- Read by the participant (Wong *et al.*, 2015; Yap & Jorm, 2012; Yap *et al.*, 2011b; Yoshioka *et al.*, 2015); and
- Cultural sensitivity or validity (Ediriweera *et al.*, 2012; Kermode *et al.*, 2009; Liu, Gerdtz & Liu, 2011; Lui, Wong & Furnham,



2016; Massey *et al.*, 2010; Minas *et al.*, 2009; Wong & Li, 2012; Wong & Xuesong, 2011; Wong *et al.*, 2012c; Yoshioka *et al.*, 2015).

The current study did employ all of these strategies related to internal and external validity in vignettes.

### 3.9.2 Reliability of vignettes

Qualitative data were collected and analysed using content analysis. To ensure IRR, independent coders are used to generate reliable data. The following studies have considered the reliability of vignettes:

- Rated by independent expert panels (Angermeyer *et al.*, 2009; Davies *et al.*, 2016; Hart *et al.*, 2016); and
- Delphi method for coding rules and IRR (Davies *et al.*, 2016; Hart *et al.*, 2016; Jorm *et al.*, 2005a; Kelly *et al.*, 2011; Kitchener & Jorm, 2004; Massey *et al.*, 2010; Minas *et al.*, 2009; Rossetto, Jorm & Reavley, 2014, 2016; Yap & Jorm, 2012; Yoshioka *et al.*, 2015).

However, many studies have been criticised (Burns *et al.*, 2017; Lui, Wong & Furnham, 2016; Svensson & Hansson, 2014; Wong *et al.*, 2015; Wright, Jorm & Mackinnon, 2011) for briefly describing the vignette approach; some researchers mention only that the vignettes were adapted from previous studies. It is uncertain whether they considered the validity and reliability issues surrounding vignettes, which may have introduced bias and reduced the quality of their results. Therefore, the current study attempted to explore the validity and reliability of vignette methodology and how randomness could affect the study results.

### 3.10 Sample Size Calculation

The sample size was estimated on the basis of previous studies of MHFA for knowledge measure: (1) meta-analysis with Glass's delta = 0.56 (Hadlaczky *et al.*, 2014) and (2) previous RCT for nursing students (Burns *et al.*, 2017) with between-subject interaction effect ( $\eta_p^2 = 0.03$ ). Subsequent power analysis in G\*Power 3.1.9.2 (Faul *et al.*, 2009) and repeated measure ANOVA (within-between interaction) indicated a sample size of 54 to demonstrate this effect (keeping  $\alpha$  at 0.05 and power at 0.80 and using 2 groups and 3 measurements) (concerning changes in knowledge at three time points). Expected attrition was estimated to be relatively high at 30% (Burns *et al.*, 2017). Therefore, 70 participants were randomly selected ( $n = 35$  in each group).

### 3.11 Reflexivity and Positionality in Quantitative Research

Polit and Beck (2010) described reflexivity as the process of reflecting critically on the self and personal values that could affect data collection and interpretation. My position was as a mental health nurse and a researcher. Reflection enabled me to conduct the research from a strong professional and ethical standpoint, with the notion of researcher shifting between insider and outsider status (Brunero, Jeon & Foster, 2015). The stance of researchers is determined more by their physical and psychological distance from the phenomenon being studied and less by their paradigmatic position (Moore, 2012).

I adopted the RCT methodology by implementing the generic features of randomisation and control, which can act as a gold standard for testing the efficacy of interventions, devoid of individual biases, and acquiring objective knowledge (Rolfe, 2002).

However, research is a human activity that involves failure, as do other human activities (Mantzoukas, 2005). A recent study by Kahan, Rehal and Cro (2015) reviewed 152 RCTs and found that the risk of selection bias could not be ascertained for most trials due to poor reporting: many trials employed inappropriate randomisation methods, and 98% of trials provided no information on masking. Kaptchuk (2003) identified three types of bias that that may lead to selection bias:

1. Orientation bias, which occurs when the researcher forms and shapes the research questions, hypothesis, and aims and objectives, and then he/she inclines his/her personal convictions to frame and answer them;
2. Confirmation bias, which occurs when the researcher has a natural inclination to accept and support the 'face value' of previous beliefs and hypotheses rather than challenging these convictions (Soeken & Sripusanapan, 2003); and
3. Outcome bias, which is the tendency to evaluate a decision by its outcome rather than the factors that led to the decision.

Therefore, quantitative researchers cannot eliminate bias from their research. The inclusion of bias in reflective and reflexive studies thus becomes a necessary precursor to avoid contradictions and secure validity (Mantzoukas, 2005). Therefore, in the present study, the methodology was properly and rigidly employed following CONSORT guidelines and reporting.

Young (2005) stated that the researcher is positioned as either the insider ('emic') or the outsider ('etic') to the research process. Milligan (2014) described this dialect as the 'inbetweener' researcher: the researcher status moves like a pendulum, it is neither entirely an insider nor an outsider (Allen, 2004). In

quantitative research, there is a dynamic that exists between researchers and participants (Ryan & Golden, 2006).

In the present study, the recruitment meeting with nursing students during the first day of their clinical placement involved the process of boundary negotiation. Once the information sheet was read and the consent form signed, a boundary, or a professional relationship, was established between the researcher and the object of the research. During this initial encounter, rapport and a sense of mutual trust were established. Because this was a quantitative study, the researcher acted as the outsider. The tick box format of the questionnaire did not permit a story-telling element (Ryan & Golden, 2006) and the open-ended questions provided a rich dataset of the phenomenon being studied. The obstacle to reflexivity relates to time and budget constraints in the current study.

In essence, self-discipline is crucial for routine continuation of the process of reflection (Walker *et al.*, 2013). Reflective and reflexive studies are meaningful only if the researcher can use the virtues of previous experience, expertise, knowledge, language and expectations to design, interpret and present the research findings (Cutcliffe & McKenna, 2004; Morse, 2003; Nelson & McGillion, 2004).

### **3.12 Summary**

This study was a single-site, parallel RCT following CONSORT guidelines. The current RCT examined the efficacy of the MHFA programme designed for the nursing students at KCH. Participants were recruited from third-year and fourth-year undergraduate nursing students. They were randomly assigned to intervention (MHFA plus UEP) or UEP alone. MHFA is a three-

week mental health education programme, and UEP is a 10-day clinical placement in KCH. The two RAs were volunteer registered mental nurses. RA 1 assisted in allocation concealment, blinding, recruitment and retention, while RA 2 worked on data collection and data entry.

The primary outcome variable was the vignette responses on MHL (i.e. recognition of disorders, beliefs about treatment), and the secondary outcome variables were the attitudinal scale on mental illness and help-related behaviours (MHFA intentions and confidence in providing help). Assessments were conducted at baseline, post-intervention and six-month follow-up. All analyses were performed using SPSS 22.0. Quantitative data were analysed using ITT and PP analysis. Missing data were assumed to be MAR and handled by MI. SA was used to test different assumptions to address missing values problems. Mixed between-within subjects ANOVAs were used to compare the intervention and control group at three time points if there were any interaction effects. For ordinal data, Mann–Whitney non-parametric tests were used. The peripheral analyses for the current study were considered by testing the order effects of vignettes and attribution model.

Brief, written vignettes as a data collection tool have been used in most MHL and MHFA studies. Two assumptions of RC, VE and vignette randomisation were examined at three time points. Three open-ended questions about the vignettes provided qualitative findings for primary and secondary outcome variables. Scoring of the vignette questions has been used extensively in the MHL literature, and content coding is justified based on the qualitative work of MHFA (Jorm *et al.*, 2005b). The process of coding text entails several steps: segmentation of text, codebook creation, coding, assessment of reliability, codebook modification

and final coding. Credibility, transferability and dependability were important to maintain qualitative rigour.

The authors of these studies have considered the internal validity of vignettes by measures such as adapting them from previous studies, using an expert panel for comments and conducting a pre-test to remove ambiguous questions (Gould, 1996). Some researchers have collected qualitative data from vignettes and have thus carried out the Delphi method and tested for IRR. However, most studies either ignore or briefly describe validity and reliability issues. The current study attempts to explore in detail the validity and reliability of the vignette approach and how randomness could affect the study results.

An *a priori* sample size calculation for this study was 35 students per group based on the effect size of previous study. Challenges and practical issues such as ethics, financial resources and implementation issues were addressed in a clinical setting. The inclusion of bias in reflective and reflexive studies is inevitable. Three types of selection bias—orientation bias, confirmation bias and outcome bias—cannot be eliminated in quantitative research, so the researcher must ensure RCT methodology is rigidly employed to secure validity and follow CONSORT guidelines for reporting.

# CHAPTER 4

## RESULTS

## 4.1 Introduction

This chapter focuses on the findings of both the quantitative and qualitative data. The socio-demographic variables and the baseline parameters between the two groups were compared to confirm homogeneity. The CONSORT diagram is presented to illustrate participants' flow; calculation on recruitment and retention and attrition rates were important to detect any bias in RCT design. Course acceptability was based on participants' adherence and evaluation feedback. Five MHL outcome variables were formed. The process for conducting repeated measure ANOVA includes testing the assumptions of normality, homogeneity and sphericity. The statistical concepts such as ITT, PP analysis, handling of missing values, MI and SA were performed.

To ensure high internal validity, vignettes (depression and schizophrenia) were randomly distributed to participants at three time points; therefore, some participants received the same or different vignettes at three time points for eight random vignette sequences. Mann–Whitney non-parametric tests were performed to examine any order effects for the two groups of nursing students. Repeated measures ANOVA were conducted to check the attribution model to confirm uncontrollability, controllability and danger in this dataset.

Finally, the chapter demonstrates how content analysis was performed for the primary and secondary outcome variables (recognition of disorders, beliefs about treatment and MHFA intentions) using coding, the codebook, coding sheets, word-frequency counts and ICR. Mann–Whitney tests were performed to compare text-based responses between groups at three time points. The last section looks at the adverse events.



## 4.2 Characteristics of Participants

Table 4.1 summarises the socio-demographic characteristics<sup>11</sup> and compares the baseline parameters of the 70 participants in the MHFA plus UEP group and the UEP group. In this female-predominant sample (80% in MHFA plus UEP and 83% in UEP), mean ages were 22.4 (SD = 1.31) and 22.1 (SD = 1.38) for MHFA plus UEP and UEP, respectively. All participants were Chinese, and they were recruited from among third-year and fourth-year undergraduate students. Independent sample *t*-tests and  $\chi^2$  analyses were calculated to confirm that randomisation produced equal groups and that the two groups of nursing students were homogeneous in every parameter (all  $p > 0.05$ ). From Fisher's test ( $p > 0.05$ ), the two groups were not statistically significantly different for correct recognition of the vignettes. Half of the participants (51.4% of MHFA and 51.4% of UEP) had personal contact with a person with mental health problem, but only 8.6% had a family member or close friend with mental illness in the two groups of nursing students.

---

<sup>11</sup> File 1 (demographic data output).

Table 4. 1: Comparison of Baseline Parameters of MHFA Plus UEP Group and UEP Group

Variables	Question number (baseline)	MHFA plus UEP (n = 35)	UEP control (n= 35)	$\chi^2$ or t-test	p value
<b>Age (mean/SD) (N = 70)</b>	2	22.4 (1.31)	22.1 (1.38)	0.889	0.377 (df = 68)
<b>Gender</b>	1				
<b>Male</b>		7 (20%)	6 (17.1%)	0.094	0.759
<b>Female</b>		28 (80%)	29 (82.9%)		
<b>Education</b>	4				
<b>Undergraduate year 3</b>		18 (51.4%)	17 (48.6%)	0.057	0.811
<b>Undergraduate year 4</b>		17 (48.6%)	18 (51.4%)		
<b>Personal contact</b>	5				
<b>Yes</b>		18 (51.4%)	18 (51.4%)	n/a	
<b>No</b>		17 (48.6%)	17 (48.6%)		
<b>Vignette</b>	6				
<b>Depression</b>		18 (51.4%)	17 (48.6%)	0.057	0.811
<b>Schizophrenia</b>		17 (48.6%)	18 (51.4%)		
<b>Recognition of depression</b>	6				
<b>Correct</b>		13 (72.2%)	15 (88.2%)	1.401	0.402 (Fisher's)
<b>Incorrect</b>		5 (27.8%)	2 (11.8%)		
<b>Recognition of schizophrenia</b>	6				
<b>Correct</b>		16 (94.1%)	15 (83.3%)	1.005	0.603 (Fisher's)
<b>Incorrect</b>		1 (5.9%)	3 (16.7%)		
<b>Family or close friend</b>	7				
<b>Yes</b>		3 (8.6%)	3 (8.6%)	n/a	
<b>No</b>		32 (91.4)	32 (91.4)		

Abbreviations: df: degree of freedom; MHFA: Mental Health First Aid; n/a: not applicable; UEP: Usual Education Practice. ,.

### 4.3 Eligibility, Recruitment and Retention

The trial recruitment rate is measured by determining the percentage of eligible students who enrolled in the trial. The retention rate is calculated as the percentage of enrolled students who completed the intervention. Attrition is the number of students who failed to complete the trial.

Figure 4.1 illustrates participant flow through the study. From the initial 250 nursing students identified, 180 individuals were excluded. Reasons for ineligibility were as follows: did not respond (92.8%); age greater than 25 years (4.4%); and other reasons such as working as a temporary undergraduate nursing student (TUNS) (2.8%). Seventy students consented and were recruited into the trial, for a recruitment rate of 28%. The students were randomised to receive either MHFA plus UEP or UEP alone ( $n = 35$  in each group).

Subsequently, 55 students completed the final six-month follow-up assessment. Therefore, retention rates for each group were 82.9% and 74.3% for the MHFA group and the UEP group, respectively. Fifteen students withdrew during the intervention period (attrition rate = 21.4%): six (8.6%) in MHFA and nine (12.8%) in UEP group because of work, illness or loss of contact. It is important to understand the reasons behind each drop-out, as study withdrawal may result in an imbalance between the intervention and control arms.

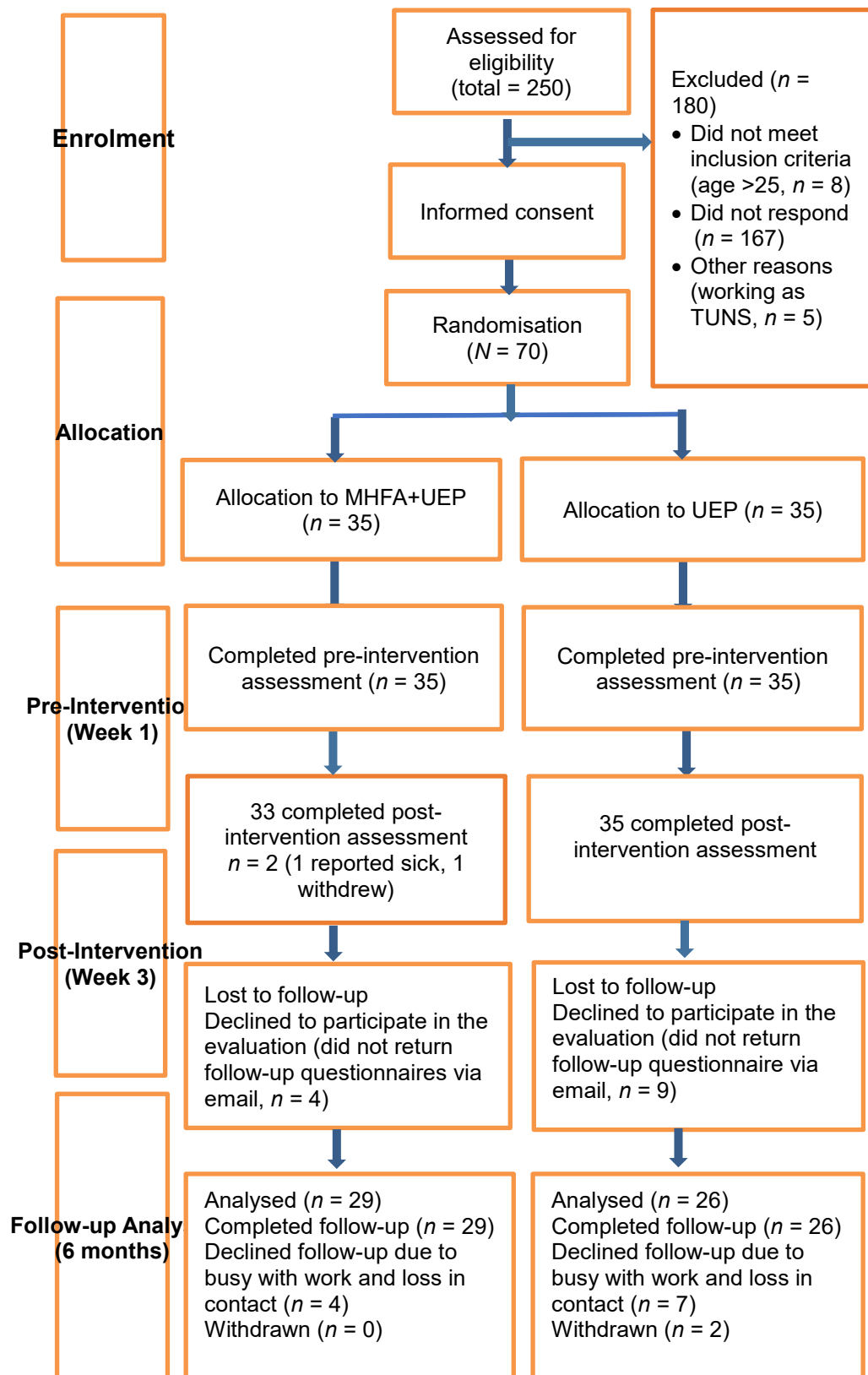


Figure 4. 1: CONSORT Diagram (Schulz, Altman & Moher, 2010)

#### **4.4 Adherence to MHFA Course**

Of the 35 nursing students randomly assigned to receive the MHFA intervention, 33 (94.2%) completed all three sessions. One (2.9%) completed one session and one (2.9%) completed two sessions. All students attended at least one session. In the control group, 35 students completed the entire 10-day clinical placement. All 70 students who participated in this study completed their clinical placement.

#### **4.5 Course Acceptability**

Nursing students were encouraged to provide feedback on the intervention via the evaluation form during the final meeting of the classes to share their impressions and recommendations. The evaluation form asked participants to evaluate their satisfaction with the course and instructor, with overall satisfaction rated with a 10-point Likert scale ranging from 1 (very unsatisfactory) to 10 (very satisfactory). Table 4.2 provides the mean and standard deviation satisfaction ratings of the MHFA programme from 33 students based on the following items: course rating of 8 (SD = 1.03), instructor rating of 8.3 (SD = 1.21) and overall satisfaction rating of 8.3 (SD = 1.02). The majority of participants were highly satisfied with both the course and the instructor, with rating of score 8 or above. Only one participant (3.1%) rated score 6, and no participant rated score 5 or below. No participants were dissatisfied with the overall course performance.

Table 4. 2: Satisfaction with MHFA Course and Instructor and Overall Satisfaction

<b>Participants' response (<i>n</i> = 33)</b>	<b>Course satisfaction</b>	<b>Instructor satisfaction</b>	<b>Overall satisfaction</b>
<b>Score 6</b>	1 (3.1%)	1 (3.1%)	0
<b>Score 7</b>	11 (33.3%)	9 (27.3%)	8 (24.2%)
<b>Score 8</b>	11 (33.3%)	11 (33.3%)	11 (33.3%)
<b>Score 9</b>	7 (21.2%)	4 (12.1%)	9 (27.3%)
<b>Score 10</b>	3 (9.1%)	8 (24.2%)	5 (15.2%)
<b><i>n</i> (%)</b>	33 (100%)	33 (100%)	33 (100%)
<b>Mean (SD)</b>	8 (1.03)	8.3 (1.21)	8.3 (1.02)

Table 4.3 illustrates the content analysis for the two open-ended questions regarding participants' feedback on MHFA benefits and suggestions. Thirteen categories of MHFA benefits were identified from 33 participants and ranked with codes, with the following percentages: improved knowledge of mental health and illness (B1, 63.6%); improved knowledge of ALGEE strategies (B2, 27.3%); ability to help (B3, 24.2%); instructor shared clinical or personal experience (B4, 15.2%); knowledge of presentation of specific symptoms (B5, 12.1%); knowledge of how to handle a mental health crisis (B6, 12.1%); how to handle a mental health relapse (B7, 9.1%); recognition of mental health problems (B8, 6.1%); useful and practical case sharing (B9, 6.1%); useful course materials (B10, 6.1%); reduced discrimination (B11, 3.0%); participants shared their own stories of mental illness experience (B12, 3.0%); and enhancement of own mental health (B13, 3.0%).

Table 4. 3: Content Analysis of MHFA Benefits and Suggestions

<b>MHFA evaluation (n =33)</b>	<b>Code counts n (%)</b>
MHFA benefits:	
B1. Improved knowledge of mental health and illness	21 (63.6)
B2. Improved knowledge of ALGEE strategies	9 (27.3)
B3. Ability to help	8 (24.2)
B4. Instructor shared clinical or personal experience	5 (15.2)
B5. Knowledge of presentation of specific symptoms	4 (12.1)
B6. Knowledge of how to handle a mental health crisis	4 (12.1)
B7. How to handle a mental health relapse	3 (9.1)
B8. Recognition of mental health problems	2 (6.1)
B9. Useful and practical case sharing	2 (6.1)
B10. Useful course materials	2 (6.1)
B11. Reduced discrimination	1 (3.0)
B12. Participants shared their own stories of mental illness experience	1 (3.0)
B13. Enhancement of own mental health	1 (3.0)
	Total: 33
MHFA suggestions:	
S1. Improvement in more engagement activities	7 (33.3)
S2. Administrative issues	6 (28.6)
S3. Future similar mental health topics	5 (23.8)
S4. Succinct course materials	4 (19.0)
S5. Beneficial course	2 (9.5)
	Total: 21

Twenty-one participants provided feedback regarding suggestions for future courses. Suggestions were grouped into five categories, ranked by code numbers, and percentages were determined. The suggestions were improvement in more engagement activities (S1, 33.3%), administrative issues (S2, 28.6%), future similar mental health topics (S3, 23.8%), succinct course materials (S4, 19.0%) and beneficial course (S5, 3.0%),

respectively. The codebook of evaluation questions (codebook one)<sup>12</sup> is shown in Table 4.4. The coding sheets included 13 categories for MHFA benefits and five categories for MHFA suggestions.

---

<sup>12</sup> File 4 (Codebook one).



Table 4. 4: Codebook of Evaluation Questions

Theme	Code	Code (no.)	Quotes/meaning unit
<b>Benefit</b>	Improved knowledge of mental health and illness	B1	'deeper understanding on mental illness'; 'recap of knowledge'; 'learn or increase mental health knowledge and rehabilitation services' etc.
	Improved knowledge of ALGEE strategies	B2	'practical MHFA skills'; 'coping skills'; 'ALGEE action plan/strategies' etc.
	Ability to help	B3	'how to help/intervene'; 'learn or know how to manage/handle' etc.
	Instructor shared clinical or personal experience	B4	'instructors are full of clinical experience'; 'instructors shared their personal experiences in mental health nursing'; 'experience in clinical field' etc.
	Knowledge of presentation of specific symptoms	B5	'signs and symptoms'; 'symptom presentation' etc.
	Knowledge of how to handle a mental health crisis	B6	'handling a mental health crisis'; 'how to resolve a mental health crisis'; 'how to identify a suicide risk'.
	How to handle a mental health relapse	B7	'during relapse'; 'severe mood instability'; 'how to handle mental relapse'.
	Recognition of mental health problems	B8	'it helps me to identify'; 'observe people with mental health problems'.
	Useful and practical case sharing	B9	'case sharing is very useful'; 'learned clinical skills by case sharing'.

Theme	Code	Code (no.)	Quotes/meaning unit
	Useful course materials	B10	'course overall is useful'; 'course materials are concise'.
	Reduced discrimination	B11	'it helped me to reduce misunderstanding about mental health patients'.
	Participants shared their own stories of mental illness experience	B12	'participants shared their stories of mental illness experience'.
	Enhancement of own mental health	B13	'it helped enhance my mental health'.
<b>Suggestion</b>	Improvement in more engagement activities	S1	'can be more interactive'; should 'involve some role play...'; 'include more role play'.
	Administrative issues	S2	'provide handouts during class'; class time is too long'; 'class arrangement'.
	Future similar mental health topics	S3	'add an extra class in the future'; 'hope to have another similar course in future' etc.
	Succinct course materials	S4	'the course materials are too much'; 'more details'; 'skim over some'.
	Beneficial course	S5	'Good'

## 4.6 MHL Outcome Variables

The five MHL outcome variables are as follows:

1. Recognition of disorders;
2. Beliefs about treatment;
3. Attitudes;
4. MHFA intentions; and
5. Confidence in providing help.

As measured by Cronbach's alpha, the reliability measure for the attitude scale was 0.73 at the baseline, which was acceptable for both groups.<sup>13</sup> For group-level comparisons, the coefficient in the vicinity of 0.70 may be adequate, especially for subscales (Polit & Beck, 2012). The results of normality tests for five MHL outcome variables appear in Table 4.5. According to the Shapiro–Wilk test of normality, variables 1, 4 and 5 were statistically significant at a 0.05 level and were thus non-parametric. However, variables 2 and 3 for the beliefs about treatment and the total attitude mean scores at three time points indicates that they were not statistically significant at  $p > 0.05$ ; hence, the assumption of normality was not violated. The process for conducting repeated measure ANOVA includes the following: explore data check for outliers; normality and homogeneity; correct normality problems; run the ANOVA, Mauchly's test significant; and if assumption of sphericity is violated, i.e.  $p < 0.05$ , then use the Huynh–Feldt estimate to adjust the degrees of freedom when estimates of sphericity are greater than 0.75, follow-up tests, i.e. planned comparisons, post hoc tests and finally calculate effect sizes (Field, 2013).

---

<sup>13</sup> File 2 (reliability and test of normality of five variables).

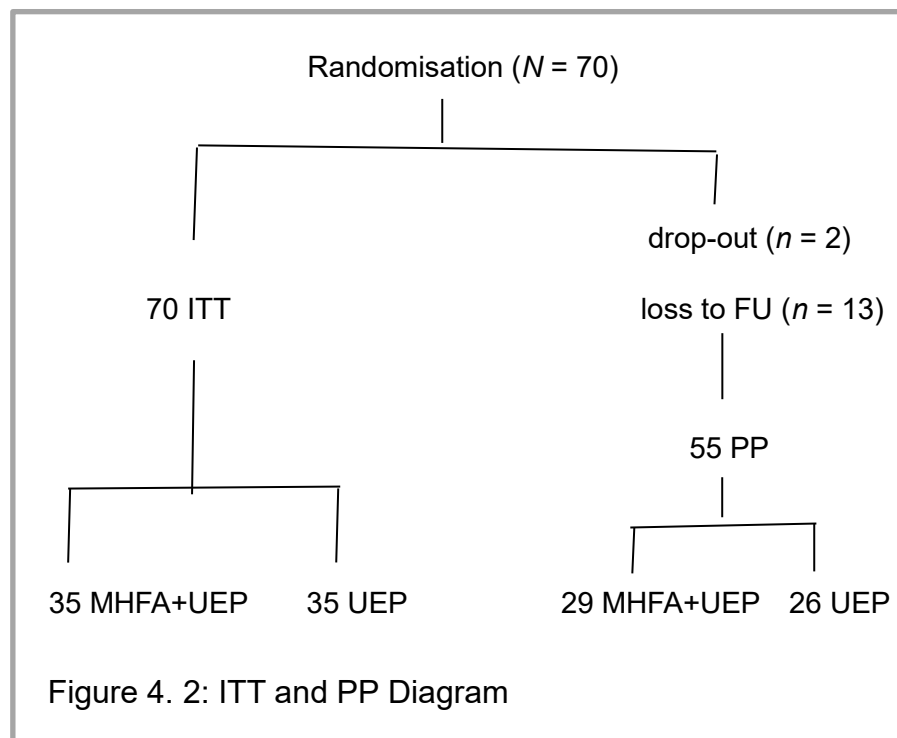
Table 4. 5: Tests of Normality for the Five MHL Outcome Variables

Shapiro–Wilk	Arm	Statistic	Df	Sig.
Recognition of disorders T1	MHFA + UEP	0.46	29	0.00
	UEP	0.44	26	0.00
Recognition of disorders T2	MHFA + UEP	0.18	29	0.00
	UEP	0.38	26	0.00
Recognition of disorders T3	MHFA + UEP	0.18	29	0.00
	UEP	0.30	26	0.00
<b>Beliefs about treatment T1</b>	MHFA + UEP	0.96	29	<b>0.33</b>
	UEP	0.95	26	<b>0.17</b>
<b>Beliefs about treatment T2</b>	MHFA + UEP	0.95	29	<b>0.20</b>
	UEP	0.90	26	0.02
<b>Beliefs about treatment T3</b>	MHFA + UEP	0.95	29	<b>0.23</b>
	UEP	0.93	26	<b>0.06</b>
<b>Attitude T1</b>	MHFA + UEP	0.95	29	<b>0.17</b>
	UEP	0.96	26	<b>0.32</b>
<b>Attitude T2</b>	MHFA + UEP	0.96	29	<b>0.35</b>
	UEP	0.95	26	<b>0.21</b>
<b>Attitude T3</b>	MHFA + UEP	0.97	29	<b>0.63</b>
	UEP	0.94	26	<b>0.17</b>
MHFA intentions T1	MHFA + UEP	0.84	29	0.00
	UEP	0.85	26	0.00
MHFA intentions T2	MHFA + UEP	0.83	29	0.00
	UEP	0.88	26	0.01
MHFA intentions T3	MHFA + UEP	0.90	29	0.01
	UEP	0.90	26	0.02
Confidence T1	MHFA + UEP	0.79	29	0.00
	UEP	0.80	26	0.00
Confidence T2	MHFA + UEP	0.85	29	0.00
	UEP	0.75	26	0.00
Confidence T3	MHFA + UEP	0.76	29	0.00
	UEP	0.70	26	0.00

Abbreviations: Df: degree of freedom, Sig: significant level

#### 4.7 Intention to Treat and Per Protocol Analyses

Figure 4.2 presents ITT and PP diagrams. For ITT, a total of 70 nursing students were recruited and randomised, of which 35 were allocated to the MHFA+UEP group and 35 to the UEP group. For PP, a total of 70 nursing students were randomised, of which 55 students completed the treatment protocol (MHFA+UEP = 29 and UEP = 26); protocol violations (15) included drop-outs and loss in follow-up.



PP analysis for this trial may be biased because of exclusion due to non-compliance. Comparability of the treatment groups in terms of baseline characteristics achieved by randomisation was not maintained, which would have resulted in a confounding factor (Sedgwick, 2015a). In Figure 4.2, ITT maintains sample size of 70. If non-compliance and drop-outs are excluded from the final analysis, it significantly reduces the sample size to 55, leading to reduced statistical power.

#### 4.7.1 Handling of missing values

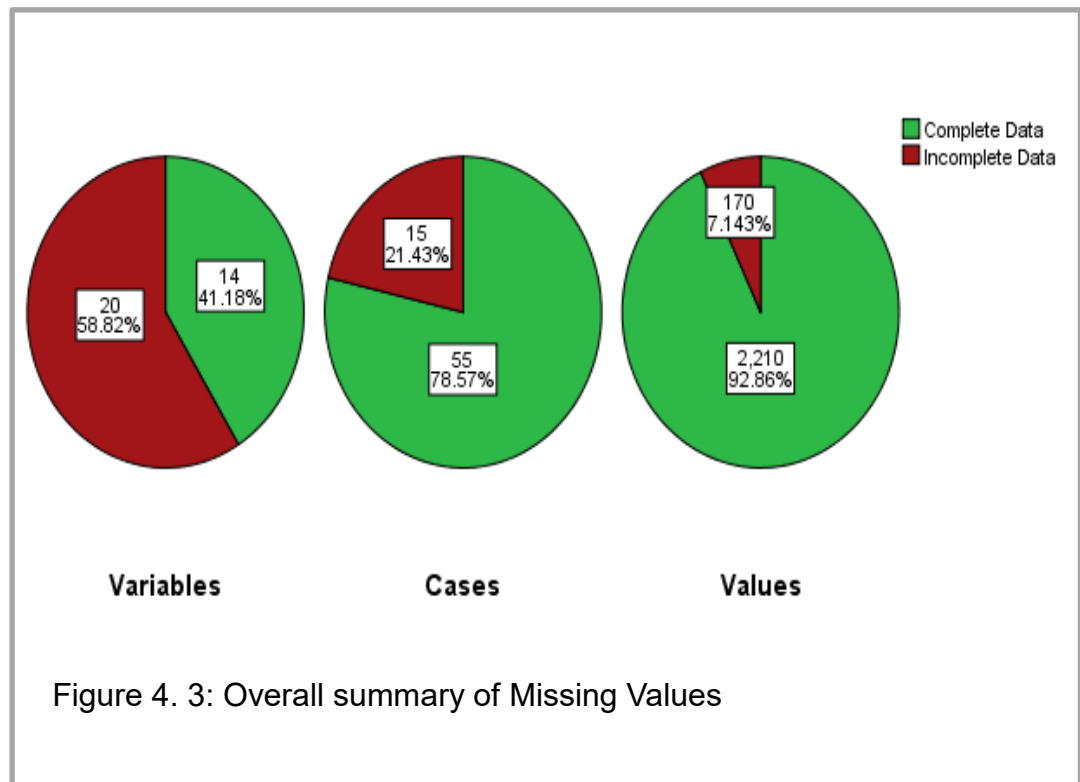
Table 4.6 shows examples in which male students and final-year students (year 4) are more likely to drop out than female and junior students (i.e. 25.7% versus 22.9% and 34.3% versus 8.6%, respectively). Therefore, missing values are related to gender and education level.

Table 4. 6: Demographic Variables of Drop-outs

Drop-outs Characteristics	MHFA + UEP		UEP		Total drop-outs n (%)
	Baseline n (%)	Drop-outs n (%)	Baseline n (%)	Drop-outs n (%)	
Gender					
Male	7 (20.0)	5 (14.3)	6 (17.1)	4 (11.4)	9 (25.7)
Female	28 (80.0)	3 (8.6)	29 (82.9)	5 (14.3)	8 (22.9)
Age					
21	7 (20.0)	1 (2.9)	10 (28.6)	2 (5.7)	3 (8.6)
22	10 (28.6)	2 (5.7)	11 (31.4)	2 (5.7)	4 (11.4)
23	8 (22.9)	3 (8.6)	7 (20.0)	4 (11.4)	7 (20.0)
25	-	-	3 (8.6)	1 (2.9)	1 (2.9)
Education					
Year 3	18 (51.4)	1 (2.9)	17 (48.6)	2 (5.7)	3 (8.6)
Year 4	17 (48.6)	5 (14.3)	18 (51.4)	7 (20.0)	12 (34.3)

#### 4.7.2 Missing values analysis

Unit non-response refers to an individual who refuses to participate in a wave of data collection. Item non-response refers to an individual who does not provide information about a specific measure (Hayati Rezvan *et al.*, 2015). In Figure 4.3, the left pie chart indicates that 20 variables (58.82% of the 34 variables included in the analysis) have at least one missing value. The middle pie chart shows that 15 (21.43%) of the 70 cases contained at least one missing value. The right pie chart indicates that approximately 7% of all values are missing.



Common examples of missing data patterns are univariate, monotone and arbitrary. A univariate pattern occurs when the missing values are observed only for a single variable, and the complete data are observed for all other variables (Penny & Atkinson, 2011). The missing values pattern chart is displayed in Figure 4.4. The row pattern reflects a monotonous missing data pattern, which may occur when participants in a longitudinal study drop out before the end of the study and do not return (Penny & Atkinson, 2011). Missing values often have an arbitrary (i.e. haphazard) pattern. This pattern of missingness commonly occurs due to item non-response in surveys (Penny & Atkinson, 2011).

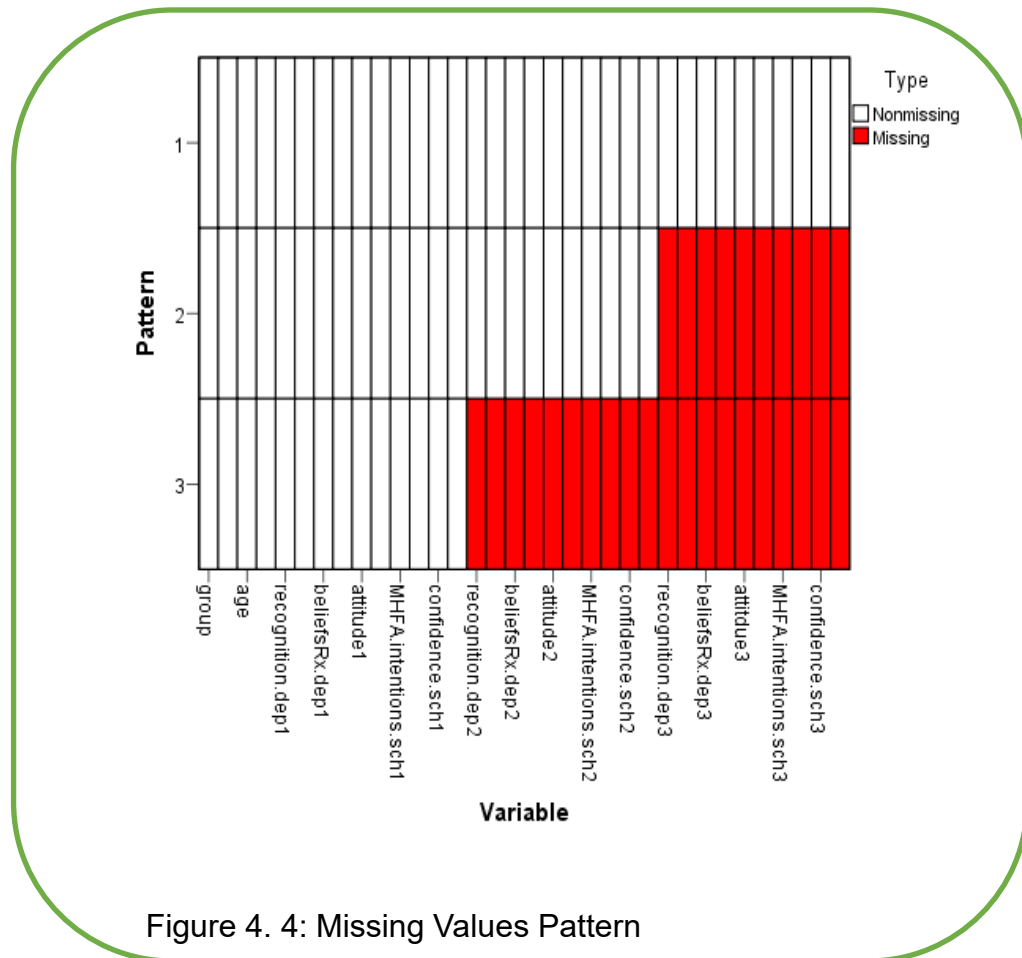


Figure 4. 4: Missing Values Pattern

### 4.7.3 Expectation–maximisation analysis

An expectation–maximisation (EM) analysis can be used to estimate means and correlations and to determine that data are MCAR (IBM, 2013b). The EM algorithm is an efficient iterative procedure to compute the maximum likelihood (ML) estimate in the presence of missing data. An ML estimation determines the model parameters for which the observed data are the most likely. It includes more variables (34 in this study) in the imputation model to make MAR more plausible (White, Royston & Wood, 2011).



In Table 4.7, the means, the standard deviation and the percentage missing for 34 variables are presented. The pattern of missing data is monotone, and most of the variables have 2.9% and 21.4% of missing data at post-intervention and six-month follow-up, respectively. The EM means for 19 continuous variables appear in Table 4.8. Little's MCAR test is useful for determining whether imputation is necessary (IBM, 2013b). Little's MCAR chi-square is equal to 41.1, with a degree of freedom of 23,  $p = 0.01$ , which indicates it is statistically significant at a 0.05 level. Therefore, the data are not MCAR but may be MAR or MNAR (IBM, 2013b). A problem with MNAR is that there are no general statistical methods for dealing with this type of data (Shintani, 2014). It was MAR in this case.

Table 4. 7: Missing Values Analysis

Univariate Statistics							
	N	Mean	Standard Deviation	Missing		No. of Extremes <sup>a</sup>	
				Count	Per cent	Low	High
group	70	1.50	.50	0	.0	0	0
gender	70	1.81	.39	0	.0	.	.
age	70	22.29	1.34	0	.0	0	0
education	70	1.50	.50	0	.0	0	0
beliefsRx.dep1	70	20.24	27.20	0	.0	0	3
beliefsRx.dep2	68	24.02	31.73	2	2.9	0	0
beliefsRx.dep3	55	20.61	24.84	15	21.4	0	0
beliefsRx.sch1	70	15.43	22.37	0	.0	0	0
beliefsRx.sch2	68	27.94	36.59	2	2.9	0	0
beliefsRx.sch3	55	19.27	27.48	15	21.4	0	0
attitude1	70	2.88	.28	0	.0	2	4
attitude2	68	3.04	.25	2	2.9	1	0
attitdue3	55	2.93	.26	15	21.4	1	1
MHFA.intentions.dep1	70	.77	1.50	0	.0	0	6
MHFA.intentions.dep2	68	2.01	2.90	2	2.9	0	1
MHFA.intentions.dep3	55	1.47	2.24	15	21.4	0	5
MHFA.intentions.sch1	70	1.17	1.85	0	.0	0	4
MHFA.intentions.sch2	68	2.51	3.52	2	2.9	0	6
MHFA.intentions.sch3	55	2.29	2.83	15	21.4	0	0
recognition.dep1	70			0	.0		
recognition.dep2	68			2	2.9		
recognition.dep3	55			15	21.4		
recognition.sch1	70			0	.0		
recognition.sch2	68			2	2.9		
recognition. sch3	55			15	21.4		
confidence.dep1	70			0	.0		
confidence. dep2	68			2	2.9		
confidence.dep3	55			15	21.4		
confidence.sch1	70			0	.0		
confidence.sch2	68			2	2.9		
confidence.sch3	55			15	21.4		
total.confident1	70			0	.0		
total.confident2	68			2	2.9		
total.confident3	55			15	21.4		

a. Number of cases outside the range (Q1 - 1.5\*IQR, Q3 + 1.5\*IQR).

Table 4. 8: Expectation–Maximisation Means

<b>Variables</b>	<b>EM Means<sup>a</sup></b>
Group	1.50
Gender	1.81
Age	22.29
Education	1.50
Beliefs Rx Dep 1	20.24
Beliefs Rx Dep 2	24.27
Beliefs Rx Dep 3	21.59
Beliefs Rx Sch 1	15.43
Beliefs Rx Sch 2	27.95
Beliefs Rx Sch 3	15.08
Attitude 1	2.88
Attitude 2	3.05
Attitude 3	2.90
MHFA intentions Dep 1	0.77
MHFA intentions Dep 2	2.05
MHFA intentions Dep 3	1.63
MHFA intentions Sch 1	1.17
MHFA intentions Sch 2	2.53
MHFA intentions Sch 3	2.04

a. Little's MCAR test: chi-square = 41.127, DF = 23, Sig. = .011

#### 4.7.4 Multiple Imputation

MI is a statistical technique for handling missing data. MI addresses the limitations of single imputation by using multiple imputed datasets that yield unbiased estimates and also accounts for the within- and between-dataset variability (Thabane *et al.*, 2013). MI is based on the MAR assumption (Enders, 2013), and it is sensitive to departures from MAR, especially with larger fractions of missing data. One way to deal with this is to include many variables in the imputation model to make MAR more plausible (White *et al.*, 2011). Graham *et al.* (2007) suggested that three to five imputations may be sufficient, especially when the proportion of missing outcome data is less than 30%. In Table 4.9, 34 variables are included in the imputation model; the

imputation results confirm a monotonous missing pattern, with five imputed datasets generated.

Table 4. 9: Imputation Results

Imputation Method	Monotone
Fully Conditional Specification Method	n/a
Iterations	
Dependent Variables	recognition.dep2,recognition.dep3,recognitio
Imputed	n.sch2,recognition.sch3,beliefsRx.dep2,belie
	fsRx.dep3,beliefsRx.sch2,beliefsRx.sch3,atti
	tude2,attitdue3,MHFA.intentions.dep2,MHFA
	.intentions.dep3,MHFA.intentions.sch2,MHF
	A.intentions.sch3,confidence.dep2,confidenc
	e.dep3,confidence.sch2,confidence.sch3
Not Imputed (Too Many Missing Values)	
Not Imputed (No Missing Values)	group,gender,age,education
Imputation Sequence	group,gender,age,education,recognition.dep
	2,recognition.sch2,beliefsRx.dep2,beliefsRx.
	sch2,attitude2,MHFA.intentions.dep2,MHFA.
	intentions.sch2,confidence.dep2,confidence.
	sch2,recognition.dep3,recognition.sch3,belie
	fsRx.dep3,beliefsRx.sch3,attitdue3,MHFA.int
	entions.dep3,MHFA.intentions.sch3,confiden
	ce.dep3,confidence.sch3

#### 4.7.5 Intention to treat results

The values for the five outcome variables for ITT analysis across time and condition are shown in Table 4.10. For ITT analysis, MI was used to deal with missing data. The MI values for the five outcome variables across time and condition are shown in Table 4.10. Normality tests were conducted using the five imputed datasets, and the results were tabulated.<sup>14</sup>

Table 4.10 displays the repeated measures ANOVA results using the mean pooled MI data for nursing students (MHFA+UEP = 204 and UEP = 201) on recognition of disorders, beliefs about treatment, attitudes, MHFA intentions and confidence in providing help. For all variables, there were statistically significant positive effects over group and time. The results indicated that MHFA+UEP group showed significant improvements in recognition of disorders  $F(1,403) = 4.87, p = 0.03$ , beliefs about treatment  $F(1, 403) = 88.09, p < 0.001$ , attitudes  $F(1, 403) = 19.43, p < 0.001$ , MHFA intentions  $F(1, 403) = 195.08, p < 0.001$  and confidence in providing help  $F(1, 403) = 5.73, p = 0.02$ .

There were statistically significant interaction effects between time and group on recognition of disorders  $F(1.86, 748.82) = 3.06, p = 0.05$ , beliefs about treatments  $F(2, 806) = 16.77, p < 0.001$ , attitudes  $F(1.92, 773.05) = 22.50, p < 0.001$  and MHFA intentions  $F(1.97, 794.90) = 80.74, p < 0.001$ ; however, there were no significant interaction effects detected for confidence in providing help. The post hoc tests displayed in Table 4.10 indicate there are statistically significant improvements in all variables from baseline to post-intervention, with  $p < 0.05$ , and a significant time effect from post-intervention to six-month follow-up, with  $p < 0.001$  for recognition of disorders, beliefs about treatment, attitudes and

---

<sup>14</sup> File 3 (significant tests ITT(MI) & PP).

MHFA intentions. Furthermore, the observed effect sizes were large for beliefs about treatment ( $\eta_p^2 = 0.18$ ) and MHFA intentions ( $\eta_p^2 = 0.33$ ). The observed effect sizes were small to moderate for attitudes ( $\eta_p^2 = 0.05$ ), recognition of disorders ( $\eta_p^2 = 0.01$ ) and confidence in providing help ( $\eta_p^2 = 0.01$ ), respectively.

To aid in interpretation, Figure 4.5 displays plots of the mean pooled data for each variable over time and comparing MHFA plus UEP and UEP groups. For recognition of disorders, the MHFA plus UEP group's mean rises from time 1 to time 2 and then remains relatively stable to time 3, whereas the UEP group's mean rises from time 1 to time 2, but then falls from time 2 to time 3. For the variables such as beliefs about treatment, attitudes, MHFA intentions and confidence in providing help, the means for the intervention group rises dramatically from baseline to post-intervention and then drops from post-intervention to six-month follow up.

Table 4. 10: Values for Outcome Variables for ITT Analysis across Time and Condition

Measure ( <i>n</i> = 405)	Repeated Measures ANOVA			Post Hoc Comparison				
	<i>F</i> ( <i>df</i> )	<i>p</i> value	$\eta_p^2$	Time (I)	Time (J)	Mean difference (I-J)	SE	<i>p</i> value
Recognition of disorders <sup>a</sup>								
Time	10.16 (1.86, 748.82)	0.00**	0.03	1	2	-0.14	0.03	0.00**
Group	4.87 (1, 403)	0.03*	0.01	1	3	-0.13	0.04	0.00**
Group*Time	3.06 (1.86, 748.82)	0.05*	0.01	2	3	0.10	0.03	1.00
Beliefs about treatment								
Time	46.34 (2, 806)	0.00**	0.10	1	2	-24.67	2.69	0.00**
Group	88.09 (1, 403)	0.00**	0.18	1	3	-10.45	2.61	0.00**
Group*Time	16.77 (2, 806)	0.00**	0.04	2	3	14.22	2.81	0.00**
Attitudes <sup>a</sup>								
Time	49.36 (1.92, 773.05)	0.00**	0.11	1	2	-0.30	0.03	0.01*
Group	19.43 (1, 403)	0.00**	0.05	1	3	-0.08	0.03	0.03*
Group*Time	22.50 (1.92, 773.05)	0.00**	0.05	2	3	0.22	0.03	0.00**
MHFA intentions <sup>a</sup>								
Time	125.11 (1.97, 794.90)	0.00**	0.24	1	2	-4.71	0.23	0.00**
Group	195.08 (1, 403)	0.00**	0.33	1	3	-2.96	0.22	0.00**
Group*Time	80.74 (1.97, 794.90)	0.00**	0.17	2	3	1.75	0.25	0.00**
Confidence in providing help								
Time	4.82 (2, 806)	0.01*	0.01	1	2	-0.19	0.08	0.04*
Group	5.73 (1, 403)	0.02*	0.01	1	3	-0.03	0.07	1.00
Group*Time	2.13 (2, 806)	0.12	0.01	2	3	0.17	0.08	0.08

\**p* < 0.05, \*\**p* < 0.001; <sup>a</sup>Epsilon  $\epsilon$  > 0.75 use Huynh–Feldt correction; effect size: partial eta-squared,  $\eta_p^2$  (small 0.01, moderate 0.06 and large 0.14)

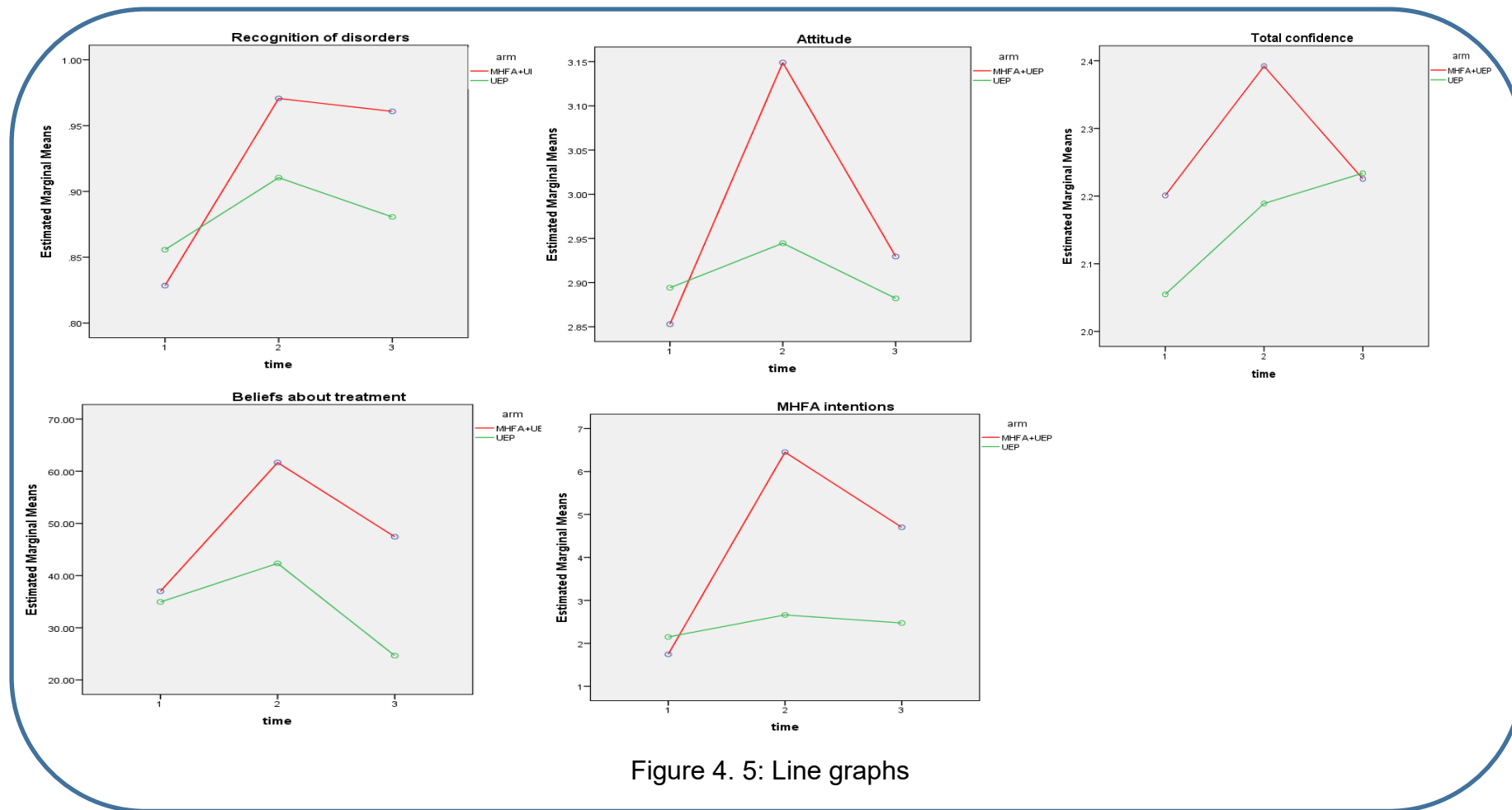


Figure 4. 5: Line graphs



#### 4.7.6 Per protocol results

Values for the five outcome variables for the PP analysis across time and condition are shown in Table 4.11. PP analysis included only participants who completed the treatment protocol as originally allocated. Table 4.11 displays the repeated measures ANOVA results for nursing students (MHFA+UEP = 29 and UEP = 26) on recognition of disorders, beliefs about treatment, attitudes, MHFA intentions and confidence in providing help. There were statistically significant positive effects for MHFA plus UEP on beliefs about treatment  $F(1, 53) = 8.80, p = 0.01$ , attitudes  $F(1, 53) = 5.87, p = 0.02$  and MHFA intentions  $F(1, 53) = 22.61, p < 0.001$ . For MHFA intentions, there were statistically significant interaction effects with  $F(2, 106) = 9.41, p < 0.001$ .

The post hoc tests displayed in Table 4.11 indicate there are statistically significant gains in beliefs about treatment, attitudes and MHFA intentions from baseline to post-intervention, with  $p < 0.05$ , and a significant time effect from post-intervention to six-month follow-up, with  $p < 0.001$  for MHFA intentions. For recognition of disorders and confidence in providing help, however, there were no significant effects detected. Furthermore, effects sizes were large for beliefs about treatment ( $\eta_p^2 = 0.14$ ), attitudes ( $\eta_p^2 = 0.10$ ) and MHFA intentions ( $\eta_p^2 = 0.30$ ), on the basis of conventions indicating that  $\eta_p^2 = 0.14$  is a large and meaningful effect (Cohen, 1988). Although there were no statistically significant effects detected on recognition of disorders and confidence in providing help, the effect sizes were small ( $\eta_p^2 \leq 0.04$ ).

Table 4. 11: PP Analysis Values for Outcome Variables across Time and Condition

Measure ( <i>n</i> = 55)	Repeated Measures ANOVA			Post Hoc Comparison				
	<i>F</i> ( <i>df</i> )	<i>p</i> value	$\eta_p^2$	Time (I)	Time (J)	Mean difference (I-J)	SE	<i>p</i> value
Recognition of disorders								
Time	2 (2, 106)	0.14	0.04	1	2	-0.14	0.08	0.30
Group	0.60 (1, 53)	0.44	0.01	1	3	-0.14	0.09	0.34
Group*Time	0.38 (2, 106)	0.68	0.01	2	3	0.00	0.07	1.00
Beliefs about treatment								
Time	5.11 (2, 106)	0.01*	0.09	1	2	-20.92	6.90	0.01*
Group	8.80 (1, 53)	0.01*	0.14	1	3	-7.59	6.25	0.69
Group*Time	1.09 (2, 106)	0.34	0.02	2	3	13.33	7.13	0.20
Attitudes								
Time	8.50 (2, 106)	0.00**	0.14	1	2	-0.29	0.07	0.00**
Group	5.87 (1, 53)	0.02*	0.10	1	3	-0.08	0.07	0.80
Group*Time	2.23 (2, 106)	0.11	0.04	2	3	0.21	0.06	0.00*
MHFA intentions								
Time	17.60 (2, 106)	0.00**	0.25	1	2	-4.52	0.60	0.00**
Group	22.61 (1, 53)	0.00**	0.30	1	3	-2.97	0.57	0.00**
Group*Time	9.41 (2, 106)	0.00**	0.15	2	3	1.55	0.67	0.08
Confidence in providing help <sup>a</sup>								
Time	0.61 (1.79, 94.74)	0.53	0.01	1	2	-0.14	0.20	1.00
Group	2.39 (1, 53)	0.13	0.04	1	3	0.03	0.16	1.00
Group*Time	0.08 (1.79, 94.74)	0.91	0.00	2	3	0.17	0.14	0.71

\* $p < 0.05$ , \*\* $p < 0.001$ ; <sup>a</sup>Epsilon  $\epsilon > 0.75$  use Huynh–Feldt correction; effect size: partial eta-squared,  $\eta_p^2$  (small 0.01, moderate 0.06 and large 0.14)

#### 4.7.7 Sensitivity analysis

Performing an SA regarding the MAR assumption post-MI should be considered an essential aspect of assessing the robustness of conclusions (Hayati Rezvan *et al.*, 2015). The findings are consistent with those from the primary analysis and would lead to similar conclusions about treatment effect. The researcher is then reassured that the underlying factors had no impact on the primary conclusion; thus, the conclusions are said to be 'robust' (Thabane *et al.*, 2013). The CONSORT reporting guidelines were applied in the current study.

In Table 4.12, the results from the SA comparing two sets of results (e.g. ITT and PP under different assumptions) allow fairly consistent conclusions. This provides a strong indication that the results can be regarded with a reasonable degree of certainty (Spineli, Fleming & Pandis, 2015). The results of the ITT and PP analyses are similar; there is little difference in the estimated effects of the MHFA intervention compared with the UEP group. Post-randomisation exclusions and missing outcome data may introduce bias in the estimates of the treatment effects. Therefore, the presence of ITT is warranted. PP is often contrasted with ITT because these two analyses represent different extremes; if they provide the same conclusion, then an overall conclusion can be safely drawn (Spineli, Fleming & Pandis, 2015). The results were robust to missing data in the SA, with imputation methods producing similar results.

Table 4. 12: Sensitivity Analysis

Outcome variables	ITT	PP
Recognition of disorders	Within group, T1 vs T2, T1 vs T3 $p < 0.001^{**}$ Between group, $p < 0.03^*$ , $\eta_p^2 = 0.01$ (small) Group*Time, $p = 0.05^*$ , $\eta_p^2 = 0.01$ (small)	Within group, $p > 0.05$ Between group, $p > 0.05$ , $\eta_p^2 = 0.01$ Group*Time, $p > 0.05$ , $\eta_p^2 = 0.01$
Beliefs about treatment	Within group, T1 vs T2, T1 vs T3 & T2 vs T3 $p < 0.001^{**}$ Between group, $p < 0.001^{**}$ , $\eta_p^2 = 0.18$ (large) Group*Time, $p < 0.001^{**}$ , $\eta_p^2 = 0.04$ (small)	Within group, T1 vs T2 $p = 0.01^*$ Between group, $p = 0.01^*$ , $\eta_p^2 = 0.14$ (large) Group*Time, $p > 0.05$ , $\eta_p^2 = 0.02$
Attitudes	Within group, T1 vs T2; T1 vs T3 & T2 vs T3 $p < 0.05^*$ Between group, $p < 0.001^{**}$ , $\eta_p^2 = 0.05$ (small-moderate) Group*Time, $p < 0.001^{**}$ , $\eta_p^2 = 0.05$ (small)	Within group, T1 vs T2; T2 vs. T3 $p < 0.00^*$ Between group, $p = 0.02^*$ , $\eta_p^2 = 0.10$ (moderate-large) Group*Time, $p > 0.05$ , $\eta_p^2 = 0.04$
MHFA intentions	Within group, T1 vs T2; T1 vs T3 & T2 vs T3 $p < 0.001^{**}$ Between group, $p < 0.001^{**}$ , $\eta_p^2 = 0.33$ (very large) Group*Time, $p < 0.001^{**}$ , $\eta_p^2 = 0.17$ (large)	Within group, T1 vs T2, T1 vs T3 $p < 0.001^{**}$ Between group, $p < 0.001^{**}$ , $\eta_p^2 = 0.30$ (very large) Group*Time, $p < 0.001^{**}$ , $\eta_p^2 = 0.15$ (large)
Confidence in providing help	Within group, T1 vs T2 $p = 0.04^*$ Between group, $p = 0.02^*$ , $\eta_p^2 = 0.01$ (small) Group*Time, $p > 0.05$ , $\eta_p^2 = 0.01$	Within group, $p > 0.05$ Between group, $p > 0.05$ , $\eta_p^2 = 0.04$ Group*Time, $p > 0.05$ , $\eta_p^2 = 0.00$

\* $p < 0.05$ ; \*\* $p < 0.001$ ; effect size: partial eta-squared,  $\eta_p^2$  (small 0.01, moderate 0.06 and large 0.14)

#### 4.7.8 Validity of vignette methodology

To ensure high internal validity, vignettes were assigned in a random order. As shown in Table 4.13, the vignettes (depression = D and schizophrenia = S) were randomly distributed in eight sequences at three time points; they were organised as follows: DDD, SSS, SSD, SDD, DSS, DDS, SDS and DSD.

Table 4. 13: Sequences of Vignettes

Vignette	Time	N (%)		T1	T2	T3
		MHFA+UEP n = 29	UEP n = 26			
Seq. 1		4 (13.8%)	5 (19.2%)	D	D	D
Seq. 2		4 (13.8%)	6 (23.1%)	S	S	S
Seq. 3		4 (13.8%)	4 (15.4%)	S	S	D
Seq. 4		3 (10.3%)	4 (15.4%)	S	D	D
Seq. 5		4 (13.8%)	1 (3.8%)	D	S	S
Seq. 6		2 (6.9%)	4 (15.4%)	D	D	S
Seq. 7		4 (13.8%)	2 (7.7%)	S	D	S
Seq. 8		4 (13.8%)	0 (0%)	D	S	D

D = Depression, S = Schizophrenia, T1 = baseline, T2 = post-intervention, T3 = six-month follow-up

The numbers of participants were 55 (MHFA+UEP = 29 and UEP = 26). The percentages for nursing students who received random vignette sequence ranged from 6.9% to 13.8% for the intervention group and 0% to 23.1% for the control group. Significant tests on respondents' outcome variables for the eight random sequences<sup>15</sup> are presented in Table 4.14. Due to multiple testing,  $p$  values < 0.01 were deemed significant, after the Bonferroni correction. The results of the Mann–Whitney nonparametric tests indicated there were no statistically

<sup>15</sup> File 7 (Significance tests on outcome variables for eight random vignette sequences).

significant differences in respondents' outcome variables across all eight random vignette sequences at  $p < 0.01$ . The findings indicated that the order of vignettes has no effect on the two groups of nursing students.

Table 4. 14: Significant Tests on Outcome Variables for Eight Random Vignette Sequences

Vignette sequence x sig. tests		Seq. 1		Seq. 2		Seq. 3		Seq. 4		Seq. 5		Seq. 6		Seq. 7		Seq. 8	
		U	p value	U	p value	U	p value	U	p value	U	p value	U	p value	U	p value	U	p value
Recognition of Disorders	T1	9.50	0.87	10.00	0.41	8.00	1.00	4.50	0.39	1.00	0.41	2.00	0.16	2.00	0.16	NA	NA
	T2	8.00	0.37	12.00	1.00	6.00	0.32	6.00	1.00	1.50	0.62	4.00	1.00	2.00	0.16	NA	NA
	T3	8.00	0.37	12.00	1.00	6.00	0.32	4.50	0.39	2.00	1.00	4.00	1.00	4.00	1.00	NA	NA
Beliefs about treatment	T1	7.50	0.52	5.00	0.11	6.00	0.55	3.50	0.35	1.00	0.48	2.00	0.34	3.50	0.81	NA	NA
	T2	5.00	0.22	9.00	0.50	6.00	0.54	1.50	0.11	0.50	0.26	1.00	0.11	0.50	0.10	NA	NA
	T3	3.00	0.06	8.50	0.44	5.50	0.44	6.00	1.00	1.00	0.47	1.00	0.13	1.00	0.14	NA	NA
Attitudes	T1	7.00	0.46	10.50	0.75	3.00	0.15	4.50	0.59	1.00	0.43	3.50	0.81	3.50	0.81	NA	NA
	T2	5.00	0.22	0	0	8.00	1.00	3.50	0.37	0	0	4.00	1.00	2.00	0.36	NA	NA
	T3	6.50	0.38	9.50	0.59	7.50	0.89	5.50	0.86	1.00	0.47	3.00	0.62	3.00	0.63	NA	NA
MHFA Intentions	T1	8.00	0.59	6.50	0.22	3.00	0.13	4.50	0.59	0.50	0.26	3.50	0.81	2.50	0.48	NA	NA
	T2	3.50	0.09	4.00	0.08	2.50	0.10	4.00	0.48	1.50	0.62	0	0	3.00	0.48	NA	NA
	T3	3.00	0.08	5.50	0.15	6.50	0.66	3.50	0.37	0	0	1.00	0.06	4.00	1.00	NA	NA
Confidence in providing help	T1	4.00	0.11	10.00	0.62	5.00	0.35	4.50	0.55	1.00	0.43	2.00	0.26	2.50	0.45	NA	NA
	T2	5.50	0.24	11.00	0.76	5.50	0.44	6.00	1.00	0.50	0.22	1.00	0.13	3.50	0.80	NA	NA
	T3	8.00	0.56	12.00	1.00	8.00	1.00	3.00	0.19	1.00	0.41	0	0	3.00	0.58	NA	NA

NA = not applicable, p value < 0.01 after Bonferroni adjustment, U = Mann-Whitney.

#### 4.7.9 Attribution model

Repeated measures ANOVA were used to test the attribution model.<sup>16</sup> The results are shown in Table 4.15 with the repeated measures ANOVAs results for nursing students (MHFA+UEP = 29 and UEP = 26) on uncontrollability, controllability and danger (violence propensity and afraid talking) measures. For controllability, violence propensity and afraid talking, there were statistically significant positive effects over group and time with  $p < 0.05$ . For controllability, there was a statistically significant interaction effect with  $F(2, 106) = 27.37, p < 0.001$ . The post hoc tests displayed in Table 4.15 indicate there are statistically significant improvements in controllability and violence propensity from baseline to post-intervention, with  $p < 0.05$ , and a significant time effect from post-intervention to six-month follow-up, with  $p < 0.001$  for controllability.

For uncontrollability, however, there were no significant effects detected. Furthermore, there were intervention effect ( $\eta_p^2 = 0.34$ ) for controllability and main effect for violence propensity ( $\eta_p^2 = 0.13$ ) and afraid talking ( $\eta_p^2 = 0.12$ ) (Cohen, 1988). These findings indicated that nursing students believed that mentally ill individuals have control over their own mental illness and being dangerous to them. These findings support the attribution model.

---

<sup>16</sup> File 6 (Attribution model).



Table 4. 15: Repeated Measure ANOVA Results to Test Attribution Model

Measure ( <i>n</i> = 55)	Repeated Measures ANOVA			Post Hoc Comparison				
	<i>F</i> ( <i>df</i> )	Significance	$\eta_p^2$	Time (I)	Time (J)	Mean difference (I-J)	SE	Significance
Uncontrollability								
Time	1.76 (2,106)	0.18	0.03	1	2	-0.17	0.15	0.80
Group	1.41 (1,53)	0.24	0.03	1	3	0.07	0.16	1.00
Group*time	0.12 (2,106)	0.89	0.00	2	3	0.24	0.17	0.46
Controllability								
Time	43.42 (2,106)	0.00**	0.45	1	2	-1.62	0.15	0.00**
Group	5.24 (1,53)	0.03*	0.09	1	3	-1.52	0.13	0.00**
Group*time	27.37 (2,106)	0.00**	0.34	2	3	0.10	0.16	1.00
Dangerous Violence propensity								
Time	4.46 (2,106)	0.01*	0.08	1	2	-0.31	0.13	0.05*
Group	7.74 (1, 53)	0.01*	0.13	1	3	-0.14	0.14	0.94
Group*time	0.10 (2,106)	0.90	0.00	2	3	0.17	0.11	0.38
Afraid talking								
Time	1.21 (2,106)	0.30	0.02	1	2	-0.17	0.13	0.59
Group	7.46 (1, 53)	0.01*	0.12	1	3	0.03	0.14	1.00
Group*time	0.63 (2,106)	0.54	0.01	2	3	0.21	0.12	0.29

\**p* < 0.05, \*\**p* < 0.001; effect size: partial eta-squared,  $\eta_p^2$  (small 0.01, moderate 0.06 and large 0.14)

## 4.8 Qualitative Findings

The content analysis for three open-ended questions (Table 3.3) with a codebook for all text data is shown in Table 4.16. The coding instrument includes the codebook, coding sheet, word frequency counts and ICR and agreement rate summarised in codebook two.<sup>17</sup> The themes relate to the outcome variables, including recognition of disorders, beliefs about treatment and MHFA intentions. The themes were classified into categories and codes. Each category is attached to a code number and code description. The code description is a clear written statement about the inclusion and exclusion criteria and provides example text/quotes for each category.

ICR was calculated as a kappa statistic. Two coders independently rated the coding sheets in codebook two. A random sample of 70 of the 210 question responses (33%) comprised 68 responses (coding sheets for MHFA pre-course and post-course; i.e. 1001 to 1035 and 3001 to 3033) for recognition of disorders and 70 responses (coding sheets for MHFA pre-course and post-course; i.e. 1001 to 1035 and 3001 to 3033) for beliefs about treatment and MHFA intentions in codebook two. The procedure involved coders independently processing the coding units. The coding procedure was duplicated by the researcher, and the coding outcomes were compared. The researcher then used dichotomous values of 0 = 'not available/not stated' and 1 = 'available/stated' to decide whether the code applied or did not apply in the text segment (Hruschka *et al.*, 2004). The codes are mutually exclusive, meaning every statement is coded with no more than one code. Mutually exclusive codes allow for the application of Cohen's kappa statistics (Buria *et al.*, 2008). ICR was calculated at kappa = 0.80 to 0.84 for recognition

---

<sup>17</sup> File 5 (Codebook two).

of disorders, beliefs about treatment and MHFA intentions. The two coders agreed with the majority of the coding units, the agreement rates were over 90% as shown in Table 4.16. The results of ICR demonstrate high reliability indices. Thus, the researcher coded the remaining 140 question responses in view of time and cost constraints.

#### 4.8.1 Recognition of disorders codes

In Table 4.16, recognition of disorders is classified into correct labelling (R1), identification of mental health problem (R2) and identification of non-mental health problem (R3) (Melas *et al.*, 2013; Wright *et al.*, 2007). The word frequency counts for the codes for depression and schizophrenia vignettes were tabulated in Tables 4.17 and 4.18, respectively. The sum of counts and the percentages of agreements amongst participants were calculated for both intervention (MHFA +UEP) and control (UEP) groups at three time points. The percentage of agreement was calculated by dividing the number of participants coded for a common theme or words by the total number of participants who responded to the question and then multiplying the answers by 100.

Codes frequently mentioned in the R1 domain were depression (major/minor), schizophrenia, substance abuse, psychosis or psychotic disorder, delusional disorder and alcoholism. Codes commonly mentioned in the R2 domain for depression vignettes were social withdrawn/isolation, mood problem/low mood, adjustment disorder/problem, negative symptoms, mental illness/problem, anxiety and autism. For the schizophrenia vignette, the most common codes were hallucination (auditory/visual), paranoid ideas, delusion, persecutory delusions, potential violence, mania, side effect and suspected emotional disorder. The most cited codes in the R3 domain for the

depression vignette were poor social skills, anti-social behaviour, refusal to attend school. For the schizophrenia vignette, the most common codes were stigmatisation and poor family relationship.

The top-three codes cited for the R1 domain were depression (44.3% vs 43.8%), schizophrenia (47.4% vs 45.9%) and substance abuse (28.9% vs 31.3%) for both the MHFA plus UEP and UEP groups, respectively. The three highest ranked codes mentioned for the R2 domain were hallucinations (25.7% vs 19.8%), social withdrawal (16.5% vs 13.5%) and paranoia (11.3% vs 4.2%) for both the MHFA plus UEP and UEP groups, respectively. Only a few participants identified codes for a non-mental health problem in the UEP group.

Table 4. 16: Codebook for All Text Data

Theme	Categories	Code No.	Code Description	ICR & Agreement rate %
RECOGNITION OF DISORDERS	Correct labelling	R1	<p>Inclusion criteria: any response (words or phrases) that meets both ICD-10 and DSM-IV diagnostic criteria for psychosis and depression</p> <p>Exclusion criteria: responses that mention the symptoms of another mental health problem</p> <p>Example codes: depression (major/minor) or depressive disorder, schizophrenia, substance/drug abuse (e.g. ketamine abuse), psychosis/psychotic disorder, delusional disorder and alcoholism</p>	<b>0.84</b>
	Identification of mental health problem	R2	<p>Inclusion criteria: any response that mentions the symptoms of the mental health problem portrayed in the vignette</p> <p>Exclusion criteria: any response that involves a general health problem</p> <p>Example codes: hallucinations (auditory/visual), social withdrawal/isolation, paranoid ideas, delusional, mood problems/low mood, persecutory delusion, potential violence, adjustment disorder/problem, negative symptoms, mental illness/problem, anxiety due to new environment, autism, mania, side effect of ketamine and suspected emotional disorder</p>	Coders' agreements: 98.2%

Theme	Categories	Code No.	Code Description	ICR & Agreement rate %
RECOGNITION OF DISORDERS	Identification of non-mental health problem	R3	Inclusion criteria: any response that identifies the psychosocial aspects instead of mental health problem portrayed in the vignette Exclusion criteria: any response that addresses unrelated issues Example codes: poor social skills, anti-social behaviour, refusal to attend school, poor family relationships, stigmatisation and don't know	
BELIEFS ABOUT TREATMENT	Seeking professional help	T1	Inclusion criteria: any response that mentions the types of health professionals regarded as helpful to Wah in the vignette Exclusion criteria: any response that relates to non-health professionals Example codes: psychiatrist, clinical psychologist, physician, social worker and mental health nurse	<b>0.80</b>  Coders' agreements: 90%
	Pharmacological intervention	T2	Inclusion criteria: any response that represents the pharmacological interventions useful in the vignette Exclusion criteria: responses about interventions unrelated to medication and treatment Example codes: anti-depressants, antipsychotics, monitoring medication and treatment compliance, medication management and education such as effects and side effects of drugs	
	Psychiatric assessment	T3	Inclusion criteria: any response about psychiatric assessment and applying clinical skills in mental health nursing	

Theme	Categories	Code No.	Code Description	ICR & Agreement rate %
BELIEFS ABOUT TREATMENT	Psychiatric assessment		Exclusion criteria: responses not related to mental health nursing and clinical practicum skills Example codes: involving family in the treatment plan, assessing mental state/condition, making a nursing assessment/consultation and delivering a nursing care plan	
	Therapeutic communication	T4	Inclusion criteria: any response about the nurse–patient relationship and therapeutic communication in mental health care Exclusion criteria: any response about communication in a general sense Example codes: rapport building or maintaining a trusting/therapeutic relationship, understanding/exploring patient’s thinking or feeling of low mood, caring attitude, empathy or understanding or understanding, and meet patient’s needs	
	Problem-solving skills	T5	Inclusion criteria: any response that identifies a problem-solving technique Exclusion criteria: any response that involves just a brief conversation Example codes: understanding or exploring the patient’s problems such as substance abuse, trying to help and find solutions together	
	Psychosocial interventions	T6	Inclusion criteria: mention of different types of psychosocial interventions that can be helpful to Wah in the vignette	

Theme	Categories	Code No.	Code Description	ICR & Agreement rate %
BELIEFS ABOUT TREATMENT	Psychosocial interventions		Exclusion criteria: any response that mentions other physical or pharmacological interventions Example codes: counselling, cognitive behavioural therapy, psychiatric admissions, encouragement to quit substance abuse or alcohol, advice on substance abstinence, family support, providing social support or participation, providing community or social resources, harm reduction, providing family counselling, psychoeducation, social skills training, peer support, motivation interviewing, psychosocial intervention and teaching mood and stress management	
FIRST-AID INTENTIONS	Approach the person  Assess and assist with any crisis	A1  A2	Inclusion criteria: any response that mentions terms such as 'talking to' or 'approaching the person' Exclusion criteria: any response involving mental MHFA action plan strategies Example codes: approach/allow time to speak with, talk to, interview or communicate  Inclusion criteria: any response that mentions mental health crisis such as violence or suicide Exclusion criteria: any response that does not address risk assessment Example codes: assess any danger, potential violence or suicide risk; help to resolve the crisis	<b>0.83</b>  Coders' agreements: 98.2%



Theme	Categories	Code No.	Code Description	ICR & Agreement rate %
FIRST-AID INTENTIONS	Listen non-judgmentally	L	<p>Inclusion criteria: any response that involves active listening and a non-judgmental attitude</p> <p>Exclusion criteria: any response that is not related to communication skills and MHFA action plan strategies</p> <p>Example codes: active listening/good listening skills or a non-judgmental attitude</p>	
	Give support and information	G	<p>Inclusion criteria: respondents offer some suggestions for professional help and provide emotional support to Wah in the vignette</p> <p>Exclusion criteria: respondent does not mention anything in the MHFA action plan and offer no help</p> <p>Example codes: give reassurance or provide information and support, make appropriate suggestions, explain treatment options</p>	
	Encourage to get appropriate professional help	E1	<p>Inclusion criteria: respondents offer a source of help and encourage Wah to seek help from health or mental health professionals</p> <p>Exclusion criteria: respondents do not mention anything in the MHFA action plan and offer no help</p> <p>Example codes: make a referral or advise Wah to seek help from psychiatric treatment, encourage or persuade him/her to seek professional help such as a GP, a substance abuse clinic, or professional counselling</p>	

Theme	Categories	Code No.	Code Description	ICR & Agreement rate %
FIRST-AID INTENTIONS	Encourage other support	E2	<p>Inclusion criteria: any response that mentions self-help and other supportive networks</p> <p>Exclusion criteria: respondents do not mention anything in the MHFA action plan and offer no help</p> <p>Example codes: advise other coping strategies or refer to other support groups (i.e. family, social groups and peers)</p>	

Table 4. 17: Recognition of Disorders (Word Frequency Counts for Depression Vignette)

Group x Code count Categories	MHFA + UEP (n = 49)				UEP alone (n = 48)			
	Pre 18 (%)	Post 16 (%)	FU 15 (%)	Total code 49 (%)	Pre 17 (%)	Post 18 (%)	FU 13 (%)	Total code 48 (%)
Correct labelling (R1): Depression (major/minor)	13 (72.2)	16 (100)	14 (93.3)	43 (44.3)	15 (88.2)	16 (88.9)	11 (84.6)	42 (43.8)
Identification of mental health problem (R2):								
Social withdrawal/isolation	1 (5.6)	8 (50.0)	7 (46.7)	16 (16.5)	3 (17.6)	4 (22.2)	6 (46.1)	13 (13.5)
Mood problem/low mood	2 (11.1)	3 (17.6)	2 (13.3)	7 (7.2)	3 (17.6)	3 (16.7)	1 (7.7)	7 (7.3)
Adjustment disorder/problem	2 (11.1)	2 (12.5)	1 (6.7)	5 (5.2)	2 (11.1)	2 (11.1)	1 (7.7)	4 (4.2)
Negative symptoms	-	2 (12.5)	1 (6.7)	3 (3.1)	-	-	-	-
Mental illness/problem	2 (11.1)	-	-	2 (2.1)	-	-	-	-
Anxiety	1 (5.6)	-	-	1 (1.0)	-	-	-	-
Autism	1 (5.6)	-	-	1 (1.0)	2 (11.8)	1 (5.6)	-	3 (3.1)
Identification of non-mental health problem (R3):								
Poor social skills	1 (5.6)	-	-	1 (1.0)	-	-	-	-
Anti-social behaviour	-	-	-	-	-	1 (5.6)	-	1 (1.0)
Refusal to attend school	-	-	-	-	1 (5.9)	-	-	1 (1.0)
Stigmatisation	-	-	-	-	1 (5.9)	-	-	1 (1.0)

Table 4. 18: Recognition of Disorders (Word Frequency Counts for Schizophrenia Vignette)

Group x Code count Categories	MHFA + UEP (n = 48)				UEP alone (n = 48)			
	Pre N = 17 (%)	Post 17 (%)	FU 14 (%)	Total code 48 (%)	Pre 18 (%)	Post 17 (%)	FU 13 (%)	Total code 48 (%)
Correct labelling (R1):								
Schizophrenia <sup>1</sup>	16 (94.1)	16 (88.9)	14 (100)	46 (47.4)	15 (83.3)	16 (94.1)	13 (100)	44 (45.9)
Substance/drug abuse	5 (29.4)	11 (64.7)	12 (85.7)	28 (28.9)	10 (55.6)	12 (70.6)	8 (61.5)	30 (31.3)
Psychosis/psychotic disorder	7 (41.2)	4 (23.5)	1 (7.1)	12 (12.4)	1 (5.6)	2 (11.8)	3 (23.1)	6 (6.3)
Schizophrenia	3 (17.6)	3 (17.6)	3 (21.4)	9 (9.3)	2 (11.1)	6 (35.3)	3 (23.1)	11 (11.5)
Delusional disorder	3 (17.6)	1 (5.9)	2 (14.3)	6 (6.2)	2 (11.1)	-	2 (15.4)	4 (4.2)
Alcoholism	-	-	1 (7.1)	1 (1.0)	1 (5.6)	1 (5.9)	-	2 (2.1)
Identification of MHP (R2):								
Hallucinations (auditory/visual)	7 (41.2)	10 (58.8)	8 (57.1)	25 (25.7)	5 (27.8)	10 (58.9)	4 (30.7)	19 (19.8)
Paranoia	2 (11.8)	5 (29.4)	4 (28.6)	11 (11.3)	-	3 (17.6)	1 (7.7)	4 (4.2)
Delusional	2 (11.8)	6 (35.3)	2 (14.3)	10 (10.3)	1 (5.6)	3 (17.6)	1 (7.7)	5 (5.2)
Persecutory delusions	1 (5.9)	1 (5.9)	4 (28.6)	6 (6.2)	-	4 (23.5)	5 (38.5)	9 (9.4)
Potential violence	1 (5.9)	2 (11.8)	2 (14.3)	5 (5.2)	-	1 (5.9)	1 (7.7)	2 (2.1)
Mania	1 (5.9)	-	-	1 (1.0)	1 (5.6)	-	-	1 (1.0)
Side effect of ketamine	1 (5.9)	-	-	1 (1.0)	-	-	-	-
Suspected emotional disorder	-	-	-	-	1 (5.6)	-	-	1 (1.0)
Identification of non-MHP (R3):								
Poor family relationships	-	-	-	-	1 (5.6)	-	-	1 (1.0)
Don't know	-	-	-	-	1 (5.6)	-	-	1 (1.0)

<sup>1</sup>multiple responses (schizophrenia, substance abuse psychosis, psychotic disorder, delusional disorder); FU = 6-month follow-up; MHP = mental health problem.

### 4.8.2 Beliefs about treatment codes

In Table 4.16, the theme 'beliefs about treatment' includes six categories, each with a code number: seeking professional help (T1), pharmacological intervention (T2), psychiatric assessment (T3), therapeutic communication (T4), problem-solving skills (T5) and psychosocial interventions (T6). The sum of counts and the percentages of agreements amongst participants were calculated for both intervention (MHFA +UEP) and control (UEP) groups at three time points. Codes mentioned most often in the T1 domain were social worker, mental health nurse, CP, psychiatrist and physician. Example codes for the T2 domain are medication and treatment compliance, medication management or education, anti-depressants and antipsychotics. The most frequently cited codes regarding applying psychiatric assessment and clinical skills in mental health nursing for general nursing students for the T3 domain were involving family in the treatment plan, mental state assessment, nursing assessment and care plan. For therapeutic communication, responses that addressed the nurse–patient relationship in the T4 domain were identification of rapport, trust building or therapeutic relationship; understand one's thinking or feeling; caring attitude; empathetic understanding; and understanding and meeting one's needs.

For problem-solving skills, the example codes for the T5 domain were: understanding one's problem and trying to help or solve the problem. Example codes in the T6 domain (different types of psychosocial intervention) were: counselling, substance or alcohol abstinence, family support, social support or participation, providing community or social resources, harm reduction, family counselling, psychoeducation, admission to a ward, social skills

training, peer support, motivation interviewing,<sup>18</sup> psychosocial intervention, cognitive behavioural therapy, mood management and stress management.

The word frequency counts and the percentages of participants who labelled those words for these six categories are tabulated in Table 4.19. Codes frequently mentioned in the T1 domain were social worker (2.1% vs 4.2%) and mental health nurse (1.0% vs 3.1%) for the intervention and control groups, respectively. For pharmacological intervention, the most cited codes for the T2 domain were medication and treatment compliance (11.3% vs 6.3%) and medication management or education (8.2% vs 3.1%) for the intervention and control groups, respectively.

Commonly mentioned codes for the T3 domain were involving family in the treatment plan (4.1% vs 4.1%) and for the T4 and T5 domains, rapport or therapeutic relationship (7.2% vs 4.2%) and understanding one's problems (18.6.1% vs 13.5%), for both the intervention and control groups, respectively. The most cited codes for psychosocial interventions were counselling (27.8% vs 32.3%) and substance or alcohol abstinence (15.5% vs 8.3%) for the intervention and control groups, respectively.

---

<sup>18</sup> Motivational interviewing is an evidence-based, collaborative, goal-oriented style of counselling to help client to address ambivalence and to facilitate the change process (Miller & Rollnick, 1991).

Table 4. 19: Beliefs about Treatment (Word Frequency Counts)

Group x Code count Categories	MHFA + UEP (n = 97)				UEP alone (n = 96)			
	Pre 35 (%)	Post 33 (%)	FU 29 (%)	Total code 97 (%)	Pre 35 (%)	Post 35 (%)	FU 26 (%)	Total code 96 (%)
Seeking professional help (T1):								
Social worker	1 (2.9)	-	1 (3.4)	2 (2.1)	1 (2.9)	2 (5.7)	1 (3.4)	4 (4.2)
Clinical psychologist	2 (5.7)	-	-	2 (2.1)	-	-	-	-
Mental health nurse	1 (2.9)	-	-	1 (1.0)	1 (2.9)	2 (5.7)	-	3 (3.1)
Psychiatrist	1 (2.9)	-	-	1 (1.0)	-	1 (2.9)	-	1 (1.0)
Physician	1 (2.9)	-	-	1 (1.0)	-	-	-	-
Pharmacological intervention (T2):								
Medication & treatment compliance	1 (2.9)	5 (15.2)	5 (17.2)	11 (11.3)	2 (5.7)	1 (2.9)	3 (11.5)	6 (6.3)
Medication management or education	1 (2.9)	3 (9.1)	4 (13.8)	8 (8.2)	1 (2.9)	2 (5.7)	-	3 (3.1)
Anti-depressants	1 (2.9)	-	1 (3.4)	2 (2.1)	-	-	-	-
Antipsychotics	-	-	-	-	-	-	-	-
Psychiatric assessment (T3):								
Involving family in treatment plan	-	-	4 (13.8)	4 (4.1)	-	-	3 (11.5)	4 (4.1)
Mental state assessment	1 (2.9)	1 (3.0)	1 (3.4)	3 (3.1)	3 (8.6)	-	4 (15.3)	3 (3.1)
Nursing assessment/care plan	1 (2.9)	2 (6.1)	-	3 (3.1)	1 (2.9)	-	-	3 (3.1)
Therapeutic communication (T4):								
Rapport/trust building/therapeutic relationship	2 (5.7)	2 (6.1)	3 (10.3)	7 (7.2)	1 (2.9)	2 (5.7)	1 (3.4)	4 (4.2)
Understanding one's thinking/feeling	1 (2.9)	1 (3.0)	1 (3.4)	3 (3.1)	-	3 (8.6)	-	3 (3.1)
Caring attitude	1 (2.9)	1 (3.0)	1 (3.4)	3 (3.1)	2 (5.7)	1 (2.9)	-	3 (3.1)
Empathy or understanding	2 (5.7)	-	-	2 (2.1)	1 (2.9)	-	-	1 (1.0)
Meeting one's needs	1 (2.9)	-	-	1 (1.0)	1 (2.9)	1 (2.9)	-	2 (2.1)

Group x Code count  Categories	MHFA + UEP (n = 97)				UEP alone (n = 96)			
	Pre 35 (%)	Post 33 (%)	FU 29 (%)	Total code 97 (%)	Pre 35 (%)	Post 35 (%)	FU 26 (%)	Total code 96 (%)
Problem-solving skills (T5):								
Understanding one's problems	14 (40.0)	1 (3.0)	3 (10.3)	18 (18.6)	5 (14.3)	7 (20.0)	1 (3.4)	13 (13.5)
Try to help or solve	4 (11.4)	1 (3.0)	1 (3.4)	8 (8.2)	1 (2.9)	3 (8.6)	-	4 (4.2)
Psychosocial interventions* (T6):								
Counselling	9 (25.7)	5 (15.2)	13 (44.8)	27 (27.8)	16 (45.7)	10 (28.6)	5 (19.2)	31 (32.3)
Substance/alcohol abstinence	4 (11.4)	5 (15.2)	6 (20.7)	15 (15.5)	3 (8.6)	5 (14.3)	-	8 (8.3)
Family support	-	1 (3.0)	2 (6.9)	3 (3.1)	1 (2.9)	-	1 (3.4)	2 (2.1)
Social support or participation	1 (2.9)	1 (3.0)	1 (3.4)	3 (3.1)	2 (5.7)	-	1 (3.4)	3 (3.1)
Provide community or social resources	-	1 (3.0)	2 (6.9)	3 (3.1)	-	1 (2.9)	1 (3.4)	2 (2.1)
Harm reduction	-	1 (3.0)	1 (3.4)	2 (2.1)	-	-	-	-
Family counselling	1 (2.9)	-	1 (3.4)	2 (2.1)	-	-	-	-
Psychoeducation	-	-	2 (6.9)	2 (2.1)	-	-	1 (3.4)	1 (1.0)
Admission to a ward	-	2 (6.1)	-	2 (2.1)	-	-	1 (3.4)	1 (1.0)
Social skills training	-	1 (3.0)	-	1 (1.0)	-	-	-	-
Peer support	-	1 (3.0)	-	1 (1.0)	1 (2.9)	-	-	1 (1.0)
Motivation interviewing	-	1 (3.0)	-	1 (1.0)	-	-	-	-
Psychosocial intervention	-	1 (3.0)	-	1 (1.0)	-	-	-	-
Cognitive behavioural therapy	-	-	1 (3.4)	1 (1.0)	-	2 (5.7)	1 (3.4)	3 (3.1)
Mood management	-	-	-	-	1 (2.9)	3 (8.6)	-	4 (4.2)
Stress management	-	-	-	-	1 (2.9)	-	-	1 (1.0)

\* Categories are mutually exclusive; FU = 6-month follow-up.



Table 4. 20: MHFA Intentions (Word Frequency Counts)

Group x Code count Categories	MHFA + UEP (n = 97)				UEP alone (n = 96)			
	Pre 35 (%)	Post 33 (%)	FU 29 (%)	Total code 97 (%)	Pre 35 (%)	Post 35 (%)	FU 26 (%)	Total code 96 (%)
<b>First-aid intentions*</b>								
Approach the person (A1)	31 (88.6)	32 (97.0)	23 (79.3)	86 (88.7)	33 (94.3)	27 (77.1)	15 (57.7)	75 (78.1)
Encourage to get appropriate professional help (E1)	10 (28.6)	23 (69.7)	19 (65.5)	52 (53.6)	14 (40.0)	17 (48.6)	13 (50.0)	44 (45.8)
Encourage other support (E2)	1 (2.9)	13 (39.4)	12 (41.4)	26 (26.8)	3 (8.6)	4 (11.4)	6 (23.1)	13 (13.5)
Give support and information (G)	6 (17.1)	8 (24.2)	11 (37.9)	25 (25.8)	1 (2.9)	2 (5.7)	5 (19.2)	8 (8.3)
Listen non-judgmentally (L)	3 (8.6)	15 (45.5)	5 (17.2)	23 (23.7)	2 (5.7)	2 (5.7)	-	4 (4.2)
Assess and assist with any crisis (A2)	-	19 (57.6)	2 (6.9)	21 (21.6)	2 (5.7)	4 (11.4)	3 (11.5)	9 (9.4)

\* Categories are mutually exclusive, FU = 6-month follow-up.

### 4.8.3 MHFA intentions codes

In the codebook of Table 4.16, the theme 'MHFA intentions', which involves six categories with code numbers, is classified. The sum of counts and the percentages of agreements amongst participants were calculated for both intervention (MHFA +UEP) and control (UEP) groups at three time points. The responses were approach the person (A1); assess and assist with any crisis (A2); listen non-judgmentally (L); give support and information (G); encourage to get appropriate professional help (E1) and encourage other support (E2). Any response that mentioned terms such as 'talking' or 'approaching the person' were included; example codes for the A1 domain were approaching, talking to or interviewing the person. For A2, any response that mentioned a mental health crisis, such as 'violence', 'suicidal', or 'risk', were included; the example codes were assess any danger, potential violence or suicide risk, and help to resolve the crisis. The most cited codes for domains L, G, E1 and E2 were active listening or non-judgmental attitude; give reassurance or provide support and information; persuade patient to seek professional help; and advise other coping strategies or refer to other support groups. The word frequency code counts and percentages for these six categories are tabulated in Table 4.20. Codes in each domain were ranked by priority as follows: A1, E1, E2, G, L and A2 for the MHFA plus UEP group and A1, E1, E2, A2, G and L for the UEP group.

### 4.8.4 Analysis of qualitative data

In Table 4.21, Mann–Whitney Tests were performed to compare text-based responses between groups at three time points.<sup>19</sup>

---

<sup>19</sup> File 8 (Mann–Whitney tests for text-based responses).

The results revealed no statistically significant difference between groups in three outcome variables (recognition of disorders, beliefs about treatment and MHFA intentions) with  $p > 0.01$ , after the Bonferroni adjustment. The qualitative findings did not support that the two groups of nursing students had significant different in MHL knowledge and help-related behaviours word-frequency counts.

Table 4. 21: Mann–Whitney Tests Analysis in Text-based Responses

Measure		<i>n</i>	mean	SD	U	<i>p</i> value <sup>1</sup>
Recognition of disorders	T1	109	7.00	6.81	1424.50	0.72
	T2	142	5.99	4.48	2381.50	0.57
	T3	111	5.59	4.01	1438.50	0.69
Beliefs about treatment	T1	96	17.18	6.45	897.00	0.06
	T2	83	17.99	7.41	781.50	0.52
	T3	77	17.09	6.64	562.50	0.42
MHFA intentions	T1	106	37.41	1.85	1348.00	0.69
	T2	166	38.00	1.88	2722.50	0.21
	T3	114	38.46	1.97	1474.50	0.82

<sup>1</sup> $p < 0.01$  after Bonferroni adjustment, SD: standard deviation, U = Mann–Whitney.

#### 4.9 Summary of Qualitative Results

In qualitative data, content analysis was used to examine three open-ended questions and the themes relate to the outcome variables, including recognition of disorders, beliefs about treatment and MHFA intentions. For recognition of disorders, the most frequently cited codes by participants in MHFA plus UEP and UEP groups related to correct labelling and identification of mental health problems were depression, schizophrenia, substance abuse, hallucinations, social withdrawal and paranoia. Responses related to beliefs about treatment were grouped into six categories: seeking professional help, pharmacological intervention, psychiatric assessment, therapeutic communication, problem-solving skills and psychosocial interventions.

For beliefs about treatment, the frequently mentioned codes by participants in both intervention and control groups for these six categories were listed as follows: social worker, mental health nurse, medication and treatment compliance, medication management or education, involving family in the treatment plan, rapport or therapeutic relationship, understanding one's problems, counselling, substance or alcohol abstinence, and family support.

The MHFA intentions codes by participants in both intervention and control groups were ranked by priority as follows: approach the person, encourage to get appropriate professional help, encourage other support, give support and information, listen non-judgmentally, and assess and assist with any crisis for the MHFA plus UEP group. Approach the person, encourage to get appropriate professional help, encourage other support, assess and assist with any crisis, give support and information and listen non-judgmentally were ranked by priority for the UEP group.

Mann–Whitney tests non-parametric results revealed no statistically significant difference between intervention and control groups for text-based responses. Therefore, the qualitative findings did not support that the two groups of nursing students had any difference in MHL knowledge and help-related behaviours word frequency counts.

#### 4.10 Adverse Events

An adverse event is defined as any unintended signs, including suicidal and self-harm behaviours, and very unstable mental states (Watanabe *et al.*, 2015). Given this was an educational intervention with a non-clinical sample, there were no study-related adverse events reported by participants during the trial in MHFA group.

During the intervention, one nursing student recalled his experience of sudden onset of panic attacks in the lecture during his first year of nursing education. He shared his illness experience with the class that he could not breathe for fear of dying as his heart was pounding intensely. No one in the class could offer help, so he stopped school for six months to seek treatment. During his sharing, the other nursing students were attentive and asked questions related to his underlying symptoms. Afterward, the MHFA instructor offered him emotional debriefing. Some students commented that they were upset because the introduction session was too long.

Ignoring missing data leads to reduce statistical power; therefore, a detailed analysis of missing values, PP and ITT was essential. The attrition rate for the current study was 21.4%, the missing data was related to drop-outs and loss to follow-up. ITT is a standard practice, PP may be biased if study withdrawals exclude. The

results from the sensitivity analysis suggested that ITT and PP provide similar conclusions; therefore, an overall conclusion can be safely drawn about the robustness.

#### 4.11 Overall Summary

In this female-predominant sample (80% in the MHFA plus UEP group and 83% in the UEP group), all participants were Chinese. The CONSORT diagram was presented to illustrate participants' flow. Seventy students were recruited into the trial; the recruitment rate was 28%. The retention rates for each group were 82.9% and 74.3% for the MHFA plus UEP group and UEP group, respectively. Fifteen students withdrew, with an attrition rate of 21.4%.

In the MHFA plus UEP group, the compliance rate was 94.2%, and 33 students responded to the MHFA evaluation form to rate their satisfaction with a 10-point Likert scale. The mean and standard deviation were  $8.3 \pm 1.02$  for the overall satisfaction with the MHFA programme. Participants provided feedback on MHFA benefits and suggestions. The first three categories identified for MHFA benefits were: improved knowledge of mental health and illness (63.6%), improve knowledge of ALGEE strategies (27.3%) and ability to help (24.2%). The top-three categories identified for suggestions were: improvement in more engagement activities (33.3%), administrative issues (28.6%) and future similar mental health topics (23.8%).

The five MHL outcome variables were recognition of disorders, beliefs about treatment, attitudes, MHFA intentions and confidence in providing help. Shapiro–Wilk tests of normality showed that variables beliefs about treatment and attitudes were not statistically significant at 5% level and the other variables were

statistically significant at 5% level. The reliability for attitude scale was 0.73 regards as acceptable. All variables were tested for assumption of sphericity and homogeneity based on the process for conducting repeated measures ANOVA.

In ITT, 70 students were recruited and randomised. In PP, 55 students completed the treatment protocol, while 15 students were drop-outs and lost to follow-up. The missing data were assumed MAR, as missing values related to gender and education level. MI was used to handle missing data. Little's MCAR  $\chi^2(23) = 41.1, p = 0.01$  was statistically significant at 5% level to support MAR assumption.

In the ITT sample, there were statistically significant positive effects over group and time for all variables using the mean pooled MI data. Findings indicated that MHFA plus UEP group showed significant improvements in recognition of disorder  $F(1,403) = 4.87, p = 0.03, \eta_p^2 = 0.01$ , beliefs about treatment  $F(1, 403) = 88.09, p < 0.001, \eta_p^2 = 0.18$ , attitudes  $F(1,403) = 19.43, p < 0.001, \eta_p^2 = 0.05$ , MHFA intentions  $F(1, 403) = 195.08, p < 0.001, \eta_p^2 = 0.33$  and confidence in providing help  $F(1,403) = 5.73, p = 0.02, \eta_p^2 = 0.01$ . There were statistically significant interaction effects on recognition of disorders  $F(1.86, 748.82) = 3.06, p = 0.05, \eta_p^2 = 0.01$ , beliefs about treatment  $F(2, 806) = 16.77, p < 0.001, \eta_p^2 = 0.04$ , attitudes  $F(1.92, 773.05) = 22.50, p < 0.001, \eta_p^2 = 0.05$  and MHFA intentions  $F(1.97, 794.90) = 80.74, p < 0.001, \eta_p^2 = 0.17$ . The post hoc tests indicated a statistically significant improvement in all variables from baseline to post-intervention, with  $p < 0.05$ , and a significant improvement from post-intervention to six-month follow-up, with  $p < 0.05$  for all outcome variables except confidence in providing help. The results of the ITT and PP analyses were similar to SA for comparison; therefore, the conclusion was considered robust.

In the PP sample, there were statistically significant positive effects over group and time for beliefs about treatment ( $p = 0.01$ ,  $\eta_p^2 = 0.14$ ), attitudes ( $p = 0.02$ ,  $\eta_p^2 = 0.10$ ) and MHFA intentions ( $p < 0.001$ ,  $\eta_p^2 = 0.30$ ). For MHFA intentions, there were statistically significant interaction effect with  $F(2,106) = 9.41$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.15$ . Post hoc tests indicated there were statistically significant gains in beliefs about treatment, attitudes and MHFA intentions from baseline to post-intervention, with  $p < 0.05$ , and a significant time effect from post-intervention to six-month follow-up, with  $p < 0.001$  for MHFA intentions.

In random order of vignettes, the percentage of nursing students who received a random vignette sequence ranged from 6.9% to 13.8% for the intervention group and 0 to 23.1% for the control group. Mann–Whitney nonparametric tests indicated that there were no statistically differences in respondents' outcome variables across all eight random vignette sequences at  $p < 0.01$  level after Bonferroni adjustment. The findings indicated that the random order of vignettes have no effects on the two groups of nursing students. The qualitative findings did not support that the two groups of nursing students had any difference in MHL knowledge and help-related behaviours word-frequency counts. Repeated measure ANOVAs supported the attribution model with interaction effect on controllability and main effect on danger measure.



# **CHAPTER 5**

**DISCUSSION**

**AND**

**CONCLUSIONS**

## 5.1 Introduction

The chapter discusses the concordance and divergence of the quantitative and qualitative findings from the existent literature. The key findings of this RCT were a significant improvement in beliefs about treatment, attitudes and MHFA intentions for the intervention group when compared with the control group. The quantitative data support that the MHFA training was effective improving MHL in terms of knowledge, attitudes and help-related behaviours. However, the qualitative findings did not support that the two groups of nursing students had any difference in MHL knowledge in terms of recognition of disorders, beliefs about treatments and MHFA intentions word frequency counts after the intervention. The results found no significant interaction effects over time for recognition of the depression and schizophrenia vignettes, which may be due to ceiling effects.

Many obstacles were encountered during the recruitment and retention of nursing students. Students dropped out for various reasons, such as work, illness or loss of contact. The implemented strategies to reduce drop-outs included keeping in regular contact via phone and email, sending weekly reminders via email and providing light refreshments in class to reduce the attrition rate.

This chapter considers the feasibility and validity of vignettes and critically evaluates concepts such as order effects (practice, carryover and interference) and ways to reduce them. Violations of response consistency and vignette equivalence and the factors affecting these violations include social desirability bias, first-person approach, ethnic bias and measurement errors are further explored.

The following section discusses the strengths and limitations of this study. This study was the first RCT of the MHFA programme for general nursing students in Hong Kong. The factors affecting the generalizability of results include Hawthorne effect, code reliability issues and internal validity of the vignette methodology. The results of this study support the attribution model of danger; this negative attitude has a significant impact in clinical practice and the nursing profession. The current RCT was powered to detect moderate to large effects with partial eta-squared ranging from 0.04 to 0.30, indicating clinical meaningful results. The findings can be replicated in a future study with a clear indication of improvement in protocol amendments, female-dominated sampling and methodological validity.

## **5.2 Concordance with and Divergence from the Existent Literature**

The key findings of this RCT were a significant improvement in beliefs about treatment ( $p = 0.01$ ), attitudes ( $p = 0.02$ ) and MHFA intentions ( $p < 0.001$ ) for intervention group when compared with the control group. Evaluations of MHFA in the current study had found benefits to nursing students in knowledge of mental health and illness, ALGEE strategies and the ability to help. Similar to other nursing studies (Bond *et al.*, 2015; Burns *et al.*, 2017), the current study found a significant improvement from baseline to post-intervention for beliefs about treatment, attitudes and MHFA intentions. However, there were no significant improvements from baseline to six-month follow-up for all variables except MHFA intentions. The main targets for the MHFA are to stimulate people to seek professional help (Svensson & Hannsson, 2014) and use ALGEE as a take-home message (i.e. Approach the person; Assess and assist with any crisis; Listen non-judgmentally;

Give support and information; Encourage appropriate professional help; and Encourage other support). Nursing students may recall these ALGEE strategies after a six-month time, contributing to a significant sustainable effect in MHFA plus UEP group in the six-month follow-up period.

In PP analysis, quantitative results suggested there were statistically significant positive effects over group and time for beliefs about treatment, attitudes and MHFA intentions. Besides, ITT analyses reveal statistically significant results for all outcome variables. Therefore, the quantitative data support that MHFA training was effective to improve MHL in terms of knowledge, attitudes and help-related behaviours. On the other hand, in text-based responses, Mann–Whitney tests revealed statistically non-significant results for text-based responses in recognition of disorders, beliefs about treatment and MHFA intentions for two groups of nursing students. These non-significant results in qualitative data may be due to the missing values of text-based responses as shown in Tables 4.17–4.19 and the fact that the MHLQ relies solely on participants' answers based on open-ended questions (Malhortra, 2009; O'Connor, Casey & Clough, 2014).

Nursing students were able to recognise correct labels for depression and schizophrenia vignettes; however, the results found no significant interaction effect over time for recognition of disorders, which may be explained by 'ceiling effects'. The percentages of students able to recognise depression and schizophrenia vignettes at the baseline were 72% vs 94% for the MHFA plus UEP group and 88.2% vs 83.3% for the UEP group, respectively. The recognition score for depression was similar to other studies for nursing students (Bond *et al.*, 2015, Burns *et al.*, 2017; Seow *et al.*, 2017), and there was a higher score for schizophrenia vignette than the nursing students in Singapore

(Seow *et al.*, 2017). The baseline scores in this RCT were higher than for other population groups, such as adolescents, young adults and the Chinese population (Klineberg *et al.*, 2011; Lui, Wong & Furnham, 2016; Melas *et al.*, 2013; Reavley & Jorm, 2011; Reavley, McCann & Jorm, 2012; Wong & Li, 2012; Wong & Xuesong, 2011). On the other hand, the scores were not statistically significantly different from those of health-care students in fields such as medicine, pharmacy and social work (Bond *et al.*, 2015; Martin, 2016; O'Reilly *et al.*, 2011). This indicates that subjects that were included in previous mental health training for nursing, and health-care students did have some effect on recognition scores more than the general population who would have no previous training on mental health.

Confidence in supporting and help seeking is a key component of the MHFA course (Kitchener & Jorm, 2004, 2006, 2008). The current study indicated there were no statistically significant results for confidence in providing help in the PP sample; however, the statistically significant results were promising in the ITT sample with increased sample size. Moreover, the effect sizes were small (partial eta-squared, 0.01 and 0.04) for both samples. Future study should require a larger sample size to detect significant group difference.

The qualitative findings in the present study are consistent with those of previous qualitative studies with MHFA participants and graduates (Jorm *et al.*, 2005b; Lucksted *et al.*, 2015; Mendenhall *et al.*, 2013; Svensson, Hansson & Stjernswärd, 2015) for improving MHL among nursing students. The open-ended responses produced a rich text dataset for MHFA research. Content analysis identified six categories of beliefs about treatment, and the interventions or activities selected for measurements were different from other nursing studies (McCann & Clark, 2010; McCann, Lu & Berryman, 2009). Nursing

students' self-reported knowledge and skills increased after clinical courses, particularly mental health skills such as mental health assessment, risk assessment, the nursing process in psychiatry, medication administration and therapeutic communication (Fiedler *et al.*, 2012). In a clinical setting, nursing students' behaviour, attitudes, communication skills, and physical and emotional demeanour (Cleary & Horsfall, 2010) were found to be very important for the delivery of psychosocial care (MacNeela *et al.*, 2010) to mental health patients. Problem-solving includes adopting a positive problem orientation, problem formulation, generating alternative solutions, evaluating options, implementing solutions and evaluating the solution performance (Palermo *et al.*, 2014). In the current study, 43 nursing students as shown in Table 4.19 used these problem-solving skills, i.e. problem formulation in their responses such as understanding patient's problems and trying to help or solve, so they were included in the text-based responses analysis.

Personal responsibility beliefs were significant in determining the nursing students' thoughts and feelings towards the character (Wah) depicted in the schizophrenia vignette. Some students in both groups believed that Wah's behaviour was caused by substance/alcohol abuse (63.3%) as shown in Table 4.18 and that he was likely responsible for his behaviour (interaction effect 0.34 as shown in Table 4.15. This indicates that the interaction between group and time accounted for 34% of the total variability in the controllability score) and that he had a heightened risk of violence (7.3%) in Table 4.18. Text-based responses for some participants believed that mental health rehabilitation such as admission to a ward and substance/alcohol abstinence was required to protect society from people considered dangerous to others (Corrigan, 2000). Psychosocial interventions for substance abuse were recommended to Wah, including

counselling, cognitive behavioural therapy, family support, social support, harm reduction and motivation interviewing. Some participants demonstrated an acceptable empathetic attitude towards substance abuse (McKenna *et al.*, 2012): 61 participants identified a substance-related psychotic disorder, and 22 participants offered help such as abstinence information, harm reduction and motivation interviewing. The perceived helpful interventions include mental health nurses, counselling, cognitive behavioural therapy and hospitalisation. These findings were consistent with those final-year nursing students in Australia (McCann, Lu & Berryman, 2009).

The top-three MHFA intentions mentioned by participants in both groups were approaching the person, encouraging professional help and encouraging other support. Assessing the crisis and listening were mentioned the least. The ranking was different from Western studies, where respondents often mentioned first-aid actions such as listening, providing support and information and encouraging professional help (Jorm *et al.*, 2005a, 2010a; Kelly *et al.*, 2011; Rossetto, Jorm & Reavley, 2016; Yap, Wright & Jorm, 2011b; Yoshioka *et al.*, 2015).

### **5.3 Recruitment and Attrition**

Multiple barriers were identified during recruitment, and the recruitment rate of 28% was regarded as low comparing to 91% in Burns' *et al.* (2017) study. In the current study, the most frequently cited obstacle by eligible participants was a lack of interest in the project. In recent years, the Mental Health Ambassador Program (MHAP) was established on the campuses of various universities in Hong Kong to equip students with basic knowledge of mental health and to help promote mental health

skills. The MHAP offers a free MHFA training course in English, Putonghua and Cantonese to all university students in Hong Kong. Additional MHAP were established at universities after a 'worrying trend' of an increase in the youth suicide rate from 6.2 per 100,000 in 2014 to 8.5 per 100,000 in 2015 (Blundy, 2016). Due to these difficulties, the recruitment strategy shifted to target a batch of nursing students from a different institution/university without an MHAP history at their university. Most of those students had never heard of MHFA, so some consented to join the current project. Additional barriers were nursing students' involvement in work as a TUNS and conflicts with part-time job scheduling during the recruitment period.

All participants who missed a session were contacted to learn the reasons for their absence. Two participants were absent during the post-assessment period: one said she was sick, and the other said she was no longer interested in the project. The sick student was offered an extra class, but she did not attend. Absenteeism became another challenge, namely because the intervention took place between May and October and overlapped with nursing students' final examinations and the start of the new semester.

In an attempt to counter absenteeism and possible attrition, the researcher implemented strategies to reduce drop-outs, including keeping in regular contact via phone and email, sending weekly reminders via email and providing light refreshments in class to improve retention rate (Greenberg & Barnow, 2014). Subsequently, 55 students (retention rate for the MHFA group was 82.9% and UEP group was 74.3%, respectively) completed the final six-month follow-up assessment: 29 students in the MHFA plus UEP group and 26 in the UEP group. Fifteen students withdrew during the intervention period (attrition rate = 21.4%)—six in the MHFA plus UEP group and nine in the UEP group—because of work, illness or loss of contact. The drop-out rate was



12.9% for the UEP group, with nine students who did not respond to the six-month follow-up questionnaire. It is understandable that some participants lacked motivation or encountered work schedule interference, as final-year students already had graduated and started their general nursing career at the six-month follow-up assessment. The attrition rate in this study was 21.4%, which is regarded as high in comparison with 39.8% in Burns *et al.*'s (2017) study, where their sample size was 181.

In summary, the most effective strategy for retention is to offer small monetary incentives, such as cash or vouchers, to improve questionnaire responses in randomised trials (Bower *et al.*, 2014). However, the budget for the current project was limited, and the hospital funding provided just enough to cover the administrative costs to run the course, so monetary incentives were not provided.

#### **5.4 Feasibility and Validity of Vignettes**

Two key assumptions (RC and VE) were a critical step in evaluating the validity of the vignette approach (Peracchi & Rossetti 2010). Mann–Whitney tests in Table 4.14 indicated the statistical non-significance of order effects in vignettes. Order effect is the choice of presentation order of the vignettes, which may significantly affect respondents' answers (Malhortra, 2009). Priming effects occur when information presented earlier establishes a reference point that guides the interpretation of later information (Hogarth & Einhorn, 1992). Recency effects occur when '*respondents are more likely to select items listed last*' (Auspurg & Jäckle, 2017, p. 4).

Order effects occur for many reasons. In Table 4.13, some participants received the same vignette, and practice effects occurred when participants warmed up or improved their performance over time and carryover effects occurred when the effect of an experimental condition carried over, influencing performance in a subsequent condition (Shaughnessy *et al.*, 2006). Other participants received different vignettes, and interference effects occurred when previous responses disrupted performance on a subsequent task, and the response required in the second vignette conflicts with the response required in the first vignette (Shaughnessy *et al.*, 2006). Practice effects can be reduced by providing a warm-up exercise before the intervention begins. Carryover and interference effects can be reduced by increasing the amount of time between conditions (Shaughnessy *et al.*, 2006). Counterbalancing is a process of systematically varying the order of conditions so that each condition is presented equally often in each ordinal position; the aim is to remove systematic bias caused by practice effects (Field, 2013).

However, violations of RC and VE may have existed in the two groups of nursing students. The limitation of RC relies on the availability of an objective measure of the concept of interest. However, it is pointless to use vignettes if objective measures are available (Peracchi & Rossetti, 2010). The objective outcome measure in the current RCT was based on nursing students' subjective view of the vignettes. Violations of RC and VE are common (Au & Lorgelly, 2014; Bago d'Uva *et al.*, 2011; Hanandita & Tampubolon, 2016). Violation of VE would occur if the two groups of nursing students systematically interpreted the vignette texts in different ways (Grol-Prokopczyk *et al.*, 2015). Violation of RC would occur if the nursing students did not rate the vignettes and themselves in the same way (Au & Lorgelly, 2014) or if they held themselves to different standards than the vignette character.

For example, a clear demonstration is the percentage of incorrect recognition for both depression and schizophrenia was 33.7% for the MHFA plus UEP group and 28.5% for the UEP group, as shown in Table 4.1. These percentages indicate that the nursing students did not rate the vignettes in the same way in correct recognition.

Social desirability bias refers to participants giving socially acceptable responses to vignette questionnaires rather than honest answers (Neuman, 2006). In the current study, the researcher minimised this type of bias by ensuring the anonymity and confidentiality of information provided by the participants during data collection (King & Bruner, 2000). Some nursing students used the first-person approach as if they were the vignette character (Wah), especially those who had family members with a similar mental health problem, who often provided advice to Wah encouraging her to seek early treatment. Likewise, other students believed that Wah was just random people in the scenarios; for example, the vignette characters' ethnicity (i.e. Pakistani or mainland Chinese) differed from their own (i.e. Hong Kong Chinese). Moreover, the descriptions of the ethnicity of the character as 'mainland Chinese immigrant' or 'Pakistani' imply some negative stereotypes and perceived discrimination in Hong Kong (Law & Lee, 2016; Ng *et al.*, 2015).

To conclude, there are no straight-forward predictions and explanations of order effects, as no single theory can predict their occurrence (McClendon, 1991). Inconsistencies in vignette ordering are more likely to occur because of measurement errors than because of the multidimensionality or cultural variation of the constructs of a domain (Grol-Prokopczyk *et al.*, 2015; Rice, Robone & Smith, 2011). For example, in Table 4.14, both Mann–Whitney U and  $p$  values were shown to be zero for Seq. 2, 5, 6 and 8, respectively, and it represented some measurement errors

in the randomisation of vignettes between the two groups of nursing students. To ensure high internal validity in vignettes, participants read the vignettes themselves and were blinded to their assigned group (Eldridge *et al.*, 2008). Vignettes were rated by an independent expert panel and the researcher calculated high ICRs for recognition of disorders, beliefs about treatment and MHFA intentions to support the high reliability of the vignettes. Adding vignettes to surveys is costly and their inappropriate use to correct interpersonal incomparability may lead to misleading conclusions (Peracchi & Rosseti, 2010). The key reason for the use of vignettes in research is their flexibility (O'Dell *et al.*, 2012).

## **5.5 Strengths and Limitations of the Study**

This study was the first RCT of the MHFA programme for general nursing students in Hong Kong. The application was based on the 'real-world' applicability of the MHFA programme worldwide. Although results from this trial should be interpreted with caution, the findings are consistent with the conceptual model of MHL. The current RCT was conducted following a rigorous study design—a gold standard. The strength of the study design is the inclusion of qualitative content analysis to provide a deeper understanding of the research phenomenon. The findings provide evidence that MHFA and MHL in Western cultures can be a promising intervention across cultures for enhancing knowledge, attitudes and help-related behaviours for general nursing students.

General nursing students from three institutions/universities in Hong Kong were recruited during their clinical placement in KCH psychiatric institution so the findings may be less generalizable to nursing students from other universities and other health-care institutions. The sample was restricted to senior undergraduate

nursing students, thus limiting the representativeness of the sample.

Due to participants' preconceived benefits of the MHFA programme and the Hawthorne effect with participants' awareness of the interventions or desire to please the investigator, they may have changed their behaviour simply because of the attention they received, regardless of the experimental manipulation (Sedgwick, 2015b). However, the results did not reveal a significant change in help-related behaviour (confidence in providing help) between the MHFA plus UEP and the UEP group. The degree of the Hawthorne effect may have been lessened as mixed methods, including qualitative and quantitative approaches (Akobeng, 2016; Orsmond & Cohn, 2015; Thabane *et al.*, 2010), were used in the current study.

The current study has several limitations to consider. Coding reliability was problematic as the principal investigator took part in the study as a coder, and this practice was discouraged as the investigator's knowledge of the study hypotheses could potentially bias the results (Labrie & Schulz, 2015). Coding in a group can result in some group members have more influence than others, resulting in measurement errors (Lacy *et al.*, 2015). Coding training was conducted orally, and written coding instructions were shaped by back-and-forth discussions between coders, which were not documented in the coding protocol (Zamith & Lewis, 2015). Coding is time-consuming and expensive. Unaddressed discrepancies in the codebook include problems such as vague code definitions, lack of mutual exclusivity between codes and lack of shared understanding of the procedures for using specific codes (Popping, 2015). Interpretive convergence involves a process that clarifies terms and code definitions. Code consensus can be influenced by supervision, interpersonal persuasion, conformity and training effects (Hruschka *et al.*, 2004).

ICR was established by means of a randomly drawn sub-sample; it was not tested over time using different coders and IRR was not measured. Future studies should address these limitations and employ multiple, independent coders to ensure optimal validity.

The reliability coefficient was 0.73 for the attitude scale in this study. However, a reliability coefficient of 0.80 or greater is highly desirable for group-level comparisons such as experimental versus control (Polit & Beck, 2012). The international research of MHFA papers commonly use social distance scale (Link *et al.*, 1999), personal stigma scale and perceived stigma scale (Griffiths *et al.*, 2004; 2006), respectively, to assess stigmatising attitudes. The results for the current study may not be generalizable to other studies with different psychometric measurement tools.

The internal validity of the vignette methodology was affected, as the vignette questions may not have been sensitive enough to measure changes in knowledge and MHFA intentions, leading to non-significant results in text-based responses. Currently there is limited consensus regarding the most appropriate way to measure MHL (O'Connor *et al.*, 2014). Therefore, no recognised sets of vignettes are used by different researchers; some researchers replicated by borrowing or devised their own, leading to confusion and lack of replication of results (Furnham & Hamid, 2014). The use of self-reported scales may be affected by social desirability bias and scale based on vignettes that do not represent real-life situations. More well-constructed vignettes and validated measurement tools for knowledge and help-seeking intentions could be recommended in future studies, for example, MAKs, Mental Health Literacy Scale and RIBS with good psychometric properties (Evan-Lecko *et al.*, 2010; 2011; O'Connor & Casey, 2015; Wei *et al.*, 2016).

## 5.6 Implications for Clinical Practice

The current study provided evidence that MHFA plus UEP, as compared to UEP alone, significantly increased knowledge and help-related behaviours and reduced attitudes towards mentally ill individuals for general nursing students. The findings support Happell *et al.* (2014) that MHFA should be a prerequisite for preregistration nurse education and should be offered as an additional training course or mandatory (Kelly & Birks, 2016) for undergraduate nursing students, similar to physical first-aid in basic life support training. The results from the current study could help nursing students be aware of and resolve anxieties and conflict arising in a clinical setting. The findings may help students maintain their own mental health and improve encounters people with mental health difficulties in a primary health setting.

The current study supports the attribution model. For both groups, 7% of nursing students believed that Wah in the schizophrenia vignette had potential violence; the violence propensity and afraid talking measures for danger were statistically significant, as shown in Table 4.15. Negative attitudes towards mentally ill individuals and mental health nursing have prevailed for undergraduate nursing students (Happell & Gaskin, 2013). Therefore, negative attitudes in the nursing profession exist in general medical settings. Stereotypical beliefs about mental illness are based on media-generated and historical misrepresentations (Ross & Goldner, 2009). Stigma by association refers to those who are associated with the mentally ill, such as caregivers of the mentally ill and mental health nurses, being judged by the same stigmatising stereotypes (Halter, 2008; Thornicroft, 2006). Nursing students are future health professionals, and the provision of a high-quality health service requires a nursing workforce with positive attitudes towards

people experiencing mental illness. The findings of this RCT are likely to be of interest and of use to administrators and educators who may wish to include MHFA in nursing training curricula and in continuing education such as 'basic nurse' training for those not undertaking mental health nursing or MHAP programme in campus (Bonnar, 2015; Hung, 2017).

The effect size is one of the most important indicators of clinical significance (Abdulatif, Mukhtar & Obayah, 2015; Akobeng, 2016); however, the poor statistical reporting practices of priori power analysis initially found in mental health nursing research (Gaskin & Happell, 2013). Nurse researchers interpreted their findings solely through the lens of null hypothesis statistically significance testing; however, they seldom reported and interpreted effect sizes in their findings (Gaskin & Happell, 2014). Researchers run the risk of incorrectly interpreting a statistically non-significant, but clinically meaningful, result as unimportant or a statistically significant, but clinically unhelpful, result as important (Gaskin & Happell, 2014; Houle & Stump, 2008). Clinical importance addresses the magnitude of the actual treatment effect, whereas statistical significance quantifies the probability of a study's results being due to chance (Ranganathan *et al.*, 2015). Clinical significance specifies what difference between treatments would lead clinicians to change practice and whether the change makes a real difference to subject lives (Farrokhyar *et al.*, 2013). Mental health nursing studies are, on average, adequately powered for moderate effect sizes (Gaskin & Happell, 2014).

This RCT was powered to detect moderate to large effects, with partial eta-squared ranging from 0.04 to 0.30 indicating clinical meaningful results. Recruiting a small sample can be a waste of participants' contributions, funding, and efforts from host institutions; similarly, recruiting a large sample can be a waste of



resources (Gaskin & Happell, 2014). Larger effect sizes require a lower sample size to observe differences between groups if the groups are further apart. Likewise, to detect relatively small effect sizes, a very large study is needed (Brown, 2015).

## 5.7 Future Research Directions

Data analysis results from the six-month follow-up suggest that the sustainability of the effectiveness of any intervention is questionable, as long-term follow-up has been associated with increased drop-out rates (Fewtrell *et al.*, 2008). The benefits of replicating this study in future research, with a clear indication of protocol amendments, include the following:

- Expanding the age range of students admitted into the study;
- Designing a well-constructed and succinct vignette questionnaire and using the coding results from the current study to form forced-choice response options, alongside a free-text 'other' option to prevent missing items for open-ended questions;
- Liaising and working with local universities interested in future projects for consent and recruitment of larger sample;
- Expanding the population to different target groups such as pre-nursing and mature nursing students; and
- Using a multicentre controlled trial.

These criteria are recommended to increase the validity and generalizability of findings.

The average percentage of female participants was 87% in MHFA studies of nursing students (Bond *et al.*, 2015; Burns *et al.*, 2017; Clement *et al.*, 2012a; Cowley *et al.*, 2016; Ewalds-Kvist *et al.*, 2013; Granados-Gómez *et al.*, 2016; Kelly & Birks, 2016;

Markström *et al.*, 2009; McCann, Lu & Berryman, 2009; McCann & Clark, 2010; Sadow & Ryder, 2008). In the current study, the average percentage of female participants was 81.5% for both groups combined. Drop-outs were high for male participants, as shown in Table 4.6, the total drop-outs for male was 25.7% and for female was 22.9%. However, over-representation of female is reflective of the nursing workforce (HWA, 2013).

During the write-up period of the research in September, my hospital (KCH) organised and launched a community mental health promotion project for MHFA. The project was in collaboration with the local district council and the local university in Hong Kong to launch a graduation ceremony for MHFA graduates. A few scholars, including Jorm and Kitchener, were invited to this event, and other local scholars presented updated messages on MHFA. Meanwhile, Jorm and Kitchener recorded a video message that recognised KCH as the third training centre of MHFA International in Hong Kong. This activity was later reported by local media to promote mental health awareness. Therefore, MHFA and MHL research have a great impact on and significance regarding future mental health and anti-stigma research directions as the MHL concept is relatively new (Wei *et al.*, 2016).

## 5.8 Conclusions

MHFA training appears to be effective for improving knowledge, attitudes and help-related behaviours for general nursing students. This study was the first RCT of MHFA training for general nursing students in Hong Kong. A strength of the study design was the use of qualitative content analysis to gain a deeper understanding of the research phenomenon. The limitations of

the study were a high attrition rate, a single study site, presence of the Hawthorne effect, problems in coding reliability and discrepancies in the codebook. The results from this RCT could assist nursing students to promote their own mental health. MHFA and clinical placements contributed to positive changes in attitudes and helped students to bridge gaps in knowledge and remedy skill deficits.

There are benefits of replicating this study in future research with a clear indication of protocol amendments, such as expanding the age range of participants to include pre-nursing or mature nursing students and using validated measurement tools such as the Mental Health Literacy Scale. The researcher aims to disseminate the findings in an open-access journal. To my understanding, this study is an original and poses a unique contribution to nursing knowledge.

# REFERENCES

Abdulatif, M., Mukhtar, A. & Obayah, G. (2015) Pitfalls in reporting sample size calculation in randomised controlled trials published in leading anaesthesia journals: A systematic review. *British Journal of Anaesthesia*. 115 (5), pp. 699–707.

Abma, F., van der Klink, J., Terwee, C. *et al.* (2011) Evaluation of the measurement properties of self-reported health-related work functioning instruments in workers with common mental disorders: A systematic review. *Scandinavian Journal of Work, Environment & Health*. 38, pp. 5–18.

Akobeng, A.K. (2005) Understanding randomised controlled trials. *Archives of Disease in Childhood*. 90, pp. 837–840.

Akobeng, A.K. (2016) Understanding type I and type II errors, statistical power and sample size. *Acta Pædiatrica*. 105, pp. 605–609.

Allen, D. (2004) Ethnomethodological insights into insider-outsider relationships in nursing ethnographies of healthcare settings. *Nursing Inquiry*. 11, pp. 14–24.

Alshurafa, M. *et al.* (2012) Inconsistent definitions for intention-to-treat in relation to missing outcome data: Systematic review of the methods literature. *PLoS One*. 7(11), pp. e49163. Available from: DOI [10.1371/journal.pone.0049163](https://doi.org/10.1371/journal.pone.0049163) [Accessed 16 June 2018].

Altman, D.G. (1991) *Practical Statistics for Medical Research*. London: Chapman & Hall.

American Psychiatric Association, ed. (2000) *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Washington, DC: American Psychiatric Association.

## References

- Andrews, G., Sanderson, K., Corry, J. and Lapsley, H. M. (2000) Using epidemiological data to model efficiency in reducing the burden of depression. *The Journal of Mental Health Policy and Economic*. 3, pp. 175–186.
- Angermeyer, M.C. Holzinger, A. and Matschinger, H. (2009) Mental health literacy and attitude towards people with mental illness: A trend analysis based on population surveys in the eastern part of Germany. *European Psychiatry*. 24, pp. 225–232.
- Arnusch, S. (2011) Your mental health primer: Understanding the different types of mental disorders. *Balance Fall*. pp. 10–11.
- Au, N. and Lorgelly, P.K. (2014) Anchoring vignettes for health comparisons: An analysis of response consistency. *Quality of Life Research*. 23, pp. 1721–1731.
- Auspurg, K. and Jäckle, A. (2017) First equals most Important? Order effects in vignette-based measurement. *Sociological Methods & Research*. 46(30), pp. 490–539.
- Bago d’Uva, T., Lindeboom, M., O’Donnell, O. and van Doorslaer, E. (2011) Slipping anchor? Testing the vignettes approach to identification and correction of reporting heterogeneity. *Journal of Human Resources*. 46 (4), pp. 875–806.
- Barrett, P. and Jackson, A. (2013) Swimming without the water: A critical perspective on mental health experience for adult nursing students. *Nurse Education in Practice*. 13, pp. 487–491.
- Barry, S. and Ward, L. (2017) Undergraduate nursing students’ understandings of mental health: A review of the literature. *Issues in Mental Health Nursing*. 38 (2), pp. 160–175.
- Barter, C. and Renold, E. (1999) The use of vignettes in qualitative research. *Social Research Update*. 25, pp.1–4.

## References

- Bayar, M.R., Poyraz, B.C., Aksoy-Poyraz, C. and Arikan, M.K. (2009) Reducing mental illness stigma in mental health professionals using a web-based approach. *Israeli Journal of Psychiatry and Related Sciences*. 46 (3), pp. 226-230.
- Bell, M.L., Fiero, M., Horton, N.J. and Hsu, C.H. (2014) Handling missing data in RCTs; a review of the top medical journals. *BMC Medical Research Methodology*. 14, p. 118.
- Birnbaum, M.L., Wan, C.R., Broussard, B. and Compton, M.T. (2017) Associations between duration of untreated psychosis and domains of positive and negative symptoms. *Early Intervention in Psychiatry*. 11 (5), pp. 375–382.
- Blundy, R. (2016) For young Hongkongers battling mental health issues, support exists but hurdles remain. *South China Morning Post* [online], 16 September. Available from: <http://www.scmp.com/news/hong-kong/education-community/article/2020030/young-hongkongers-battling-mental-health-issues> [Accessed 12 October 2016].
- Bond, K.S., Jorm, A.F, Kitchener, B.A. and Reavley, N.J. (2015) Mental health first aid training for Australian medical and nursing students: An evaluation study. *BMC Psychology*. 3(1), p. 11.
- Bonnar, F (2015) Mental Health First Aid: Triage for the mind. *British Journal of Nursing*. 24 (14), p. 724.
- Bower, P., Brueton, V., Gamble, C., Treweek, S., Smith, C.T., Young, B. and Williamson, P. (2014) Interventions to improve recruitment and retention in clinical trials: A survey and workshop to assess current practice and future priorities. *Trials*. 15:399. Available from: <https://trialsjournal.biomedcentral.com/articles/10.1186/1745-6215-15-399> [Accessed 16 June 2018].

## References

- Boyd, J.E., Adler, E.P., Otilingam, P.G. and Peters, T. (2014) Internalized Stigma of Mental Illness (ISMI) scale: A multinational review. *Comprehensive Psychiatry*. 55, pp. 221–231.
- Brown, T.M. (2015) Power and sample size in clinical studies. *Journal of Nuclear Cardiology*. 22 (6), pp. 1314–1315.
- Brown, S.A., Evans, Y., Espenschade, K. and O'Connor, M. (2010) An examination of two brief stigma reduction strategies: Filmed personal contact and hallucination simulations. *Community Mental Health Journal*. 46, pp. 494–499.
- Brunero, S.J., Jeon, Y.H. and Foster, K. (2012) Mental health education programmes for generalist health professionals: An integrative review. *International Journal of Mental Health Nursing*. 21, pp. 428–444.
- Brunero, S.J., Jeon, Y.H. and Foster, K. (2015) The journey of positioning self as both mental health nurse and qualitative researcher: A critical reflection. *Journal of Psychiatric and Mental Health Nursing*. 22, pp. 543–548.
- Buria, L., Knierim, B., Barth, J., Liewald, K., Duetz, M. and Abel, T. (2008) From text to codings: Intercoder reliability assessment in qualitative content analysis. *Nursing Research*. 57 (2), pp. 113–117.
- Burns, S., Crawford, G., Hallett, J., Hunt, K., Chih, H.J. and Tilley, P.J.M. (2017) What's wrong with John? A randomised controlled trial of Mental Health First Aid (MHFA) training with nursing students. *BMC Psychiatry*. 17:111. Available from: <http://doi.org/10.1186/s12888-017-1278-2> [Accessed 16 June 2018].
- Byrne, K., McGowan, I. and Cousins, W. (2015) Delivery Mental Health First Aid: An exploration of instructors' views. *International Journal of Mental Health Promotion*. 17 (1), pp. 3–21.

## References

- Byrne, P. (2000) Stigma of mental illness and ways of diminishing it. *Advances in Psychiatric Treatment*. 6(1), pp. 66–72.
- Byrne, P. (2001) Psychiatric stigma. *British Journal of Psychiatry*. 178, pp. 281–284.
- Callaghan, P., Cheung, S.S., Lau, S.Y., Lo, W.C. and Tsui, L.K. (1997) Attitudes towards mental illness: Testing the contact hypothesis among Chinese student nurses in Hong Kong. *Journal of Advanced Nursing*. 26, pp. 33–40.
- Carrigan, C. (2012) A clinical issue: Training our future nurses. *Australian Nursing Journal*. 20 (2), pp. 22–25.
- Centre for Suicide Research and Prevention, University of Hong Kong (2012) Living is Hope - Emotional Cold. *YouTube* [video]. 08 March. Available from: <https://www.youtube.com/watch?v=0eJmPqT8BQU> [Accessed 14 February 2016].
- Ceusters, W. and Smith, B. (2010) Foundations for a realist ontology of mental disease. *Journal of Biomedical Semantics*. 1, pp. 10.
- Chambers, T. and Chiang, C. (2012) Understanding undergraduate students' experience: A content analysis using NSSE open-ended comments as an example. *Quality & Quantity*. 46, pp. 1113–1123.
- Chan, W.S.C., Law, C.K., Liu, K.Y., Wong, P.W.C., Law, Y.W. and Yip, P.S.F. (2009) Suicidality in Chinese adolescents in Hong Kong: The role of family and cultural influences. *Social Psychiatry and Psychiatric Epidemiology*. 44 (4), pp. 278–284.
- Chen, C.J., Chen, Y.C., Sung, H.C., Hsieh, T.C., Lee, M.S. and Chang, C.Y. (2015) The prevalence and related factors of depressive symptoms among junior college nursing students: A cross-sectional study. *Journal of Psychiatric and Mental Health Nursing*. 22, pp. 590–598.



## References

- Chen, S.X.H. and Mak, W.W.S. (2008) Seeking professional help: Etiology beliefs about mental illness across cultures. *Journal of Counseling Psychology*. 55 (4), pp. 442–450.
- Chen, Y.W. and Hung, C.H. (2014) Predictors of Taiwanese baccalaureate nursing students' physio-psycho-social responses during clinical practicum. *Nurse Education Today*. 34, pp. 73–77.
- Cheung, T. and Yip, P.S.F. (2015) Depression, anxiety and symptoms of stress among Hong Kong Nurses: A cross-sectional study. *International Journal of Environmental Research and Public Health*. 12 (9), pp. 11072–11100.
- Chien, W.T., Yeung, F.K.K. and Chan, A.H.L. (2014) Perceived stigma of patients with severe mental illness in Hong Kong: Relationships with patients' psychosocial conditions and attitudes of family caregivers and health professionals. *Administration and Policy in Mental Health and Mental Health Services Research*. 41, pp. 237–251.
- Chisholm, K., Patterson, P., Torgerson, C., Turner, E., Jenkinson, D. and Birchwood, M. (2016) Impact of contact on adolescents' mental health literacy and stigma: The SchoolSpace cluster randomised controlled trial. *BMJ Open*. 6 (2), p. e009435. Available from: <http://doi.org/10.1136/bmjopen-2015-009435> [Accessed 16 June 2018].
- Chiu, M.Y.L. and Chan, K.K.L. (2007) Community attitudes towards discriminatory practice against people with severe mental illness in Hong Kong. *International Journal of Social Psychiatry*. 53 (2), pp. 159–174.
- Choi, H., Hwang, B., Kim, S., Ko, H., Kim, S. and Kim, C. (2016) Clinical Education In psychiatric mental health nursing: Overcoming current challenges. *Nurse Education Today*. 39, pp. 109–115.
- Chong, S.A., Verma, S., Vaingankar, J.A., Chan, Y.H., Wong, L.Y. and Heng, B.H. (2007) Perception of the public towards the mentally ill in a

## References

developed Asian country. *Social Psychiatry and Psychiatric Epidemiology*. 42 (9), pp. 734–739.

Chung, K.F. (2005) Changing the attitudes of Hong Kong medical students toward people with mental illness. *The Journal of Nervous and Mental Disease*. 193 (11), pp. 766–768.

Chung, K.F. and Wong, M.C. (2004) Experience of stigma among Chinese mental health patients in Hong Kong. *Psychiatric Bulletin*. 28, pp. 451–454.

Cleary, M. and Horsfall, J. (2010) Uncivil student behaviours in clinical settings: Strategies for clinical nurse educators. *Journal of Continuing Education in Nursing*. 41 (10), pp. 439–440.

Clement, S., van Nieuwenhuzen, A., Kassam, A., Flach, C., Lazarus, A., de Castro, M., McCrone, P., Norman, I. and Thornicroft, G. (2012a) Filmed v. live social contact interventions to reduce stigma randomized controlled trial. *British Journal of Psychiatry*. 201, pp. 57–64.

Clement, S., Brohan, E., Jeffery, D., Henderson, C., Hatch, S.L. and Thornicroft, G. (2012b) Development and psychometric properties the barriers to access to care evaluation scale (BACE) related to people with mental ill health. *BMC Psychiatry*. 12, p. 36.

Cockerham, W.C. (2006) *Sociology of Mental Disorder*. 7<sup>th</sup> ed. Upper Saddle River, NJ: Pearson Prentice Hall.

Cohen, J. (1968) Weighted kappa: Nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin*. 70 (4), pp. 213–220.

Cohen, J. (1988) *Statistical power analysis for the behavioural sciences*. 2<sup>nd</sup> ed. Hillsdale, NJ: Lawrence Erlbaum Associates.

## References

Corrigan, P. and Penn, D. (1999) Lessons from social psychology on discrediting psychiatric stigma. *American Psychologist*. 54 (9), pp. 765–776.

Corrigan, P.W. (2000) Mental health stigma as social attribution: Implications for research methods and attitudes change. *Clinical Psychology Science and Practice*. 5, pp. 201–222. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1093/clipsy.7.1.48> [Accessed 15 June 2018].

Corrigan, P., Markowitz, F.E., Watson, A., Rowan, D. and Kubiak, M.A. (2003) An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior*. 44 (2), pp. 162–179.

Corrigan, P.W., Watson, A.C. and Barr, L. (2006) The self-stigma of mental illness: Implications for self-esteem and self-efficacy. *Journal of Social and Clinical*. 25, pp. 875–884.

Cotton, S.M., Wright, A., Harris, M.G., Jorm, A.F. and McGorry, P.D. (2006) Influence of gender on mental health literacy in young Australians. *Australian and New Zealand Journal of Psychiatry*. 40, pp. 790–796.

Covarrubias, I. and Han, M. (2011) Mental health stigma about serious mental illness among MSW students: Social contact and attitude. *Social Work*. 56 (4), pp. 317–325.

Cowley, T., Sumskis, S., Moxham, L., Taylor, E., Brighton, R., Patterson, C. and Halcomb, E. (2016) Evaluation of undergraduate nursing students' clinical confidence following a mental health recovery camp. *International Journal of Mental Health Nursing*. 25, pp. 33–41.

Crisanti, A.S., Pasko, D.K., Pyeatt, C., Silverblatt, H. and Anastasoff, J. (2015) Dissemination challenges associated with Mental Health First Aid

in New Mexico: Insights from instructors. *Journal of Rural Mental Health*. 39 (1), pp. 13–21.

Crowe, M., Inder, M. and Porter, R. (2015) Conducting qualitative research in mental health: Thematic and content analysis. *Australian & New Zealand Journal of Psychiatry*. 49 (7), pp. 616–623.

Cutcliffe, R.J. and McKenna, P.H. (2004) Expert qualitative researchers and the use of audit trials. *Journal of Advanced Nursing*. 45 (2), pp. 126–135.

Davies, E.B., Wardlaw, J., Morriss, R. and Glazebrook, C. (2016) An experimental study exploring the impact of vignette gender on the quality of university students' Mental Health First Aid for peers with symptoms of depression. *BMC Public Health*. 16, p. 187.

De Hert, M., Correll, C.U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D., Asai, I., Detraux, J., Gautam, S., Möller, H., Ndeti, D.M., Newcomer, J.W., Uwakwe, R and Leucht, S. (2011) Physical illness in patient with severe mental disorders. 1. Prevalence, impact of medications and disparities in health care. *World Psychiatry*. 10, pp. 52–77.

Denzin, N. and Lincoln, Y. (2011) *Handbook of qualitative research*. 4<sup>th</sup> ed. Thousand Oaks, CA: Sage.

Dolev, R., Russell, P., Griesbach, D. and Lardner, C. (2008) *The Use and Impact of Applied Suicide Intervention Skills Training (ASIST) in Scotland*. Edinburgh: Scottish Government.

Ediriweera, H.W., Fernando, S.M. and Pai, N.B. (2012) Mental health literacy survey among Sri Lankan Carers of patients with schizophrenia and depression. *Asian Journal of Psychiatry*. 5, pp. 246–250.

Eekhout, I.R.M. *et al.* (2012). Missing data: A systematic review of how they are reported and handled. *Epidemiology*. 23 (5), pp. 729–732.

## References

- Eldridge, S. *et al.* (2008) Internal and external validity of cluster randomised trials: Systematic review of recent trials. *British Medical Journal*. 336 (7649), pp. 876–880.
- Elo, S. and Kyngäs, H. (2008) The qualitative content analysis process. *Journal of Advanced Nursing*. 62 (1), pp. 107–115.
- Enders, C. K. (2013) Dealing with missing data in developmental research. *Child Development Perspectives*. 7, pp. 27–31.
- Evans-Lacko, S. *et al.* (2010) Development and psychometric properties of the mental health knowledge schedule. *Canadian Journal of Psychiatry*. 55 (7), pp. 440–448.
- Evans-Lacko, S. *et al.* (2011) Development and psychometric properties of the Reported and Intended Behaviour Scale (RIBS): A stigma-related behaviour measure. *Epidemiology and Psychiatric Sciences*. 20, pp. 263–271.
- Ewalds-Kvist, B., Högberg, T. and Lützén, K. (2013) Student nurses and the general population in Sweden: Trends in attitudes towards mental illness. *Nordic Journal of Psychiatry*. 67, pp. 164–170.
- Farrokhyar, F., Reddy, D., Poolman, R.W. and Bhandari, M. (2013) Why perform a priori sample size calculation? *Canadian Journal of Surgery*. 56 (3), pp. 207–213.
- Faul, F., Erdfelder, E., Buchner, A. and Lang, A.-G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*. 41, pp. 1149–1160.
- Fewtrell, M.S. *et al.* (2008) How much loss to follow-up is acceptable in long term randomised trials and prospective studies? *Archives of Disease in Childhood*. 93 (6), pp. 458–461.

## References

- Fiedler, R.A. Breitenstein, S. and Delaney, K. (2012) An assessment of students' confidence in performing psychiatric mental health nursing skills: The impact of the clinical practicum experience. *Journal of the American Psychiatric Nurses Association*. 18 (4), pp. 244–250.
- Field, A. (2013) *Discovering statistics using IBM SPSS statistics*. 4<sup>th</sup> ed. London: SAGE.
- Finke, E.H., Light, J. and Kitko, L. (2008) A systematic review of the effectiveness of nurse communication with patients with complex care communication needs with a focus on the use of augmentative and alternative communication. *Journal of Clinical Nursing*. 17, pp. 2102–2115.
- First, M.B. (2014) *DSM-5 Handbook of Differential Diagnosis*. Washington, DC: American Psychiatric Publishing.
- Fisher, L.D. *et al.* (1990) Intention to treat in clinical trials. In: Peace K.E., editor. *Statistical Issues in Drug Research and Development*. New York: Marcel Dekker, pp. 331–350.
- Friedrich, B., Evans-Lacko, S., London, J., Rhydderch, D., Henderson, C. and Thornicroft, G. (2013) Anti-stigma training for medical students: The Education Not Discrimination project. *The British Journal of Psychiatry*. 202, pp. s89–s94.
- Fung, K.M., Tsang, W.H., Corrigan, P.W., Lam, C.S. and Cheng, W.M. (2007) Measuring self-stigma of mental illness in China and its implications for recovery. *International Journal of Social Psychiatry*. 53, pp. 408–418.
- Furnham, A., Cook, R., Martin, N. and Batey, M. (2011) Mental health literacy among university students. *Journal of Public Mental Health*. 10 (4), pp. 198–210.

## References

Furnham, A. and Hamid, A. (2014) Mental health literacy in non-western countries: A review of the recent literature. *Mental Health Review Journal*. 19 (2), pp. 84–98.

Galbraith, N.D., Brown, K.E. and Clifton, E. (2014) A survey of student nurses' attitudes toward help seeking for stress. *Nursing Forum*. 49 (3), pp. 171–181.

Ganzer, C.A. and Zauderer, C. (2013) Structured learning and self-reflection: Strategies to decrease anxiety in the psychiatric mental health clinical nursing experience. *Nursing Education Perspectives*. 34 (4), pp. 244–247.

Gaskin, C.J. and Happell, B. (2013) The power of mental health nursing research: A statistical analysis of studies in the International Journal of Mental Health Nursing. *International Journal of Mental Health Nursing*. 22, pp. 69–75.

Gaskin, C.J. and Happell, B. (2014) Power, effects, confidence, and significance: An investigation of statistical practices in nursing research. *International Journal of Nursing Studies*. 51, pp. 795–806.

Geaney, J. (2004) Guarding moral boundaries: Shame in early Confucianism. *Philosophy East and West*. 54 (2), pp. 113–142.

Gerlinger, G., Hauser, M., De Hert, M., Lacluyse, K., Wampers, M. and Correll, C.U. (2013) Personal stigma in schizophrenia spectrum disorders: A systematic review of prevalence rates, correlates, impact and interventions. *World Psychiatry*. 12, pp. 155–164.

Gilbert, J. and Brown, L. (2015) The clinical environment – do student nurses belong? A review of Australian literature. *Australian Journal of Advanced Nursing*. 33 (1), pp. 23–28.

Glendinning, R., Buchman, T. and Rose, N. (2002) *Well? What do you think? A national Scottish survey of public attitudes to mental health*,

*wellbeing and mental health problems*. Edinburgh, Scottish Executive Social Research.

Goffman, F. (1963) *Stigma: Notes on the management of spoiled identity*. Upper Saddle River, NJ: Prentice Hill.

Gould, D. (1996) Using vignettes to collect data for nursing research studies: How valid are the findings? *Journal of Clinical Nursing*. 5 (4), pp. 207–212.

Graham, J.W. (2009) Missing data analysis: Making it work in the real world. *Annual Review of Psychology*. 60, pp. 549–576.

Graham, S., Weiner, B. and Zucker, G.S. (1997) An attributional analysis of punishment goals and public reactions to O. J. Simpson. *Personality and Social Psychology Bulletin*. 23, pp. 331–346.

Graham, J.W., Olchowski, A.E. and Gilreath, T.D. (2007) How many imputations are really needed? Some practical clarifications of multiple imputation theory. *Prevention Science: The Official Journal of the Society for Prevention Research*. 8, pp. 206–213.

Granados-Gómez, G., López Rodríguez, M.d.M., Granados, A.C. and Márquez-Hernández, V.V. (2016) Attitudes and beliefs of nursing students toward mental disorder: The significance of direct experience with patients. *Perspectives in Psychiatric Care*. 53 (2), pp. 135–143.

Graneheim, U.H. and Lundman, B. (2004) Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*. 24, pp. 105–112.

Greenberg, D. and Barnow, B.S. (2014) Flaws in evaluations of social programs: Illustrations from randomized controlled trials. *Evaluation Review*. 38 (5), pp. 359–387.



## References

- Griffiths, K.M., Christensen, H., Jorm, A.F., Evans, K. and Groves, C. (2004) Effect of web-based depression literacy and cognitive-behavioural therapy interventions on stigmatising attitudes to depression: Randomised controlled trial. *British Journal of Psychiatry*. 185, pp. 342–349.
- Griffiths, K.M., Nakane, Y., Christensen, H., Yoshioka, K., Jorm, A.F. and Nakane, H. (2006) Stigma in response to mental disorders: A comparison of Australia and Japan. *BMC Psychiatry*. 6, p. 21.
- Grol-Prokopczyk, H., Verdes-Tennant, E., McEniry, M. and Ispány, M. (2015) Promises and pitfalls of anchoring vignettes in health survey research. *Demography*. 52 (5), pp. 1703–1728.
- Gulliver, A., Griffiths, K.M. & Christensen, H. (2010) Perceived barriers and facilitators to mental health help-seeking in young people: A systematic review. *BMC Psychiatry*. 10, p. 113. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-10-113> [Accessed 15 June 2018].
- Gupta, S.K. (2011) Intention-to-treat concept: A review. *Perspectives in Clinical Research*. 2 (3), pp. 109–112.
- Gyllensten, A. *et al.* (2011) Attitudes in healthcare students towards mental illness – a pre multicenter university program survey. *The Internet Journal of Allied Health Sciences and Practice*. 9, pp. 1–8.
- Hadlaczky, G., Hökby, S., Mkrtchian, A., Carli, V. and Wasserman, D. (2014) Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behavior: A meta-analysis. *International Review of Psychiatry*. 26 (4), pp. 467–475.
- Halter, M.J. (2008) Perceived characteristics of psychiatric nurses: Stigma by association. *Archives of Psychiatric Nursing*. 22 (1), pp. 20–26.

## References

Hamdan-Mansour, A.M. and Wardam, L. A. (2009) Attitudes of Jordanian mental health nurses toward mental illness and patients with mental illness. *Issues in Mental Health Nursing*. 30 (11), pp. 705–711.

Hanandita, W. and Tampubolon, G. (2016) Does reporting behaviour bias the measurement of social inequalities in self-rated health in Indonesia? An anchoring vignette analysis. *Quality of Life Research*. 25 (5), pp. 1137–1149.

Hanisch, S.E., Twomey, C. D., Szeto, A.C.H., Birner, U.W., Nowak, D. and Sabariego, C. (2016) The effectiveness of interventions targeting the stigma of mental illness at the workplace: Systematic review. *BMC Psychiatry*. 16, p.1. Available from: <http://doi.org/10.1186/s12888-015-0706-4> [Accessed 15 June 2018].

Happell, B. and Platania-Phung, C. (2005) Mental health issues within the general health care services: The challenge for nursing education in Australia. *Nurse Education Today*. 25 (6), pp. 465–471.

Happell, B. (2008) The importance of clinical experience for mental health nursing – Part 1: Undergraduate nursing students' attitudes, preparedness and satisfaction. *International Journal of Mental Health Nursing*. 17 (5), pp. 326–332.

Happell, B. and Platania-Phung, C. (2012) Mental health placements in a general health setting: No substitute for the real thing! *Journal of Clinical Nursing*. 21, pp. 2026–2033.

Happell, B. and Gaskin, C. J. (2013) The attitudes of undergraduate nursing students towards mental health nursing: A systematic review. *Journal of Clinical Nursing*. 22, pp. 148–158.

Happel, B., Wilson, R. and McNamara, P. (2014) Undergraduate mental health nursing education in Australia: More than Mental Health First Aid. *Collegian*. 22(4), pp. 433–438.

## References

Happell, B., Gaskin, C. J., Byrne, L., Welch, A. and Gellion, S. (2015) Clinical placements in mental health: A literature review. *Issues in Mental Health Nursing*. 36, pp. 44–51.

Hart, L.M., Mason, R.J., Kelly, C.M., Cvetkovski, S. and Jorm, A.F. (2016) 'Teen Mental Health First Aid': A description of the program and an initial evaluation. *International Journal of Mental Health Systems*. 10, p. 3. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/s13033-016-0034-1> [Accessed 15 June 2018].

Hayati Rezvan, P., Lee, K.J. and Simpson, J.A. (2015) The rise of multiple imputation: A review of the reporting and implementation of the method in medical research. *BMC Medical Research Methodology*. 15, p. 30. Available from: <https://bmcmmedresmethodol.biomedcentral.com/articles/10.1186/s12874-015-0022-1> [Accessed 15 June 2018].

Hayman-White, K. and Happell, B. (2005) Nursing students' attitudes towards mental health nursing and consumers: Psychometric properties of a self-report scale. *Archives of Psychiatric Nursing*. 19, pp. 184–193.

Health Check (2011) Hong Kong conducts first mental health survey. *BBC News* [newspaper online], 15 June 2011. Available from: BBC News. <https://www.bbc.com/news/health-13687793> [Accessed 25 July 2017].

Health Workforce Australia (2013) *Australia's Health Workforce Series – Nurses in focus*. Adelaide: HWA.

Henderson, S., Happell, B. and Martin, T. (2007) So what is so good about clinical experience? A mental health nursing perspective. *Nurse Education in Practice*. 7, pp. 164–172.

## References

- Hoekstra, H.J., van Meijel, B.B. and van der Hoof-Leemans, T.G. (2010) A nursing career in mental health care: Choices and motives of nursing students. *Nurse Education Today*. 30, pp. 4–8.
- Hogarth, R.M. and Einhorn, H.J. (1992) Order effects in belief updating: The belief-adjustment model. *Cognitive Psychology*. 24 (1), pp. 1–55.
- Hong Kong Hospital Authority (2011) *Hospital Authority Mental Health Service Plan for Audit 2010–2015*. Hong Kong Hospital Authority.
- Hong Kong Hospital Authority Statistical Report (2013–2014) *Hospital Authority Hospital Authority Statistical Report 2013–2014*. Hong Kong Hospital Authority.
- Hossain, D., Gorman, D. and Eley, R. (2009) Enhancing the knowledge and skills of advisory and extension agents in mental health issues of farmers. *Australasian Psychiatry*. 17, pp. S116–S120.
- Houle, T.T. and Stump, D.A. (2008) Statistical significance versus clinical significance. *Seminars in Cardiothoracic and Vascular Anesthesia*. 12, pp. 5–6.
- Hruschka, D.J., Schwartz, D., St. John, D.C., Picone-Decaro, E., Jenkins, R.A. and Carey, J.W. (2004) Reliability in coding open-ended data: Lessons learned from HIV behavioural research. *Field Methods*. 16 (3), pp. 307–331.
- Hughes, R. and Huby, M. (2002) The application of vignettes in social and nursing research. *Journal of Advanced Nursing*. 37 (4), pp. 382–386.
- Hui, C.L.M., Tang, J.Y.M., Wong, G.H.Y., Chang, W.C., Chan, S.K.W., Lee, E.H.M. and Chen, E.Y.H. (2013) Predictors of help-seeking duration in adult-onset psychosis in Hong Kong. *Social Psychiatry and Psychiatric Epidemiology*. 48 (11), pp. 1819–1828.

## References

Hundertmark, J. (2002) The impact of mainstreaming on patient care in Australian emergency departments and liaison services. *Australian and New Zealand Journal of Psychiatry*. 36, pp. 424–434.

Hung, M.S.Y. (2017) The effectiveness of the Mental Health First Aid Programme for nursing students in Hong Kong. Available from: [https://www.twc.edu.hk/en/Academic Units/NUR/our\\_staff/academic\\_staff/page/mariahung](https://www.twc.edu.hk/en/Academic Units/NUR/our_staff/academic_staff/page/mariahung) [Accessed 15 June 2018].

Hunter, L., Weber, T., Shattell, M. and Harris, B. A. (2015) Nursing students' attitudes about psychiatric mental health nursing. *Issues in Mental Health Nursing*. 36, pp. 29–34.

Hysenbegasi, A., Hass, S.L. and Rowland, C.R. (2005) The impact of depression on the academic productivity of university students. *Journal of Mental Health Policy and Economic*. 8, pp. 145–151.

IBM Corp (2013a) IBM SPSS Statistics for Windows (Version 22.0) [Computer software]. Armonk, NY: Author.

IBM Corp (2013b) *IBM SPSS Missing Values 22*. [Computer software]. Armonk, NY: Author.

Jacob, E.R., McKenna, L. and D'Amore, A. (2014) Senior nurse role expectations of graduate registered and enrolled nurses in Australia: Content analysis of open-ended survey questions. *Contemporary Nurse*. 48 (2), pp. 212–218.

Jones, S., Howard, L. and Thornicroft, G. (2008) 'Diagnostic overshadowing': Worse physical health care for people with mental illness. *Acta Psychiatrica Scandinavica*. 118 (3), pp. 169–171.

Jorm, A.F., Korten, A.E., Jacomb, P.A., Christensen, H., Rodgers, B. and Pollitt, P. (1997a) Mental health literacy: A survey of the public's ability to recognize mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia*. 166, pp. 182–186.

## References

Jorm, A.F., Korten, A.E., Jacomb, P.A., Rodgers, B., Pollitt, P., Christensen, H. and Henderson, S. (1997b) Helpfulness of interventions for mental disorders: Beliefs of health professionals compared with the general public. *British Journal of Psychiatry*. 171, pp. 233–237.

Jorm, A.F. (2000) Mental health literacy: Public knowledge and beliefs about mental disorders. *British Journal of Psychiatry*. 177 (5), pp. 396–401.

Jorm, A.F. (2015) Using the Delphi expert consensus method in mental health research. *Australian and New Zealand Journal of Psychiatry*. 49 (10), pp. 887–897.

Jorm, A.F., Kitchener, B.A., O’Kearney, R. and Dear, K.B. (2004) Mental Health First Aid training of the public in a rural area: A cluster randomized trial [ISRCTN53887541]. *BMC Psychiatry*. 4, p. 33. Available from: <https://bmcpsy psychiatry.biomedcentral.com/articles/10.1186/1471-244X-4-33> [Accessed 15 June 2018].

Jorm, A.F., Blewitt, K.A., Griffiths, K.M., Kitchener, B.A., Parslow, R.A. (2005a) Mental Health First Aid response of the public results from an Australian national survey. *BMC Psychiatry*. 5, p. 9. Available from: <https://bmcpsy psychiatry.biomedcentral.com/articles/10.1186/1471-244X-5-9> [Accessed 15 June 2018].

Jorm, A.F. Kitchener, B.A. and Mugford, S.K. (2005b) Experiences in applying skills learned in a Mental Health First Aid training course: A qualitative study of participants’ stories. *BMC Psychiatry*. 5, p. 43. Available from: <https://bmcpsy psychiatry.biomedcentral.com/articles/10.1186/1471-244X-5-43> [Accessed 15 June 2018].

Jorm, A.F., Mackinnon, A., Christensen, H. and Griffiths, K. (2005c) Structure of beliefs about the helpfulness of interventions for depression

and schizophrenia. *Social Psychiatry and Psychiatric Epidemiology*. 40 (11), pp. 877–883.

Jorm, A.F. *et al.* (2006) Belief in dealing with depression alone: Results from community surveys of adolescents and adults. *Journal of Affective Disorders*. 96, pp. 59–65.

Jorm, A.F., Wright, A. and Morgan, A.J. (2007) Where to seek help for a mental disorder? National survey of the beliefs of Australian youth and their parents. *Medical Journal of Australia*. 187 (10), pp. 556–560.

Jorm, A.F., Kitchener, B.A., Fischer, J.A. and Cvetkovski, S. (2010a) Mental Health First Aid training by e-learning: A randomized controlled trial. *Australian & New Zealand Journal of Psychiatry*. 44 (12), pp. 1072–1081.

Jorm, A.F., Kitchener, B.A., Sawyer, M., Scales, H. and Cvetkovski, S. (2010b) Mental Health First Aid training for high school teachers: A cluster randomized trial. *BMC Psychiatry*. 4, pp. 51.

Jorm, A.F. (2011) Mental Health Literacy: Empowering the community to take action for better mental health. *American Psychologist*. 67 (3), pp. 231–243.

Jorm, A.F. and Kitchener, B.A. (2011) Noting a landmark achievement: Mental Health First Aid training reaches 1% of Australian adults. *Australian and New Zealand Journal of Psychiatry*. 45, pp. 808–813.

Jürges, H. and Winter, J. (2013) Are anchoring vignettes ratings sensitive to vignette age and sex? *Health Economics*. 22, pp.1–13.

Juvé-Udina, M-E., Pérez, E.Z., Padrés, N.F., Samartino, M.G., Garcia, M.R., Creus, M.C., Batllori, N.V. and Calvo, C.M. (2014) Basic nursing care: Retrospective evaluation of communication and psychosocial interventions documented by nurses in the acute care setting. *Journal of Nursing Scholarship*. 46 (1), pp. 65–72.

## References

Kahan, B.C., Rehal, S. and Cro, S. (2015) Risk of selection bias in randomised trials. *Trials*. 16, p. 405. Available from: <https://trialsjournal.biomedcentral.com/articles/10.1186/s13063-015-0920-x> [Accessed 15 June 2018].

Kaptchuk, T. (2001) The double-blind, randomised, placebo-controlled trial Gold standard or golden call? *Journal of Clinical Epidemiology*. 54 (6), pp. 541–549.

Kaptchuk, J.T. (2003) Effect of interpretive bias on research evidence. *British Medical Journal*. 326, pp. 1453–1455.

Karimollahi, M. (2012) An investigation of nursing students' experiences in an Iranian psychiatric unit. *Journal of Psychiatric and Mental Health Nursing*. 19, pp. 738–745.

Kelly, C.M., Jorm, A.F. and Wright, A. (2007) Improving mental health literacy as a strategy to facilitate early intervention for mental disorder. *Medical Journal of Australia*. 187 (7), p. s26–s30.

Kelly, C.M., Jorm, A.F. and Kitchener, B.A. (2009) Development of Mental Health First Aid guidelines for panic attacks: A Delphi study. *BMC Psychiatry*. 9, p. 49. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-9-49> [Accessed 15 June 2018].

Kelly, C.M., Jorm, A.F. and Kitchener, B.A. (2010) Development of Mental Health First Aid guidelines on how a member of the public can support a person affected by a traumatic event: A Delphi study. *BMC Psychiatry*. 10, p. 49. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-10-49> [Accessed 15 June 2018].

Kelly, C.M., Mithen, J.M., Fischer, J.A., Kitchener, B.A., Jorm, A.F., Lowe, A. and Scanlan, C. (2011) Youth Mental Health First Aid: A description of



the program and an initial evaluation. *International Journal of Mental Health System*, 5, p. 4. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/1752-4458-5-4>

[Accessed 15 June 2018].

Kelly, J. and Birks, M. (2016) 'It's the simple things you do first that start the process of help': Undergraduate nursing and midwifery students' experiences of the Mental Health First Aid course. *Collegian*. 24 (3), pp. 275–280.

Kermode, M., Bowen, K., Arole, S., Pathare, S. and Jorm, A. F. (2009) Attitudes to people with mental disorders: A mental health literacy survey in a rural area of Maharashtra, India. *Social Psychiatry and Psychiatric Epidemiology*. 44 (12), pp. 1087–1096.

Kessler, R.C. *et al.* (2005a) Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*. 62, pp. 593–602.

Kessler, R.C. *et al.* (2005b) The prevalence and correlates of nonaffective psychosis in the National Comorbidity Survey Replication (NCS-R). *Biological Psychiatry*. 58, pp. 668–676.

King, G., Murray, C.J.L., Salomon, J.A. and Tandon, A. (2004) Enhancing the validity and cross-cultural comparability of measurement in survey research. *American Political Science Review*. 98 (1), pp. 191–207.

King, M.F. and Brunner, G.C. (2000) Social desirability bias: A neglected aspect of validity testing. *Psychology & Marketing*. 17 (2), pp. 79–103.

Kingston, A., Jorm, A., Kitchener, B., Hides, L., Kelly, C., Morgan, A., Hart, L. and Lubman, D. (2009) Helping someone with problem drinking: Mental Health First Aid guidelines – a Delphi expert consensus study. *BMC Psychiatry*. 9, p. 79. Available from:

<https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-9-79> [Accessed 15 June 2018].

Kiropoulos, L., Griffiths, K. M. and Blashki, G. (2011) Effects of a multilingual information website intervention on the levels of depression literacy and depression-related stigma in Greek-born and Italian-born immigrants living in Australia: A randomized controlled trial. *Journal of Medical Internet Research*. 13 (2), p. e34. Available from: <http://www.jmir.org/2011/2/e34/> [Accessed 15 June 2018].

Kitchener B.A. and Jorm, A.F., ed. (2002a) *Mental Health First Aid Manual*. Canberra: Centre for Mental Health Research.

Kitchener, B.A. and Jorm, A.F. (2002b) Mental Health First Aid training for the public: Evaluation of effects on knowledge, attitudes and helping behaviour. *BMC Psychiatry*. 2, p. 10. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-2-10> [Accessed 15 June 2018].

Kitchener, B.A. and Jorm, A.F. (2004) Mental Health First Aid training in a workplace setting: A randomized controlled trial. *BMC Psychiatry*. 4, p. 23. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-4-23> [Accessed 15 June 2018].

Kitchener, B.A. and Jorm, A.F. (2006) Mental Health First Aid training: Review of evaluation studies. *Australian and New Zealand Journal of Psychiatry*. 40, pp. 6–8.

Kitchener, B.A. and Jorm, A.F. (2008) Mental Health First Aid: An international programme for early intervention. *Early Intervention in Psychiatry*. 2, pp. 55–61.

## References

- Kitchener, B., Jorm, A.F. and Kelly, C. (2010) *Mental Health First Aid Manual*. 2<sup>nd</sup> ed. Melbourne: Orygen Youth Health Research Centre, University of Melbourne.
- Kitchener, B.A., Jorm, A.F. and Kelly, C.M. (2013) *Mental Health First Aid Manual*. 3<sup>rd</sup> ed. Melbourne: Mental Health First Aid Australia.
- Kitchener, B.A. and Jorm, A.F. (2017) The role of Mental Health First Aid training in nursing education: A response to Happell, Wilson & McNamara (2015). *Collegian*. 24, pp. 313–315.
- Kjaergard, L.L., Villumsen, J. and Gluud, C. (2001) Reported methodologic quality and discrepancies between large and small randomized trials in meta-analyses. *Annals of Internal Medicine*. 135, pp. 982–989.
- Klineberg, E., Biddle, L., Donovan, J. and Gunnell, D. (2011) Symptom recognition and help seeking for depression in young adults: A vignette study. *Social Psychiatry and Psychiatric Epidemiology*. 46 (6), pp. 495–505.
- Koch, T. (2006) Establishing rigour in qualitative research: The decision trial. *Journal of Advanced Nursing*. 53, pp. 91–100.
- Koepsell, T.D. and Weiss, N.S. (2003) *Confounding and Its Control. Epidemiological Methods: Studying the Occurrence of Illness*. New York: Oxford University Press.
- Koskinen, L., Mikkonen, I. and Jokinen, P. (2011) Learning from the world of mental health care: Nursing students' narratives. *Journal of Psychiatric Mental Health Nursing*. 18 (7), pp. 622–628.
- Krippendorff, K. (2013) *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: SAGE.

## References

Labrie, N. and Schulz, P.J. (2015) Qualifying doctors' argumentation in general practice consultation through content analysis: Measurement development and preliminary results. *Argumentation*. 29, pp. 33–35.

Lacy, S., Watson, B.R., Riffe, D. and Lovejoy, J. (2015) Issues and best practices in content analysis. *Journalism & Mass Communication Quarterly*. 92 (4), pp. 791–811.

Lam, A.Y., Jorm, A.F. and Wong, D.F. (2010) Mental Health First Aid training for the Chinese community in Melbourne, Australia: Effects on knowledge about and attitudes toward people with mental illness. *International Journal of Mental Health Systems*. 4, p. 18. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/1752-4458-4-18> [Accessed 15 June 2018].

Lam, C.S., Tsang, W.H.H., Corrigan, P.W., Lee, Y.T., Angell, B., Shi, K., Jin, S.H. and Larson, J.E. (2010) Chinese lay theory and mental illness stigma: Implications for research and practices. *Journal of Rehabilitation*. 76 (1), pp. 35–40.

Lam, L.T. (2014) Mental Health Literacy and mental health status in adolescents: A population-based survey. *Child and Adolescent Psychiatry and Mental Health*. 8, p. 26. Available from: <https://capmh.biomedcentral.com/articles/10.1186/1753-2000-8-26> [Accessed 15 June 2018].

Lam, L.C.W., Wong, C.S.M., Wang, M.J., Chan, W.C., Chen, E.Y.H., Ng, R.M.K., Hung, S.F., Cheung, E.F.C., Sham, P.C., Chiu, H.F.K., Lam, M., Chang, W.C., Lee, E.H.M., Chiang, T.P., Lau, J.T.F., van Os, J. and Bebbington, G.L.P. (2015) Prevalence, psychosocial correlates and service utilization of depressive and anxiety disorders in Hong Kong: The Hong Kong Mental Morbidity Survey (HKMMS). *Social Psychiatry and Psychiatric Epidemiology*. 50, pp. 1379–1388.

## References

- Lamb, H.R. and Weinberger, L.E. (2005) The shift of psychiatric inpatient care from hospitals to jails and prisons. *Journal of the American Academy of Psychiatry and the Law*. 33 (4), pp. 529–534.
- Lander, H. and Tallaksen, D.W. (2007) Long-term efforts yield result: Positive evaluation of Educational Program Vivat. *Suicidologi*, 12 (2), pp. 1–2.
- Landis, J.R. and Koch, G.C. (1977) The measurement of observer agreement for categorical data. *Biometrics*. 33, pp. 159–174.
- Langlands, R.L., Jorm, A.F., Kelly, C.M. and Kitchener, B.A. (2008) First aid recommendations for psychosis: Using the Delphi method to gain consensus between mental health consumers, carers, and clinicians. *Schizophrenia Bulletin*. 34, pp. 435–443.
- Lauber, C., Nordt, C., Falcató, L. and Rössler, W. (2003) Do people recognize mental illness? Factors influencing mental health literacy. *European Archives of Psychiatry and Clinical Neuroscience*. 253, pp. 248–251.
- Lauber, C., Carlos, N. and Wulf, R. (2005) Lay beliefs about treatments for people with mental illness and their implications for antistigma strategies. *Canadian Journal of Psychiatry*. 50, pp. 745–752.
- Law, K.Y. and Lee, K.M. (2016) Importing Western values versus indigenization: Social work practice with ethnic minorities in Hong Kong. *International Social Work*. 59 (1), pp. 60–72.
- Lee, C.C., Liem, S.K., Leung, J., Young, V., Wu, K., Wong, K.K., Yuen, S.K., Lee, W.F., Leung, T., Shum, M., Kwong, P. and Lo, W. (2015) From deinstitutionalization to recovery-oriented assertive community treatment in Hong Kong: What we have achieved. *Psychiatry Research*. 228, pp. 243–250.

## References

Lee, S., Lee, M.T.Y., Chiu, M. and Kleinman, A. (2005) Experience of social stigma by people with schizophrenia in Hong Kong. *British Journal of Psychiatry*. 186, pp. 153–157.

Lee, S., Chiu, M.Y.L., Tsang, A., Chui, H. and Kleinman, A. (2006) Stigmatizing experience and structural discrimination associated with the treatment of schizophrenia in Hong Kong. *Social Science & Medicine*. 62, pp. 1685–1696.

Lee, Y.T. and Wang, D.Y. (2003) Aboriginal people in Taiwan, continent China and the Americas: Ethnic inquiry into common root and ancestral connection. In: X, Li, and Z. Pan, eds. (2003) *Taiwan in the Twenty-first Century*. Lanham, MD: University Press of America, Inc., pp. 63–82.

Levett-Jones, T., Lathlean, J., McMilian, M. and Higgins, I. (2008) The duration of clinical placements: A key influence on nursing students' experience of belongingness. *Australian Journal of Advanced Nursing*. 26 (2), pp. 8–16.

Li, J., Li, J., Huang, Y. and Thornicroft, G. (2014) Mental health training program for community mental health staff in Guangzhou, China: Effects on knowledge of mental illness and stigma. *International Journal of Mental Health Systems*. 8, p. 49. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/1752-4458-8-49> [Accessed 15 June 2018].

Link, B.G., Mirotnik, J. and Cullen, F.T. (1991) The effectiveness of stigma coping orientations: Can negative consequences of mental illness labelling be avoided? *Journal of Health and Social Behaviour*. 32, pp. 302–320.

Link, B.G., Phelan, J. C., Bresnahan, M., Stueve, A. and Pescoscolido, B.A. (1999) Public conceptions of mental illness: Labels, causes, dangerousness, and social distance. *American Journal of Public Health*. 89, pp. 1328–1333.

## References

- Link, B.G. and Phelan, J.C. (2001) Conceptualizing stigma. *Annual Review of Sociology*. 27, pp. 363–385.
- Little, R.J.A. and Rubin, D.B. (2002) *Statistical analysis with missing data*. 2nd ed. Hoboken, NJ: Wiley.
- Little, R.J. *et al.* (2012) The prevention and treatment of missing data in clinical trials. *The New England Journal of Medicine*. 367 (14), pp. 1355–1360.
- Liu, W., Gerdtz, M.F. and Liu, T.Q. (2011) A surveys of psychiatrists' and registered nurses' levels of mental health literacy in a Chinese general hospital. *International Nursing Review*. 58, pp. 361–369.
- Liu, W., Li, Y.M. and Peng, Y. (2018) Mental health literacy: A cross-cultural study of American and Chinese bachelor of nursing students. *Journal of Psychiatric and Mental Health Nursing*. 25, pp. 96–107.
- LivingWorks (2015) ASIST and the National Action Alliance for Suicide Prevention Clinical Workforce Preparedness Training Guidelines: A natural fit. Available from: <https://www.livingworks.net/programs/asist/> [Accessed 15 June 2018].
- Loureiro, L.M., Jorm, A.F., Mendes, A.C., Santos, J.C., Ferreira, R.O. and Pedreiro, A.T. (2013) Mental health literacy about depression: A survey of Portuguese youth. *BMC Psychiatry*. 13, p. 129. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-13-129> [Accessed 15 June 2018].
- Loureiro, L.M.J. *et al.* (2015) Mental health literacy about schizophrenia: A survey of Portuguese youth. *Early Intervention in Psychiatry*. 9, pp. 234–241.
- Lucksted, A., Mendenhall, A.N., Frauenholtz, S.I. and Aakre, J.M. (2015) Experiences of graduates of the Mental Health First Aid-USA course. *International Journal of Mental Health Promotion*. 17 (3), pp. 169–183.

## References

- Lui, C., Wong, C. and Furnham, A. (2016) Mental health literacy in Hong Kong. *International Journal of Social Psychiatry*. 62 (6), pp. 505–511.
- MacNeela, P., Clinton, G., Place, C., Scott, A., Treacy, P., Hyde, A. and Dowd, H. (2010) Psychosocial care in mental health nursing: A think aloud study. *Journal of Advanced Nursing*. 66 (6), pp. 1297–1307.
- Macro, ICF (2010) *Applied Suicide Intervention Skills Training: Trainee Experiences, Recommendations, and Post-training Behavior* [Cross-site evaluation of the Garrett Lee Smith Suicide Prevention and Early Intervention Program], Calverton, MD: ICF Macro & Rockville, MD: SAMHSA.
- Madianos, M.G., Priami, M., Alevisopoulos, G., Koukia, E. and Rogakou, E. (2005) Nursing students' attitude change towards mental illness and psychiatric case recognition after a clerkship in psychiatry. *Issues in Mental Health*. 26, pp. 169–183.
- Malhotra, N. (2009) Order effects in complex and simple tasks. *Public Opinion Quarterly*. 73 (1), pp. 180–198.
- Mantzoukas, S. (2005) The inclusion of bias in reflective and reflexive research: A necessary prerequisite for security validity. *Journal of Research in Nursing*. 10 (3), pp. 279–295.
- Markström, U., Gyllensten, A.L., Bejerholm, U., Björkman, T., Brunt, D., Hansson, L., Leufstadius, C., Sandlund, M., Svensson, B., Östman, M. and Eklund, M. (2009) Attitudes towards mental illness among health care students at Swedish universities – A follow-up study after completed clinical placement. *Nurse Education Today*. 29, pp. 660–665.
- Martin, J. (2016) An exploratory study of the benefits of youth mental health literacy studies for social work students. *Social Work in Mental Health*. 14 (1), pp. 42–60.



## References

Massey, J., Brooks, M., Burrow, J. and Sutherland, C. (2010) *Increasing Mental Health Literacy among Student Affairs Staff: Assessing 'Mental Health First Aid'*. Queen's University.

McAllister, M., Williams, L. M., Gamble, T., Malko-Nyhan, K. and Jones, C. M. (2011) Steps towards empowerment: An examination of colleges, health services and universities. *Contemporary Nurse: A Journal for the Australian Nursing Profession*. 38 (1–2), pp. 6–17.

McAuliffe, N. and Perry, L. (2007) Making it safer: A health centre's strategy for suicide prevention. *Psychiatric Quarterly*. 78, pp. 295–307.

McCann, T.V., Lu, S. and Berryman, C. (2009) Mental health literacy of Australian Bachelor of Nursing students: A longitudinal study. *Journal of Psychiatric and Mental Health Nursing*. 16 (1), pp. 61–67.

McCann, T.V. and Clark, E. (2010) Australian bachelor of midwifery students' mental health literacy: An exploratory study. *Nursing and Health Sciences*. 12, pp. 14–20.

McCann, T.V., Moxham, L., Farrell, G., Usher, K. and Crookes, P. (2010) Mental health content of Australian pre-registration nursing curricula: Summary report and critical commentary. *Nurse Education Today*. 30 (5), pp. 393–377.

McClendon, M.J. (1991) Acquiescence and recency response-order effects in interview survey. *Sociological Methods & Research*. 20, pp. 60–103.

McKenna, L., Boyle, M., Brown, T., Williams, B., Molloy, A., Lewis, B. and Molloy, L. (2012) Levels of empathy in undergraduate nursing students. *International Journal of Nursing Practice*. 18, pp. 246–251.

McKew, M. (2017) Students admit they do not know enough about mental healthcare. *Mental Health Practice*. 20 (7), pp. 8–9.

## References

- Melas, P.A., Tartani, E., Forsner, T., Edhborg, M. and Forsell, Y (2013) Mental health literacy about depression and schizophrenia among adolescents in Sweden. *European Psychiatry*. 28, pp. 404–411.
- Mendenhall, A.N. (2012) Predictors of service utilization among youth diagnosed with mood disorders. *Journal of Child and Family Studies*. 21(4), pp. 603–611.
- Mendenhall, A.N., Jackson, S.C. and Hase, S. (2013) Mental Health First Aid USA in a rural community: Perceived impact on knowledge, attitudes, and behaviour. *Social Work in Mental Health*. 11, pp. 563–577.
- Menec, V.H. and Perry, R.P. (1998) Reactions to stigma among Canadian students: Testing attribution-affect-help judgment model. *Journal of Social Psychology*. 138, pp. 443–453.
- Miller, W.R. and Rollnick, S. (1991) *Motivational interviewing: Preparing people for change*. New York: Guilford Press.
- Milligan, L. (2014) Insider-outsider-inbetween? Researcher positioning, participative methods and cross-cultural educational research. *Compare: A Journal of Comparative and International Education*. 4, pp. 1–16.
- Minas, H., Colucci, Jorm, A. F. (2009) Evaluation of Mental Health First Aid training for members of the Vietnamese community in Melbourne, Australia. *International Journal of Mental Health System*. 3, p. 19. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/1752-4458-3-19> [Accessed 15 June 2018].
- Mokkink, L. *et al.* (2006) Protocol of the COSMIN study: Consensus-based Standards for the selection of health Measurement Instruments. *BMC Medical Research Methodology*. 6, p. 2. Available from: <https://bmcmmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-6-2> [Accessed 15 June 2018].

## References

- Mokkink, L. *et al.* (2010) The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: An international Delphi study. *Quality of Life Research*. 19 (4), pp. 539–549.
- Molnar, F.J., Man-Son-Hing M, Hutton, B. and Fergusson, D.A. (2009) Have last-observation-carried-forward analyses caused us to favour more toxic dementia therapies over less toxic alternatives? A systematic review. *Open Medicine*. 3 (2), pp. e31–e50.
- Montgomery, P. and Kirkpatrick, H. (2002) Understanding those who seek frequent psychiatric hospitalizations. *Archives of Psychiatric Nursing*. 16 (1), pp. 16–24.
- Moore, J. (2012) A personal insight into researcher positionality. *Nurse Researcher*. 19 (4), pp. 11–14.
- Moreno, M.A., Egan, K.G. and Brockman, L. (2011) Development of a researcher codebook for use in evaluating social networking site profiles. *Journal of Adolescent Health*. 49, pp. 29–35.
- Morse, J. (2003) Biasphobia. *Qualitative Health Research*. 13 (7), pp. 891–892.
- Muhammad Gadit, A.A. (2012) Mental Health First Aid: Need for grass root approach? *Journal of Pakistan Medical Association*. 62 (1), pp. 77–78.
- Ndetei, D.M., Khasakdala, L.L., Kuria, M.W., Mutiso, V.N., Ongecha-Ownor, F.A. and Kokonya, D.A. (2009) The prevalence of mental disorders in adults in different level general medical facilities in Kenya: A cross-sectional study. *Annals of General Psychiatry*. 8, pp. 1–8.
- Nelson, S. and McGillion, M. (2004) Expertise or performance? Questioning the rhetoric of contemporary narrative use in nursing. *Journal of Advanced Nursing*. 47 (6), pp. 631–638.

## References

- Neuendorf, K.A. (2002) *The Content Analysis Guidebook*. Thousand Oaks, CA: Sage.
- Neuman, W.L. (2006) *Social Research Methods: Qualitative and Quantitative Approaches*. 6th ed. Boston: Allyn and Bacon.
- Ng, I., Lee, S.Y., Wong, W. and Chou, K.L. (2015) Effects of perceived discrimination on the quality of life among new Mainland Chinese immigrants to Hong Kong: A longitudinal study. *Social Indicators Research*. 120 (3), pp. 817–834.
- Ng, J.Y.M. and Chen, E.Y.H. (2015) Transformation of a metaphor: Semantic shift in a Cantonese term 'Chi Sin' denoting insanity. *East Asian Arch Psychiatry*. 25, pp. 16–20.
- Ng, S.M.C. and Hurry, J. (2011) Depression amongst Chinese adolescents in Hong Kong: An evaluation of a stress moderation model. *Social Indicators Research*. 100 (3), pp. 499–516.
- Ngui, E.M. *et al.* (2010) Mental, disorders, health inequalities and ethics: A global perspective. *International Review of Psychiatry*. 22, pp. 235–244.
- Nguyen, F., Chen, T.F. and O'Reilly, C.L. (2012) Evaluating the impact of direct and indirect contact on the mental health stigma of pharmacy students. *Social Psychiatry and Psychiatric Epidemiology*. 47 (7), pp. 1087–1098.
- Nolan, G. and Ryan, D. (2008) Experience of stress in psychiatric nursing students in Ireland. *Nursing Standard*. 22 (43), pp. 35–43.
- Norman, R.M.G., Malla, A.K. and Manchanda, R. (2007) Delay in treatment for psychosis. *Social Psychiatry & Psychiatric Epidemiology*. 42 (6), pp. 507–512.

## References

- Norman, R.M.G., Manchanda, R., Windell, D., Harricharan, R., Northcott, S. and Hassall, L. (2012) The role of treatment delay in predicting 5-year outcomes in an early intervention program. *Psychological Medicine*. 42 (2), pp. 223–233.
- Nygaard O. *et al.* (1995) Total plasma homocysteine and cardiovascular risk profile. *JAMA*. 274, pp. 1526–1533.
- O'Connor, M., Casey, L. and Clough, B. (2014) Measuring mental health literacy – a review of scale-based measures. *Journal of Mental Health*. 23 (4), pp. 197–204.
- O'Connor, M. and Casey, L. (2015) The Mental Health Literacy Scale (MHLS): A new scale-based measure of mental health literacy. *Psychiatry Research*. 229, pp. 511–516.
- O'Dell, L., Crafter, S., de Abreu, G. and Cline, T. (2012) The problem of interpretation in vignette methodology in research with young people. *Qualitative Research*. 12 (6), pp. 702–714.
- O'Reilly, C.L., Bell, J.S., Kelly, P. and Chen, T.F. (2011) The impact of Mental Health First Aid training on pharmacy students' knowledge, attitudes and self-reported behaviour: A controlled trial. *Australian & New Zealand Journal of Psychiatry*. 45 (7), pp. 549–557.
- Orsmond, G.I. and Cohn, E.S. (2015) The distinctive features of a feasibility study: Objectives and guiding questions. *OTJR: Occupation, Participation and Health*. 35 (3), pp. 169–177.
- Paddam, A., Barnes, D. and Langdon, D. (2010) Constructing vignettes to investigate anger in multiple sclerosis. *Nurse Researcher*. 17 (2), pp. 60–73.
- Palermo, T.M., Law, E.F., Essner, B., Jessen-Fiddick, T. and Eccleston, C. (2014) Adaptation of Problem-Solving Skills Training (PSST) for

## References

patient caregivers of youth with chronic pain. *Clinical Practice in Pediatric Psychology*. 2 (3), pp. 212–223.

Pandis, N., Tu, Y.K., Fleming, P.S. and Polychronopoulou, A. (2014) Randomized and nonrandomized studies: Complementary or competing? *American Journal of Orthodontics and Dentofacial Orthopedics*. 146 (5), pp. 633–640.

Parker, M.J., Mannan, A. and Duffett, M. (2012) Rapid, easy, and cheap randomization: Prospective evaluation in a study cohort. *Trials*, 13, p. 90. Available from: <https://trialsjournal.biomedcentral.com/articles/10.1186/1745-6215-13-90> [Accessed 15 June 2018].

Parsonage, M., Fossey, M. and Tutty, C. (2012) *Liaison Psychiatry in the Modern NHS*. London: Centre for Mental Health.

Patton, M.Q. (2002) *Qualitative Research and Evaluation Methods*. London: Sage Publications.

Penny, K.I. and Atkinson, I. (2011) Approaches for dealing with missing data in health care studies. *Journal of Clinical Nursing*. 21, pp. 2722–2729.

Peracchi, F. and Rossetti, C. (2010) The heterogeneous thresholds ordered response model: Identification and inference. *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 176(3), pp. 703–722.

Phillips, M.R., Zhang, J., Shi, Q., Song, Z., Ding, Z., Pang, S., Li, X., Zhang, Y. Wang, Z. (2009) Prevalence, treatment and associated disability of mental disorders in four provinces in China during 2001–05: An epidemiology survey. *Lancet*. 373, pp. 2041–2053.

Pierce, D., Liaw, S. T., Dobell, J. and Anderson, R. (2010) Australian rural football club leaders as mental health advocates: An investigation of the

impact of the Coach the Coach project. *International Journal of Mental Health System*. 4, p. 10. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/1752-4458-4-10>

[Accessed 15 June 2018].

Pinfold, V., Toulmin, H., Thornicroft, G., Huxley, P., Farmer, P. and Graham, T. (2003) Reducing psychiatric stigma and discrimination: Evaluation of educational interventions in UK secondary schools. *British Journal of Psychiatry*. 182, pp. 342–346.

Polit, D.F. and Beck, C.T. (2010) Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies*. 47, pp. 1451–1458.

Polit, D.F. and Beck, C.T. (2012) *Nursing Research: Generating and assessing evidence for nursing practice*. 9<sup>th</sup> ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Popping, R. (2015) Analyzing open-ended questions by means of text analysis procedures. *BMS: Bulletin de Methodologie Sociologique (Sage Publications Ltd)*. 128 (1), pp. 23–39.

Poreddi, V., Thimmaiah, R., Pashupu, D.R. & Ramachandra, B.S. (2014) Undergraduate nursing students' attitudes towards mental illness: Implications for specific academic education. *Indian Journal of Psychological Medicine*. 36 (4), pp. 368–372.

Poreddi, V., Thimmaiah, R., Chandra, R., & BadaMath, S. (2015) Bachelor of nursing students' attitude toward people with mental illness and career choices in psychiatric nursing. An Indian perspective *Investigación y Educación en Enfermería*. 33 (1), pp. 138–154.

Ranganathan, P., Pramesh, C.S. & Buvse, M. (2015) Common pitfalls in statistical analysis: Clinical versus *statistical significance*. *Perspectives in Clinical Research*. 6 (3), pp. 169–170.

## References

- Ranganathan, P., Pramesh, C.S. & Aggarwal, R. (2016) Common pitfalls in statistical analysis: Intention-to-treat versus per-protocol analysis. *Perspectives in Clinical Research*. 7 (3), pp. 144–146.
- Reavley, N.J. & Jorm, A.F. (2011) Young people's recognition of mental disorders and beliefs about treatment and outcome: Findings from an Australian National Survey. *Australian and New Zealand Journal of Psychiatry*. 45, pp. 890–898.
- Reavley, N.J., McCann, T.V. & Jorm, A.F. (2012) Mental health literacy in higher education students. *Early Intervention in Psychiatry*. 6, pp. 45–52.
- Reavley, N.J., McCann, T.V., Cvetkovski, S. & Jorm, A.F. (2014a) A multifaceted intervention to improve mental health literacy in students of a multicampus university: A cluster, randomized trial. *Social Psychiatry and Psychiatric Epidemiology*. 49 (10), pp. 1655–1666.
- Reavley, N.J., Morgan, A.J. & Jorm, A.F. (2014b) Development of scales to assess mental health literacy relating to recognition of and interventions for depression, anxiety disorders and schizophrenia/psychosis. *Australian & New Zealand Journal of Psychiatry*. 48 (1), pp. 61–69.
- Redhead, K., Bradshaw, T., Braynion, P. & Doyle, M. (2011) An evaluation of the outcomes of psychosocial intervention training for qualified and unqualified nursing staff working in a low-secure mental health unit. *Journal of Psychiatric and Mental Health Nursing*. 18, pp. 59–66.
- Rice, N., Robone, S. & Smith, P (2011) Analysis of the validity of the vignette approach to correct for heterogeneity in reporting health system responsiveness. *The European Journal of Health Economics*. 12 (2), pp. 141–162.



## References

- Rickwood, D., Deane, F.P. & Wilson, C.J. (1 October 2007) When and how do young people seek professional help for mental health problem? *Mja.* 187 (7), pp. S35–S39.
- Rolfe, G. (2002) Reflexive research and the use of self. In: Freshwater, D. (ed.). *Therapeutic Nursing: Improving Patient Care Through Self Awareness and Reflection*. London. Sage, p.179-194.
- Romem, P., Anson, O., Kanat-Maymon, Y. & Moisa, R. (2008) Reshaping students' attitudes toward individuals with mental illness through a clinical nursing clerkship. *Journal of Nursing Education.* 47 (9), pp. 396–402.
- Ross, C.A. & Goldner, E.M. (2009) Stigma, negative attitudes and discrimination towards mental illness within the nursing profession: A review of the literature. *Journal of Psychiatric and Mental Health Nursing.* 16, pp. 558–567.
- Rossetto, A., Jorm, A.F. & Reavley, N.J. (2014) Quality of helping behaviours of members of the public towards a person with a mental illness: A descriptive analysis of data from an Australian national survey. *Annals of General Psychiatry.* 13 (1). p. 2. Available from: <https://annals-general-psychiatry.biomedcentral.com/articles/10.1186/1744-859X-13-2> [Accessed 15 June 2018].
- Rossetto, A., Jorm, A.F. & Reavley, N.J. (2016) Predictors of adults' helping intentions and behaviours towards a person with a mental illness: A six-month follow-up study. *Psychiatry Research.* 240, pp. 170–176.
- Ruggeri, M., Leese, M., Thornicroft, G., Bisoffi, G. & Tansella, M. (2000) Definition and prevalence of severe and persistent mental illness. *The British Journal of Psychiatry.* 177 (2), pp. 149–155.

## References

- Rüsch, N., Angermeyer, M.C. & Corrigan, P.W. (2005) Mental illness stigma concepts, consequences, and initiatives to reduce stigma. *European Psychiatry*. 20 (8), pp. 529–539.
- Ryan, L. & Golden, A. (2006) 'Tick the box please': A reflexive approach to Doing quantitative social research. *Sociology*. 40 (6), pp. 1191–1200.
- Sadow, D. & Ryder, M. (2008) Reducing stigmatizing attitudes held by future health professionals: The person is the message. *Psychological Services*. 5 (4), pp. 362–372.
- Sai, G. & Furnham, A. (2013) Identifying depression and schizophrenia using vignettes: A methodological note. *Psychiatry Research*. 210 (1), pp. 357–362.
- Sareen, J., Isaak, C., Bolton, S.L., Enns, M.W., Elias, B., Deane, F., Munro, G., Stein, M.B., Chateau, D., Gould, M. & Katz, L.Y. (2013) Gatekeeper training for suicide prevention in First Nations community members: A randomized controlled trial. *Depression and Anxiety*. 30 (10), pp. 1021–1029.
- Sargent, S.E., Sedlak, C.A. & Martsof, D.S. (2005) Cultural competence among nursing students and faculty. *Nurse Education Today*. 25, pp.214–221.
- Sartore, G.-M., Kelly, B., Stain, H.J., Fuller, J., Fragar, L. & Tonna, A. (2008) Improving mental health capacity in rural communities: Mental Health First Aid delivery in drought-affected rural New South Wales. *Australian Journal of Rural Health*. 16, pp. 313–318.
- Schafer, J.L. & Graham, J.W. (2002) Missing data: Our view of the state of the art. *Psychological Methods*. 7 (2), pp. 147–177.
- Schafer, T., Wood, S. & Williams, R. (2011) A survey into student nurses' attitudes towards mental illness: implications for nurse training. *Nurse Education Today*. 31 (4), pp. 328–332.

## References

- Schulz, K.F., Altman, D.G. & Moher, D. (2010) CONSORT 2010 Statement: Updated guidelines for reporting parallel group randomised trials. *BMJ*. 340:c332. PMID: 20332509. Available from: <https://www.bmj.com/content/340/bmj.c332> [Accessed 16 June 2018].
- Sedgwick, P. (2010) Per protocol analysis. *BMJ (Clinical research ed.)*. 340(apr07 1):c1825.
- Sedgwick, P. (2015a) Intention to treat analysis versus per protocol analysis of trial data. *BMJ (Clinical research ed.)*. 350(feb06 3):h681.
- Sedgwick, P. (2015b) Understanding the Hawthorne effect. *BMJ (Clinical research ed.)*. 351:h4672.
- Segarra, R. *et al.* (2012) Longitudinal changes of insight in first episode psychosis and its relation to clinical symptoms, treatment adherence and global functioning: One-year follow-up from the Eiffel study. *European Psychiatry*. 27, pp. 43–49.
- Seow, L.S.E. *et al.* (2017) Correct recognition and continuum belief of mental disorders in a nursing student population. *BMC Psychiatry*. 17, p. 289. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-017-1447-3> [Accessed 16 June 2018].
- Serafini, G., *et al.* (2011) Stigmatization of schizophrenia as perceived by nurses, medical doctors, medical students and patients. *Journal of Psychiatric and Mental Health Nursing*. 18 (7), pp. 576–585.
- Shattell, M.M. (2009) Advice to new graduates: Get (at least) one year of psychiatric/mental health nursing experience before working in medical-surgical settings. *Issues in Mental Health Nursing*. 30 (1), p. 63. Available from: <https://www.tandfonline.com/doi/full/10.1080/01612840802557568> [Accessed 16 June 2018].

## References

- Shaughnessy, J.J., Zechmeister, E.B. & Zechmeister, J.S. (2006). *Research methods in psychology*. New York: McGraw-Hill.
- Shintani, A. (2014) Missing data analysis, multiple imputation, EM method. *YouTube* [video]. 8 February 2014. Available from: <https://www.youtube.com/watch?v=QAvSj2TWZy0> [Accessed 3 September 2016].
- Sickel, A.E., Seacat, J.D & Nabors, N.N. (2014) Mental health stigma update: A review of consequences. *Advances in Mental Health*. 12 (3), pp. 202–215.
- Siu, B.W.M., Chow, K.K.W., Lam, L.C.W., Chan, W.C., Tang, V.W.K. & Chui, W.W.H. (2012) A questionnaire survey on attitudes and understanding towards mental disorders. *East Asian Arch Psychiatry*. 22, pp. 18–24.
- Soeken, L.K. & Sripusanapan, A. (2003) Assessing publication bias in meta-analysis. *Nursing Research*. 52 (1), pp. 57–60.
- Song, E. (2015) The nursing students' experience of psychiatric Practice in South Korea. *Archives of Psychiatric Nursing*. 29, pp. 355–360.
- Spineli, L.M., Fleming, P.S. & Pandis, N. (2015) Addressing missing participant outcome data in dental clinical trials. *Journal of Dentistry*. 43 (6), pp. 605–618.
- Stacey, G. & Rayner, L. (2008) Introducing skills for psychosocial interventions into undergraduate mental health nurse education. *The Journal of Mental Health Training, Education and Practice*. 3 (2), pp. 42–51.
- Stanley, T.D., Jarrell, S.B. & Doucouliagos, H. (2010) Could it be better to discard 90% of the data? A statistical paradox. *The American Statistician*. 64, pp. 70–77.

## References

Sterne, J.A.C. *et al.* (2009) Multiple imputation for missing data in epidemiological and clinical research: Potential and pitfalls. *British Medical Journal*. 338 (6), pp. b2393–b2393.

Streiner, D.L. & Norman, G.R. (2002) *Health Measurement Scales: A Practical Guide to Their Development and Use*. 3<sup>rd</sup> ed. Oxford Medical Publications.

Stubbs, A. (2014) Reducing mental illness stigma in health care students and professionals: A review of the literature. *Australasian Psychiatry*. 22 (6), pp. 579–584.

Subedi, P., Li, C.W., Gurung, A., Bizune, D., Dogbey, M.C., Johnson, C. C. and Yun, K. (2015) Mental Health First Aid training for the Bhutanese refugee community in the United States. *International Journal of Mental Health Systems*. 9, p. 20. Available from: <https://ijmhs.biomedcentral.com/articles/10.1186/s13033-015-0012-z> [Accessed 16 June 2018].

Suresh, P., Matthews, A. & Coyne, I. (2012) Stress and stressors in the clinical environment: A comparative study of fourth-year student nurses and newly qualified general nurses in Ireland. *Journal of Clinical Nursing*. 22, pp. 770–779.

Svensson, B. & Hansson, L. (2014) Effectiveness of Mental Health First Aid training in Sweden. A randomized controlled trial with a six-month and two-year follow-up. *PLOS ONE*. 9 (6), pp. 1–7.

Svensson, B. & Hansson, L. (2016) How mental health literacy and experience of mental illness relate to stigmatizing attitudes and social distance towards people with depression or psychosis: A cross-sectional study. *Nordic Journal of Psychiatry*. 70 (4), pp. 309–313.

## References

Svensson, B., Hansson, L. & Stjernswärd (2015) Experiences of a Mental Health First Aid training program in Sweden: A descriptive qualitative study. *Community Mental Health Journal*. 51 (4), pp. 497–503.

Szeto, A.C.H., Luong, D. & Dobson, K.S. (2013) Does labeling matter? An examination of attitudes and perceptions of labels for mental disorders. *Social Psychiatry & Psychiatric Epidemiology*. 48 (4), pp. 659–671.

Talbott, J.A. (2004) Deinstitutionalization: Avoiding the disasters of the past. *Psychiatric Services*. 55, pp. 1112–1115.

Tang, J.Y.M., Wong, G.H.Y., Hui, C.L.M., Lam, M.M.L., Chiu, C.P.Y., Chan, S.K.W., Chung, D.W.S., Tso, S., Chan, K.P.M., Yip, K.C., Hung, S.F. & Chen, E.Y.H. (2010) Perspectives in early intervention for psychosis in Hong Kong – the EASY programme. *Early Intervention in Psychiatry*. 3, pp. 214–219.

Taylor, S.M. & Dear, M.J. (1981) Scaling community attitudes toward the mentally ill. *Schizophrenia Bulletin*. 7 (2), pp. 225–240.

Tee, S. & Üzar Özçetin, Y.S. (2016) Promoting positive perceptions and person centred care toward people with mental health problems using con-design with nursing students. *Nurse Education Today*. 44, pp. 116–120.

Terry, Julia (2009) Mental Health First Aid – Rolling out across the UK. *Journal of Public Mental Health*. 8 (3), pp. 33–37.

Terry, Julia (2010) Experiences of instructors delivering the Mental Health First Aid training programme: A descriptive qualitative study. *Journal of Psychiatric and Mental Health Nursing*. 17, pp. 594–602.

Terry, Julia (2011) Delivering a basic mental health training programme: Views and experiences of Mental Health First Aid instructors in Wales. *Journal of Psychiatric and Mental Health Nursing*. 18, pp. 677–686.

## References

Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L.P. & Goldsmith, C.H. (2010) A tutorial on pilot studies: The what, why and how. *BMC Medical Research Methodology*. 10, p. 1. Available from: <https://bmcmmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-10-1> [Accessed 16 June 2018].

Thabane, L. *et al.* (2013) A tutorial on sensitivity analyses in clinical trials: The what, why, when and how. *BMC Medical Research Methodology*. 13 (1), p. 92. Available from: <https://bmcmmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-13-92> [Accessed 16 June 2018].

The Nursing Council of Hong Kong (2014) *A Reference Guide to the Syllabus of Subjects and Requirements for the Preparation of Registered Nurse (General) in the Hong Kong Special Administrative Region*. Hong Kong. The Nursing Council of Hong Kong. Available from: [http://www.nchk.org.hk/en/core\\_competencies\\_and\\_reference\\_guides/registered\\_nurses\\_general/index.html](http://www.nchk.org.hk/en/core_competencies_and_reference_guides/registered_nurses_general/index.html) [Accessed 30 January 2016].

Thonon, B., Pletinx, A., Grandjean, A., Billieux, J. & Larøi, F. (2016) The effects of a documentary film about schizophrenia on cognitive, affective and behavioural aspects of stigmatisation. *Journal of Behaviour Therapy and Experimental Psychiatry*. 50, pp. 196–200.

Thornicroft, G. (2006) *Shunned: Discrimination Against People with Mental Illness*. Oxford: Oxford University Press.

Timmins, F., Corroon, A. M., Bryne, G. & Mooney, B. (2011) The challenge of contemporary nurse education programmes. Perceived stressors of nursing students: Mental health and related lifestyle issues. *Journal of Psychiatric and Mental Health Nursing*. 18, pp. 758–766.

Tsang, Fan Kwong (2007) *Future Mental Health Services in Hong Kong: Conceptual and Practical*. 14 Nov 2007. LC Paper No. CB(2)373/07-08(06). Available from: <http://www.legco.gov.hk/yr07->

[08/english/panels/hs/papers/hs1122cb2-373-6-e.pdf](#) [Accessed 27 July 2017].

Tsang, H.W.H. *et al.* (2007) A cross sectional study of employers' concerns about hiring people with psychiatric disorder: Implications for recovery. *Social Psychiatry and Psychiatric Epidemiology*. 42, pp. 723–733.

Tsang, H., Tam, P., Chan, F. & Cheung, W. (2003) Stigmatizing attitudes towards individuals with mental illness in Hong Kong: Implications for their recovery. *Journal of Community Psychology*. 31 (4), pp. 383–396.

Turner, R.M., Bird, S.M. & Higgins, J.P.T. (2013) The impact of study size on meta-analyses: Examination of underpowered studies in Cochrane reviews. *PLOS ONE*. 8 (3), p. e59202. Available from: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0059202> [Accessed 16 June 2018].

Turton, W. (2014) Psychosocial Interventions in Mental Health Nursing. Chapter 1: An introduction to psychosocial interventions. Available from: [https://uk.sagepub.com/sites/default/files/upmbinaries/66637 Psychosocial Interventions.pdf](https://uk.sagepub.com/sites/default/files/upmbinaries/66637_Psychosocial_Interventions.pdf) [Accessed 16 June 2018].

Van Os, J. & Kapur, S. (2009) Schizophrenia. *Lancet*. 374, pp. 635–645.

Van Soest, A. & Vonkova, H (2014) Testing the specification of parametric models by using anchoring vignettes. *Journal of the Royal Statistical Society: Series A*. 177, pp. 115–133.

Viera, A.J. & Bangdiwala, S. I. (2007) Eliminating bias in randomised controlled trials: Importance of allocation concealment and masking. *Family Medicine*. 39 (2), pp. 132–137.

Visual Media Limited (2012). Schizophrenia. *YouTube* [video]. Available from: <https://www.youtube.com/watch?v=pbn7BdzNyHo> [Accessed 14 February 2016].



## References

- Walker, S., Read, S. & Priest, H. (2013) Use of reflexivity in a mixed-methods study. *Nurse Researcher*. 20 (3), pp. 38–43.
- Wallace, J.E. (2012) Mental health and stigma in the medical profession. *Health*. 16 (1), pp. 3–18.
- Wang, J.L. & Lai, D. (2008) The relationship between mental health literacy, personal contacts and personal stigma against depression. *Journal of Affective Disorders*. 110, pp. 191–196.
- Wang, N., Hailey, D. & Yu, P. (2011) Quality of nursing documentation and approaches to its evaluation: A mixed-method systematic review. *Journal of Advanced Nursing*. 67 (9), pp. 1858–1875.
- Wang, P.S. *et al.* (2007) Use of mental health services for anxiety, mood, and substance disorders in 17 countries in the WHO world mental health surveys. *Lancet*. 370, pp. 841–850.
- Wang, J.Y. *et al.* (2013) Mental health literacy among residents in Shanghai. *Shanghai Archives of Psychiatry*. 25 (4), pp. 224–234.
- Watanabe, N. *et al.* (2015) A mindfulness-based stress management program and treatment with omega-3 fatty acids to maintain a healthy mental state in hospital nurse (Happy Nurse Project): Study protocol for a randomized control trial. *Trials*. 16(1), p. 36. Available from: <https://trialsjournal.biomedcentral.com/articles/10.1186/s13063-015-0554-z> [Accessed 16 June 2018].
- Watson, R., Deary, I., Thompson, D. & Li, G. (2008) A study of stress and burnout in nursing students in Hong Kong: A questionnaire survey. *International Journal of Nursing Studies*. 45, pp. 1534–1542.
- Watson, A. & Corrigan, P. (2001) *The Impact of Stigma on Service Access and Participation*. The Behavioural Health Recovery Management Project. Available from:

<https://zh.scribd.com/document/284577791/Stigma> [Accessed 27 July 2017].

Wei, Y.F., McGrath, P.J., Hayden, J. & Kutcher, S. (2015) Mental health literacy measures evaluating knowledge, attitudes and help-seeking: A scoping review. *BMC Psychiatry*. 15, p. 291. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-015-0681-9> [Accessed 16 June 2018].

Wei, Y.F., McGrath, P.J., Hayden, J. & Kutcher, S. (2016) Measurement properties of tools measuring mental health knowledge: A systematic review. *BMC Psychiatry*. 16(1), p. 297. Available from: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-016-1012-5> [Accessed 16 June 2018].

Weiner, B. (1985) An Attribution theory of achievement motivation and emotion. *Psychological Review*, 92, pp. 548–573.

Weiner, B. (1995) *Judgements of responsibility: A foundation for a theory of social conduct*. New York: Guilford Press.

White, I.R., Royston, P. & Wood, A.M. (2011) Multiple imputation using chained equations: Issues and guidance for practice. *Statistics in Medicine*. 30(4), pp. 377–399.

Wong, D.F.K. & Li, J.C.M. (2012) Cultural influence on Shanghai China People's help-seeking for mental health problems: Implications for social work practice. *British Journal of Social Work*. 44 (4), pp. 868–885.

Wong, H.Y.G. *et al.* (2012a) Early intervention for psychotic disorders: Real-life implementation in Hong Kong. *Asian Journal of Psychiatry*. 5, pp. 68–72.

Wong, F.K.D., Xuesong, H., Poon, A. & Lam, Y.K.A. (2012b) Depression literacy among Chinese in Shanghai, China: A comparison with Chinese-

## References

speaking Australians in Melbourne and Chinese in Hong Kong. *Social Psychiatry and Psychiatric Epidemiology*. 47 (8), pp. 1235–1242.

Wong, F.K.D., Lam, Y.K.A., Poon, A. & Chow, Y.M.A. (2012c) Gender differences in mental health literacy among Chinese-speaking Australians in Melbourne, Australia. *International Journal of Social Psychiatry*. 58 (2), pp. 178–185.

Wong, F.K., Lau, Y., Kwok, S., Wong, P. & Tori, C. (2015) Evaluating the effectiveness of a Mental Health First Aid program for Chinese people in Hong Kong. *Research on Social Work Practice*. 27 (1), pp. 59–67.

Wong, D.F.K. & Xuesong, H. (2011) Schizophrenia literacy among Chinese in Shanghai, China: A comparison with Chinese-speaking Australians in Melbourne and Chinese in Hong Kong. *Australian and New Zealand Journal of Psychiatry*. 45 (7), pp. 524–531.

World Health Organization, ed. (1993) *The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic Criteria for Research*. Geneva: World Health Organization.

World Health Organization (2011) *Global Burden of Mental Disorders and the Need for a Comprehensive, Coordinated Response from Health and Social Sectors at the Country Level*. Available from: [http://www.who.int/mental\\_health/WHA65.4\\_resolution.pdf](http://www.who.int/mental_health/WHA65.4_resolution.pdf) [Accessed 16 June 2018].

World Health Organization (2016) *Mental Health: Strengthening Our Response*. Available from: <http://www.who.int/en/news-room/fact-sheets/detail/mental-health-strengthening-our-response> [Accessed 16 June 2018].

World Psychiatric Association (2000) *The WPA Programme to Reduce Stigma and Discrimination because of Schizophrenia*. Vols. 1–5. Geneva: WPA.

## References

- World Psychiatric Association (2005) *The WPA Global Programme to Reduce the Stigma and Discrimination Because of Schizophrenia. Schizophrenia – Open the Doors Training Manual*. Geneva: World Psychiatric Association.
- Wright, A. *et al.* (2005) Recognition of depression and psychosis by young Australians and their beliefs about treatment. *Medical Journal of Australia*. 183, pp.18–23.
- Wright, A. & Jorm, A.F. (2009) Labels used by young people to describe mental disorders: Factors associated with their development. *Australian and New Zealand Journal of Psychiatry*. 43, pp. 946–955.
- Wright, A., Jorm, A.F., Harris, M.G. & McGorry, P.D. (2007) What's in a name? Is accurate recognition and labelling of mental disorders by young people associated with better help-seeking and treatment preferences? *Social Psychiatry and Psychiatric Epidemiology*. 42 (3), pp. 244–250.
- Wright, A., Jorm, A.F. & Mackinnon, A.J. (2011) Labeling of mental disorders and stigma in young people. *Social Science & Medicine*. 73, pp.498–506.
- Wunderink, A., Nienhui, F.J., Sytema, S. & Wiersma, D. (2006) Treatment delay and response rate in first episode psychosis. *Acta Psychiatrica Scandinavica*. 113 (4), pp. 332–339.
- Xu, Y. *et al.* (2014) Prevalence and correlates of depression among college nursing students in China. *Nurse Education Today*. 34, pp. 7–12.
- Yamauchi, T., Semba, T., Sudo, A., Takahashi, N., Nakamura, H., Yoshimura, K., Koyama, H., Ishigami, S. & Takeshima, T. (2010) Effects of psychiatric training on nursing students' attitudes towards people with mental illness in Japan. *International of Social Psychiatry*. 57 (6), pp. 574–579.

## References

- Yang, L. H., Lo, G., Won-Borja, A. J., Singla, D. R., Link, B. G. & Phillips, M. R. (2012) Effects of labelling and interpersonal contact upon attitudes towards schizophrenia: Implications for reducing mental illness stigma in urban China. *Social Psychiatry and Psychiatric Epidemiology*. 47 (9), pp. 1459–1473.
- Yap, M.B.H., Wright, A. & Jorm, A.F. (2011a) The influence of stigma on young people's help-seeking intentions and beliefs about the helpfulness of various sources of help. *S Social Psychiatry and Psychiatric Epidemiology*. 46 (12), pp. 1257–1265.
- Yap, M.B.H., Wright, A. & Jorm, A.F. (2011b) First aid actions taken by young people for mental health problems in a close friend or family member: Findings from an Australian national survey of youth. *Psychiatry Research*. 188, pp. 123–128.
- Yap, M.B.H. & Jorm, A.F. (2012) Young people's Mental Health First Aid intentions and beliefs prospectively predict their actions: Findings from an Australian National Survey of Youth. *Psychiatric Research*. 196, pp. 315–319.
- Yeo, S.G. *et al.* (2001) Mental health literacy survey of psychiatrically and generally trained nurses employed in a Singapore psychiatric hospital. *International Journal of Nursing Practice*. 7, pp. 414–421.
- Yip, P.S., Liu, K.Y., Lam, T.H., Stewart, S.M., Chen, E. & Fan, S. (2004) Suicidality among high school students in Hong Kong SAR. *Suicide and Life-Threatening Behaviour*. 34, pp. 284–297.
- Yoon, S.L. & Kim, J. (2013) Job-related stress, emotional labor, and depressive symptoms among Korean nurses. *Journal of Nursing Scholarship*. 45 (2), pp. 169–176.
- Yoshioka, K., Reavley, N. J., Rossetto, A. & Jorm, A. F. (2015) Beliefs about first aid for mental disorders: Results from a mental health literacy

survey of Japanese high school students. *International Journal of Culture and Mental Health*. 8 (2), pp. 223–230.

Young, J. (2005) On insiders (Emic) and outsiders (Etic) views of self, and othering. *System Practice and Action Research*. 18, pp. 151–162.

Young, D.K.W. & Ng, P.Y.N. (2015) The prevalence and predictors of self-stigma of individuals with mental health illness in two Chinese cities. *International Journal of Social Psychiatry*. 62 (2), pp. 176–185.

Yu, Y. *et al.* (2015) Assessment of mental health literacy using a multifaceted measure among a Chinese rural population. *BMJ Open*. 5 (1), p. e009054. Available from: <http://bmjopen.bmj.com/content/5/10/e009054> [Accessed 16 June 2018].

Zamith, R. & Lewis, S.C. (2015) Content analysis and the algorithmic coder. What computational social science means for traditional modes of media analysis. *The Annals of the American Academy of Political and Social Science*. 659, pp. 307–318.

Zucker, G.S. & Weiner, B. (1993) Conservatism and perceptions of poverty: An attributional analysis. *Journal of Applied Social Psychology*. 23, pp. 925–943.

# APPENDIX INFORMATION

## Appendix A: UWE and KWC–REC ethical approval



Faculty of  
Health &  
Applied  
Sciences  
Glenside  
Campus  
Blackberry Hill  
Stapleton  
Bristol BS16  
1DD

Tel: 0117 328

1170

UWE REC REF No: HAS/14/09/18

10<sup>th</sup> March 2015

Dear Wai-Yee

**Application title: Impact of Mental Health First aid on Nursing Students' Knowledge, Attitude and Cultural Competence: A pilot Randomised Controlled Trial**

Thank you for resubmitting your ethics application, this was considered by the Committee and based on the information provided was given ethical approval to proceed.

You must notify the committee in advance if you wish to make any significant amendments to the original application using the amendment form at <http://www1.uwe.ac.uk/hls/research/researchethicsandgovernance.aspx>

Please note that any information sheets and consent forms should have the UWE logo. Further guidance is available on the web: <http://www1.uwe.ac.uk/aboutus/departmentsandservices/professionalservices/marketingandcommunications/resources.aspx>

The following standards conditions also apply to all research given ethical approval by a UWE Research Ethics Committee:

1. You must notify the relevant UWE Research Ethics Committee in advance if you wish to make significant amendments to the original application: these include any changes to the study protocol which have an ethical dimension. Please note that

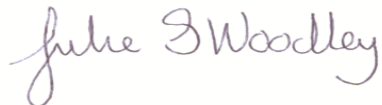
any changes approved by an external research ethics committee must also be communicated to the relevant UWE committee.

2. You must notify the University Research Ethics Committee if you terminate your research before completion.
3. You must notify the University Research Ethics Committee if there are any serious events or developments in the research that have an ethical dimension.

Please note: The UREC is required to monitor and audit the ethical conduct of research involving human participants, data and tissue conducted by academic staff, students and researchers. Your project may be selected for audit from the research projects submitted to and approved by the UREC and its committees.

We wish you well with your research.

Yours sincerely

A handwritten signature in purple ink that reads "Julie Woodley". The signature is written in a cursive, flowing style.

Dr Julie Woodley  
Chair  
Faculty Research Ethics Committee  
c.c. *Lesley Lockyer*





### Amendment to Existing Research Ethics Approval

*Please complete this form if you wish to make an alteration or amendment to a study that has already been scrutinised and approved by the Faculty Research Ethics Committee and forward it electronically to the Officer of FREC (researchethics@uwe.ac.uk)*

UWE research ethics reference number:	<b>UWE REC REF No: HAS/14/09/18</b>
Title of project:	<b>Impact of Mental Health First aid on Nursing Students' Knowledge, Attitude and Cultural Competence: A Pilot Randomised Controlled Trial</b>
Date of original approval:	<b>10th March 2015</b>
Researcher:	<b>Wai Yee Mak</b>
Supervisor (if applicable)	<b>Lesley Lockyer</b>

1. Proposed amendment: **Please outline the proposed amendment to the existing approved proposal.**

**New Title: Exploring the Impact of Mental Health First Aid on Nursing Students' Knowledge and Attitude: A Pilot Randomised Controlled Trial**

2. Reason for amendment. **Please state the reason for the proposed amendment.**

**Recommendation from the Internal Examiners of progression examination**

3. Ethical issues. **Please outline any ethical issues that arise from the amendment that have not already addressed in the original ethical approval. Please also state how these will be addressed.**

**The study design and method of data collection have not changed.**

**To be completed by supervisor/ Lead researcher:**

Signature:

WYMAK

Date:

4<sup>th</sup> February 2016

**To be completed by Research Ethics Chair:**

Send out for review:

Yes

No

Comments:

*Simple change which arises no further ethical issues*

Outcome:

Approve

Approve subject to conditions

Refer to Research Ethics Committee

Date approved:

9<sup>th</sup> Feb 2016

Signature:

*Dr Julie Woodley (via e-mail)*

Guidance on notifying UREC/FREC of an amendment.

Your study was approved based on the information provided at the time of application. If the study design changes significantly, for example a new population is to be recruited, a different method of recruitment is planned, new or different methods of data collection are planned then you need to inform the REC and explain what the ethical implications might be. Significant changes in participant information sheets, consent forms should be notified to the REC for review with an explanation of the need for changes. Any other significant changes to the protocol with ethical implications should be submitted as substantial amendments to the original application. If you are unsure about whether or not notification of an amendment is necessary please consult your departmental ethics lead or Chair of FREC.



醫院管理局  
HOSPITAL  
AUTHORITY

Mr MAK Wai Yee,  
Registered Nurse,  
Tsuen Wan/North Lantau Community Psychiatric Nursing Services,  
Kwai Chung Hospital

4 March, 2015

Dear Mr MAK,

**KWC-REC Reference: KW/FR-14-201(82-08)**

**Title: Impact of Mental Health First aid on Nursing Students' Knowledge, Attitude and Cultural Competence: A pilot Randomised Controlled Trial**

The Kowloon West Cluster Research Ethics Committee (KWC-REC) is authorized by the Cluster Chief Executive to review and monitor clinical research. It serves to ensure that research complies with the Declaration of Helsinki, ICH GCP Guidelines, local regulations and HA policy. It has the authority to approve, require modifications in (to secure approval), or disapprove research. This Committee has power to terminate / suspend a research at any time if there is evidence to indicate that the above principles and requirements have been violated.

KWC-REC has approved your research application on 4 March, 2015 by full review process, and reached the following decision on the documents submitted as shown below. You are required to adhere to the attached conditions.

Study site(s)	Kwai Chung Hospital
Document(s) approved	I. Clinical Research Ethics Review Application Form (revised on 4 March, 2015) II. Protocol (revised on 30 January, 2015) III. Participant Information Sheet – English and Chinese Version dated 12 October, 2014 (revised on 20 November, 2014) IV. Consent Form – English and Chinese Version dated 12 October, 2014 V. Invitation Letter – English and Chinese Version (received on 24 October, 2014) VI. Questionnaire – English and Chinese Version (received on 24 October, 2014)
Document(s) reviewed	I. Academia issued by University of the West of England dated 27 November, 2014 II. CV of Principal Investigator (received on 24 October, 2014)
Conditions	1. Do not deviate from, or make changes to the study protocol without prior written REC approval, except when it is necessary to eliminate immediate hazards to research subjects or when the change involves only logistical or administrative issues. 2. Apply a clinical trial certificate from Department of Health if indicated. 3. Report the followings to KWC-REC* : (i) study protocol or consent document changes, (ii) serious adverse event, (iii) study progress (iv) new information that may be relevant to a subject's willingness to continue participation in the study. 4. Report first study progress to KWC-REC at <b>12-monthly intervals</b> until study closure. [*Forms are available from KWC-REC intranet webpage]

Please quote the REC Reference KW/FR-14-201(82-08) in all your future correspondence with the KWC-REC, including submission of progress reports and requesting for amendments to the research protocol.

Secretariat of  
Research Ethics Committee,  
Kowloon West Cluster

Room 533, 5/F, Block J,  
Princess Margaret Hospital  
Tel: (852) 29601017 / 29601047  
Fax: (852) 29603438

Princess Margaret Hospital  
2-10 Princess Margaret  
Hospital Road, NT  
Tel: (852) 2960 1111  
Fax: (852) 2786 3829

專科護理院  
新界專科護理院2-10樓  
電話：(852) 2960 1111  
傳真：(852) 2786 3829

Yours sincerely,

(Dr Ashley CHENG)  
Chairperson  
Research Ethics Committee  
Kowloon West Cluster

c.c. COS(DIV II), KCH



(A7)



醫院管理局  
HOSPITAL  
AUTHORITY

Mr MAK Wai Yee,  
Registered Nurse,  
Tsuen Wan/North Lantau Community Psychiatric Nursing Services,  
Kwai Chung Hospital

12 June, 2017

Dear Mr MAK,

KWC-REC Reference: KW/FR-14-201(82-08)(2)

**Title: Exploring the Impact of Mental Health First Aid on Nursing Students' Knowledge and Attitude: A Pilot Randomised Controlled Trial**

Thank you for submitting the protocol amendment application to the Research Ethics Committee of the Kowloon West Cluster (KWC-REC). I am pleased to inform you that the following amendment item(s) and document(s) have been reviewed and approved by the KWC-REC through an expedited process on 12 June, 2017.

No.	Document / Amendment Type
1.	<p>Protocol Amendment Application Form dated 22 March, 2017</p> <ul style="list-style-type: none"> <li>- Extend the final report date to 30 September 2017</li> <li>- Change study title from</li> </ul> <p>"Exploring the Impact of Mental Health First aid on Nursing Students' Knowledge and Attitude: A Pilot Randomised Controlled Trial"</p> <p>to</p> <p>"Exploring the Impact of Mental Health First Aid on Nursing Students' Knowledge and Attitude: A Pilot Randomised Controlled Trial"</p>

Please note that all conditions pertaining to the previous approval of your research study as stated in the letter of 04 March, 2015 are still in force.

Yours sincerely,

(Dr Ashley CHENG)  
Chairperson  
Research Ethics Committee  
Kowloon West Cluster

Secretariat of  
Research Ethics Committee,  
Kowloon West Cluster  
Room 533, 5/F, Block J,  
Princess Margaret Hospital

Princess Margaret Hospital  
2-10 Princess Margaret  
Hospital Road, NT  
Tel: (852) 2990 1111  
Fax: (852) 2786 3629

瑪嘉烈醫院  
新界瑪嘉烈醫院道2-10號  
電話：(852) 2990 1111  
傳真：(852) 2786 3629

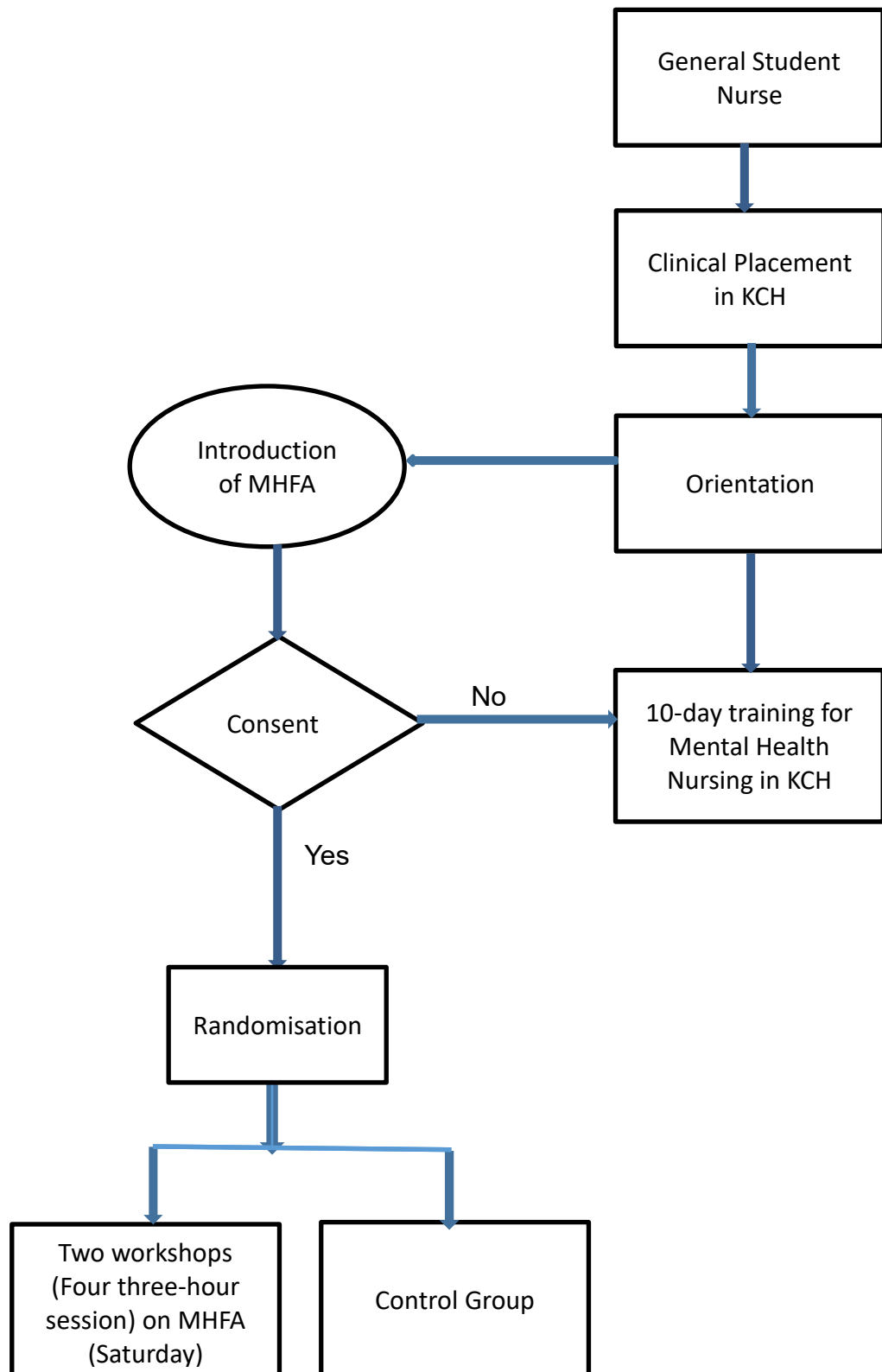
Page 1 of 1

111 / (AY)

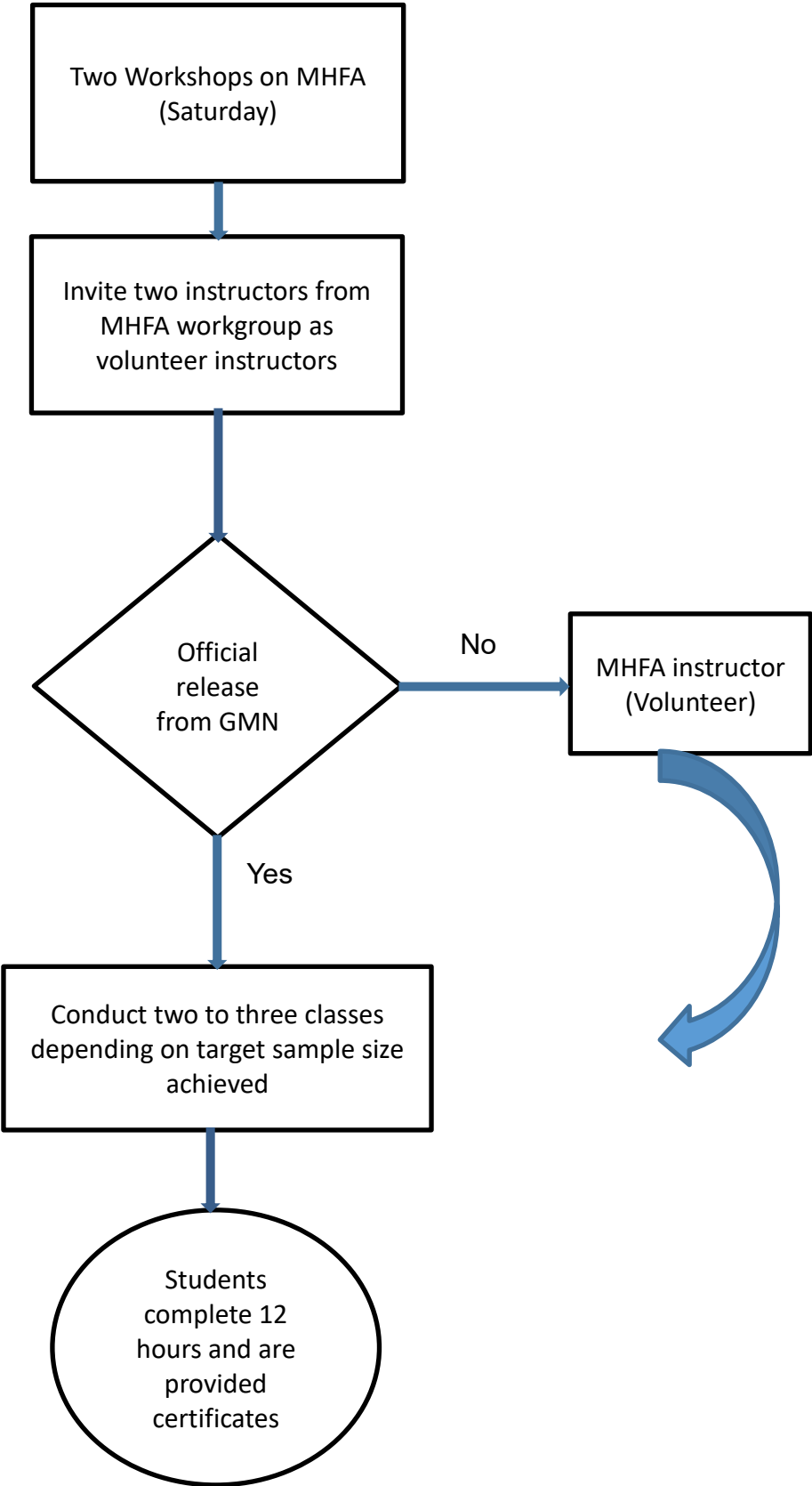


**Appendix B:** Logistic plan for MHFA project in KCH

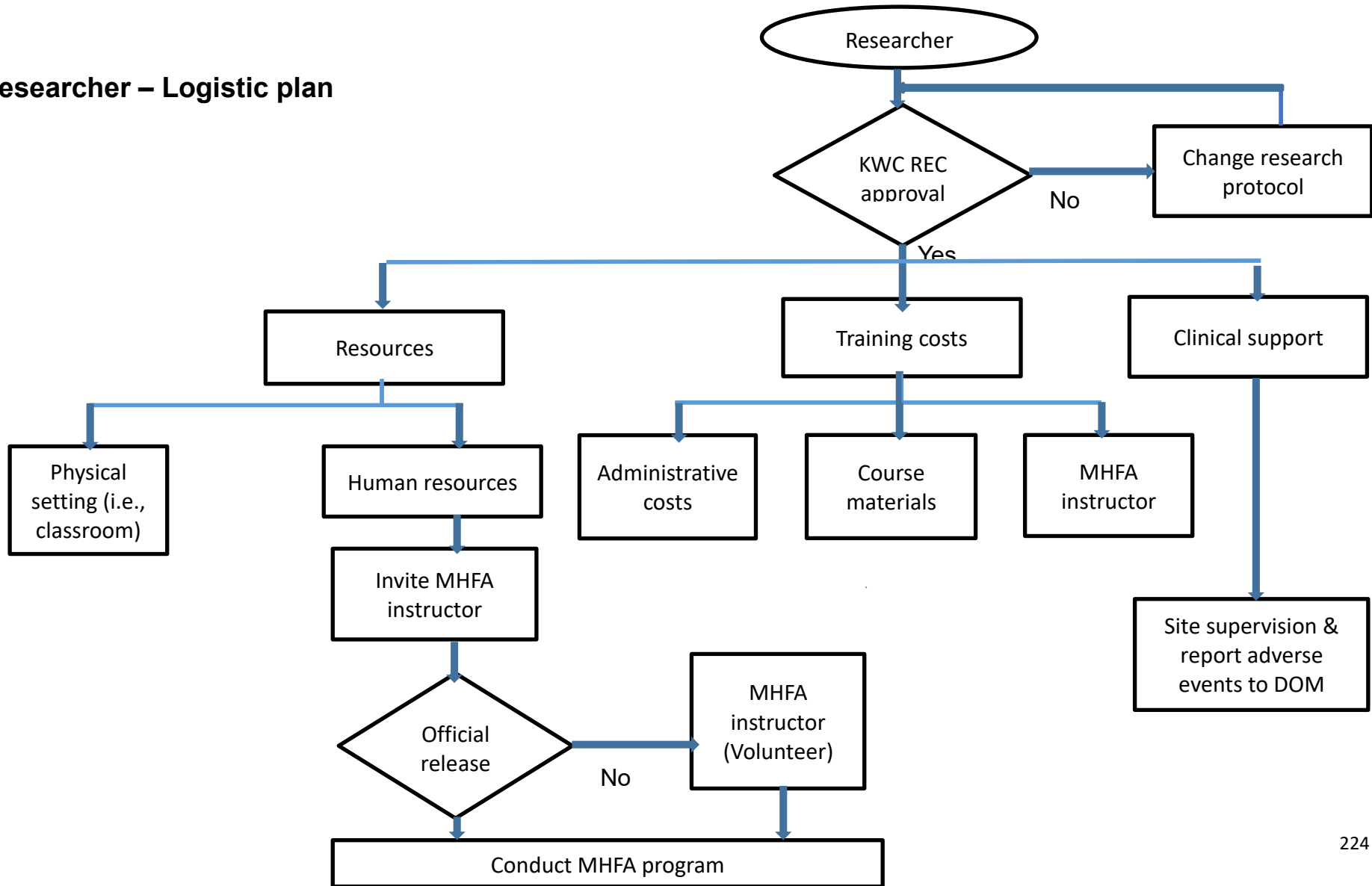
**Logistic Plan – Control Group Flow Chart**



### MHFA Group Flow Chart



### Researcher – Logistic plan



**Appendix C: Participant Information Sheet**

Date: 1 April 2015

**Exploring the Impact of Mental Health First Aid on Nursing Students' Knowledge and Attitude: A Pilot Randomised Controlled Trial**

"You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this." You will be given a copy of this information sheet and a signed consent form to keep if you take part in this study.

The aim of this research is:

To assess the impact of providing the Mental Health First Aid (MHFA) training to general student nurses and to evaluate its impact on their mental health literacy (MHL) and attitude toward mental illness.

Objectives:

The hypothesis tested is that student nurses undertaking MHFA plus the Usual Education Practice (UEP) will have improved mental health literacy and attitude scores towards mental health compared to those student nurses who have undertaken only UEP.

Background:

Young people aged 16-24 have the highest prevalence of mental health problems, but they tend to delay their help-seeking behaviour. In Hong Kong, the prevalence of depression is high for nursing students, so early identification and intervention for both depression and psychosis are crucial. Reasons for delaying help seeking are related to this lack of recognition and poor knowledge about choice of help; the strategy is to provide a MHL program (i.e., MHFA) to enhance student nurses' knowledge on mental health and reduce stigma. For general nursing students, the pre-registration mental health training is inadequate within the limited curriculum. Therefore, they feel inadequate to provide mentally competent care.

**Mention that the study has been given favourable opinion from UWE Faculty Research Ethics Committee**

**Why have I been asked to be involved in the research?**

Your participation in the study will certainly help to conduct a pilot RCT, which is an important evidence-building tool for nursing practice. You are invited to participate in a research project that has the following purpose and length of involvement: to assess the impact of providing the MHFA training to general student nurses and to evaluate its impact on their mental health literacy (MHL) and attitudes toward mental illness. We are asking you to work with us for six months to help answer this question.



**What is being asked of me [what is involved]?**

You have been told the following things will be done: You will be assigned to a UEP program, which is a 60 hours with a psychiatric nurse mentor who will provide you practical skills required to deal with mental health. The other educational program (MHFA) involves two weekly group sessions of six hours each that will provide you with information about MHFA and strategies for dealing with mental health problems. This education program is optional and is absolutely free of charge. If you are interested in joining the MHFA program, you will be told about the nature of the study and must agree to randomisation, which means that the MHFA program is assigned by chance. Once you consent to take part in the study, you will be assigned to either MHFA plus UEP or UEP alone. For those assigned to UEP, you will be offered the opportunity to enrol in the MHFA programme after data collection has been completed.

Regardless of which programme you receive, you will be asked to answer a number of questions about knowledge and attitudes towards mental illness. If you are assigned to the educational program, you will be asked these questions before you begin the program, two weeks after the program and again six months later. You will receive an MHFA certificate upon completion of this pilot study as compensation for your time spent completing the questionnaires.

**Is participation voluntary?**

It is up to you to decide whether to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect your study performance evaluations.

**How will my anonymity and confidentiality be secured?**

Personal data such as your name, phone number and email address will be kept strictly confidential. The questionnaire data involves the following: demographic data such as age, sex, race and education level and data on your views regarding your knowledge and attitudes about people suffering from mental health problems. You are not required to put your name on the questionnaire. The completed questionnaire will be concealed in a sealed envelope and handled solely by the researcher. The researcher is ethically obligated to comply with the information security policy of Research Ethics Committee and Personal Data (Privacy) Amendment Bill in Hong Kong.

**How long will it take?**

The questionnaire will normally take 10 to 15 minutes by self-rating.

**What will happen to the data?**

Your data are used only for research purposes. Your questionnaire data will be identified by an identifier code. Only the researcher can access your completed paper questionnaires, which will be stored in a filing cabinet. Online questionnaire data will be kept by the researcher solely for data analysis and stored in a personal computer with encrypted files.

Your questionnaire data will be kept and retained by the researcher for at least six years for scientific reuse. The researcher will input your questionnaire data into a data file that will be used for data analysis. This data file will be protected by encryption and password security. All data files must have a backup copy

in case of computer viruses. For reuse of data, informed consent must be obtained from you.

**Are there any risks in participating?**

The major risks are violations of confidentiality (i.e., protecting a student's personal information by ensuring this information will be disclosed only under specific circumstances).

You are unlikely to face risks such as a fire at the venue, trip or falls, minor injuries, or travel risk when you attend classroom training. The MHFA researcher must follow the venue's occupational safety and health measures and ensure the safety of participants to prevent such potential risks in the study venue.

Part of the video presentation during the class may involve offensive or upsetting content about people suffering from mental illness that may cause you emotional distress. You will be fully informed at the beginning of the class with a trigger warning. Instructors will provide a debriefing and advice in case you have emotional distress during the class; your school coordinator will be informed at your discretion and decision. You are free to leave the classroom if you feel uncomfortable.

**What will be the outcome of the study?**

- Dissertation/thesis
- Findings that can be disseminated through publications and conferences.

**Researcher contact details:**

Mr. Wai Yee Mak  
Psychiatric Outreach Service  
Room A0237  
North Lantau Hospital  
8 Chung Yan Road  
Tung Chung, NT  
Mobile: 61388910  
Email: mwy480@ha.org.hk

**Supervisor contact details:**

Dr. Lesley Lockyer  
Senior Lecturer  
Health and Applied Sciences  
Department of Nursing and Midwifery  
University of West of England, Bristol  
Telephone: 0117 32 88576  
Email: [Lesley.Lockyer@uwe.ac.uk](mailto:Lesley.Lockyer@uwe.ac.uk)

**Thank you for taking part in this study.**

2015 年 4 月 1 日

## 精神健康急救對護士學生的知識和態度之影響：一項 試驗性的隨機對照試驗

### 參加者資料表

「你被邀請來參加這項研究。在決定參與前，最重要的是你要瞭解為什麼做這項研究和它將包含甚麼。請花時間閱讀以下資訊和如有需要可與他人討論，如果你有什麼不清楚或要更多的資料的話，請隨時發問。仔細考慮你是否參與。謝謝你閱讀這篇文章」。如果你參加這項研究，將保留此資訊表和簽署後的同意書副本。

這項研究的目的是：

評估普通科護士學生對提供精神健康急救 (MHFA) 培訓的作用，評價及其對他們心理健康素養 (MHL)、態度和文化能力對精神病之影響。

目標：

評價是否精神健康急救培訓提高了普通科護士學生的心理健康素養、態度和文化能力與慣常教育課程 (UEP) 作比較。它涉及到進行一系列的測試去衡量和比較其心理健康素養和文化能力，測試會在課程前、完成後及(六個月後跟進結果)。

背景：

16 至 24 歲有精神健康問題的青年人患病率為最高，但他們往往拖延他們的求助行為。在香港，對護士學生來說，抑鬱症的患病率較高，所以早期識別和干預對抑鬱症和思覺失調是至為重要的。缺乏識別和對尋求協助的知識貧乏都是延遲求助的原因，對策是提供心理健康素養課程、即精神健康急救旨在提高護士學生對精神健康的知識和減低歧視。對普通科護士學生而言，註冊前的精神健康培訓不足和護理課程內的文化內容有限，所以他們對提供文化有效的照顧是不勝任的。

這項研究已從西英格蘭大學研究倫理委員會給予有利的觀點

為什麼我被邀請參與此項研究？

當然您參與這項研究將有助於進行試點的隨機對照試驗 (RCT)，是護理實踐的重要證據的建築工具。你被邀請參與具有以下目的和投入感：評估普通科護士學生對提供精神健康急救 (MHFA) 培訓的作用，評價及其對他們心理健康素養 (MHL)、態度和文化能力對精神病之影響。我們要求您與我們攜手為期約六個月，回答這些問題。

### 詢問我什麼 [所涉及的内容]？

你會被告知將會發生的事情：偶然的機會，像擲一枚硬幣，如你同意參與你將被分配兩種類型的教育項目中的其中一種。一種是教育課程為提供精神健康急救的資訊和處理精神健康問題的對策，課程以每節六小時共兩星期。你可能會被分配到另一種的臨床實習課程，是兩星期的精神科護士臨床導師為您提供處理精神健康問題所需的實用技能。你明白你有同等機會接受任何一種教育課程。

無論那種教育課程，你將被要求回答一些關於精神病知識和態度的問題，並確定你是否擁有文化效能。如果分配給您的是教育課程，將要求您在課程前和課程終和六個月後再重覆這些問題。如果分配給您的是臨床實習課程，以同樣的原則。

### 參與是自願的嗎？

參加與否是你的決定。如果你決定參與，你可保留這份資訊表，並被要求簽署這份同意書。在任何時間你可自由決定退出，而無須給予理由。決定撤回或不參與是不會影響你的學業表現評價。

### 匿名和保密如何受到保護？

研究員必須遵守研究倫理委員會的資訊安全政策和香港個人資料（私隱）條例草案。問卷調查當您的同事或其他病人患有精神健康問題時、您的觀點或看法。敏感性資料是保密的。通過問卷調查收集的資料將以偽匿名進行數據分析。干預前和干預後的問卷識別和連繫將以身份代碼形式即是不指示參與者的身份。保密問題一定不能掉以輕心；這是研究者的道德義務，以保護和確保個人資料的安全。培訓工作人員保密原則和資料保密是強制性的。

### 填寫問卷需要多久？

調查問卷以自我評分進行，通常為 10 至 15 分鐘。

### 資料會什麼處理？

人口統計資料涉及到你的年齡、性別、種族、教育水準和個人接觸患有精神疾病。研究數據只用作研究用途。問卷內的資料將以偽匿名進行數據分析。只有研究員可接觸存放在檔案櫃中已填妥的問卷。電子問卷數據將保存在研究人員個人電腦內並加密存檔作數據分析。

根據檔案的丟棄原則，任何參與者的識別資料必須刪除並摧毀。研究員應通知參與者他們的個人資料存檔會以研究完成後以科學重用和保留最少 6 年。所有的電子檔案和電郵必須登記、備份和加密。沒有電腦系統是完全安全的，例如病毒、駭客、系統漏洞。因此，所有資料檔案必須提供備份副本，研究員的電子裝置必須加密及加強密碼保安的安全性。

保護資料原則概述安全措施必須謹慎執行要根據法律意識；研究者必須牢記違反保密原則，例如不小心丟失手機和傳送電子郵件/互聯網傳輸資料時包含了參與者的個人資料。基於良好的臨床實踐原則，這保護資料是研究者的道德義務；數據資料擁有權是屬於研究員和機構，所有數據重用必須得到參與者的知情同意。

### 參與有什麼風險？

主要的風險是違反保密（確保在特定情況下此資訊保護學生的個人資料將被披露）。保密原則不能輕視；這是研究者的義務，尊重參與者的個人資料和保密，即使研究被列為低風險。仁慈是同時增加可見的利益與減低潛在風險傷害的。研究者制定干預草案針對護士學生的特別需要及在研究後具有正面的結果。

這課程教材包含了精神病人的潛在冒犯性或令人不安的內容，可能會觸發學生不同的情緒反應，所以研究員必須通知精神健康急救導師預先在課堂前提供觸發警告予學生。這是研究者的責任轉介情緒受困擾的學生尋求適當的求助，例如解說、心理健康輔導員和課程協調員作進一步心理干預。

### 研究的結果會怎樣？

可以通過出版和會議或論文發表調查結果。

### 研究員連絡方式：

麥偉義先生  
精神科外展服務  
A0237 室  
北大嶼山醫院  
東涌松仁路 8 號  
大嶼山  
手電: 61388910  
電子郵件： [mwy480@ha.org.hk](mailto:mwy480@ha.org.hk)

**Supervisor contact details:** Dr Lesley Lockyer  
Senior Lecturer  
Health and Applied Sciences  
Department of Nursing and Midwifery  
University of West of England, Bristol

Telephone: 0117 32 88576  
Email: [Lesley.Lockyer@uwe.ac.uk](mailto:Lesley.Lockyer@uwe.ac.uk)

謝謝你參與這項研究

## Appendix D: Invitation Letter

Study Title: Exploring the Impact of Mental Health First Aid on Nursing Students' Knowledge and Attitude: A pilot Randomised Controlled Trial

Dear \_\_\_\_\_ (the name of respondent)

My name is Mr. Mak Wai Yee. I am a doctoral candidate in the Health and Social Care at the University of the West of England. I am conducting a research study as part of the requirement of the study. I would like to invite you to take part.

The aim of the study is to explore the impact of providing the Mental Health First Aid (MHFA) training to general student nurses and to evaluate its impact on their Mental Health Literacy (MHL) and attitude toward mental illness.

If you consent to participate, you are invited to take part in an MHFA education program. It contains detailed action plans which cover: depression, anxiety disorders, psychosis and substance use disorders, and interactive case studies for each. You receive this course in 2 weekly sessions of 6-hours each. You will be asked to answer a questionnaire by self-rating before, end of intervention (2 weeks) and 6-month follow-up after the program. Participation in the program is voluntarily and an MHFA certificate is issued upon completion of the course.

Study information will be kept in a secure location and treated in strict confidentiality that only researcher can access the questionnaires data for data analysis. Participation is anonymous, which means that no one will know what your answers are. So, please do not write your name or other identifying information on any of the study materials. The result of the study is reported as dissertation and may be published or presented at professional meeting, but your identity will not be revealed.

Participation, non-participation or withdrawal will not affect your student performance evaluations. We will be happy to answer any questions you have about the study. You may contact me at mobile 61388910 or email address: [mwy480@ha.org.hk](mailto:mwy480@ha.org.hk) or my faculty advisor (Dr. Lesley Lockyer at email address: [Lesley.Lockyer@uwe.ac.uk](mailto:Lesley.Lockyer@uwe.ac.uk)) if you have any questions about your rights as a research participant, you may contact the University Research Ethics Committee at the University of the West of England with email address: [urec.enquiries@uwe.ac.uk](mailto:urec.enquiries@uwe.ac.uk).

Thank you for your consideration. The information sheet provides more details about your rights being a research participant. If you would like to participate, please sign two copies of a written consent form, one copy will be retained by you and the other by the researcher.

With kind regards,

Mr. Wai Yee Mak  
Psychiatric Outreach Service  
Room A0237  
North Lantau Hospital  
8 Chung Yan Road  
Tung Chung, NT  
Mobile: 61388910  
Email: [mwy480@ha.org.hk](mailto:mwy480@ha.org.hk)

## 邀請信

研究標題：精神健康急救對護士學生的知識和態度之影響：一項試驗性的隨機對照試驗。

親愛的 \_\_\_\_\_（回答者名稱）

本人是麥偉義先生。我是健康和社會護理的西英格蘭大學博士候選人。我正進行一項調查研究作為研究的要求的一部分。我誠意邀請你的參加。

評估普通科護士學生對提供精神健康急救 (MHFA) 培訓的作用，評價及其對他們心理健康素養 (MHL)、態度和文化能力對精神病之影響。

如果你同意參與，你會被邀請參加一個精神健康急救教育課程。它包含了詳細的行動計畫以覆蓋四種精神病包括：抑鬱症、焦慮症、思覺失調和物質使用障礙等，每種精神病會以互動範例形式進行。課程以每節六小時共兩星期。你會被要求回答一份自我評分的調查問卷，分別在課程開始時、課程完成後（兩個星期後）和六個月後跟進結果。參與這課程是自願的和完成課程後將獲頒發精神健康急救證書作為鼓勵。

研究資料將保存在一個安全的位置和遵守嚴格保密原則，只有研究人員可以使用問卷資料進行數據分析。參與是匿名的，這意味著沒有人會知道你的答案是什麼。所以請不要寫上你的名字或其他個人資料在任何課程教材上。研究的結果作為論文報告和刊登或公佈在專業議程上，但將不會透露您的身份。

參與、非參與或退出是不會影響你的學業表現評估。我們將很樂意回答你有關於這項研究的任何問題。你可以聯絡我，手機號碼為 **61388910** 或電子郵件地址：[mwy480@ha.org.hk](mailto:mwy480@ha.org.hk) 或我的指導教授（萊斯利洛克耶博士的電子郵件地址：[Lesley.Lockyer@uwe.ac.uk](mailto:Lesley.Lockyer@uwe.ac.uk)）。如您有任何問題關於你作為研究參與者的權利，您可以聯絡西英格蘭大學研究倫理委員會的電子郵件：[urec.enquiries@uwe.ac.uk](mailto:urec.enquiries@uwe.ac.uk)。

謝謝您的考慮。資訊表內提供更多詳細資訊關於您作為研究參與者的權利。如果你想參與這研究，請簽署書面知情同意書副本 **2** 份，一份副本由你保留和另外副本則由研究員保留。

敬啟者：



麥偉義先生  
精神科外展服務  
A0237 室  
北大嶼山醫院  
東涌松仁路 8 號  
大嶼山  
手電: 61388910  
電子郵件: mwy480@ha.org.hk

**Appendix E: Consent Form**

Date: 1 April 2015

**Title of Project:** Exploring the Impact of Mental Health First Aid on Nursing Students' Knowledge and Attitude: A Pilot Randomised Controlled Trial

Name of Researcher: Mr. Wai Yee Mak  
 Psychiatric Outreach Service  
 Room A0237  
 North Lantau Hospital  
 8 Chung Yan Road  
 Tung Chung, NT  
 Mobile: 61388910  
 Email: mwy480@ha.org.hk

**Please initial box**

1. I confirm that I have read and understand the information sheet dated 1/4/2015 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
3. I agree that direct quotes may be used for publication, as long as they presented anonymously.
4. I agree to randomisation.
5. I agree to take part in the above study.

\_\_\_\_\_  
Name of participant\_\_\_\_\_  
Date\_\_\_\_\_  
Signature\_\_\_\_\_  
Name of researcher\_\_\_\_\_  
Date\_\_\_\_\_  
Signature

When completed: 1 copy for participant; 1 signed copy for research file

日期：二零一五年四月一日

## 同意書

**研究標題：**精神健康急救對護士學生的知識和態度之影響：一項試驗性的隨機對照試驗

研究員姓名： 麥偉義先生  
精神科外展服務  
A0237 室  
北大嶼山醫院  
東涌松仁路 8 號  
大嶼山  
手電: 61388910  
電子郵件： [mwy480@ha.org.hk](mailto:mwy480@ha.org.hk)

請在此  
簽署

1. 我確認已閱讀並理解根據2015年4月1日資訊表內對上述研究的解釋。我有機會考慮的資訊，問的問題，有過這些回答令人滿意。
2. 我明白我的參與是自願性的，我可隨時停止參與，而無須給予任何理由，我的醫療照護或法律權利將不會受到影響。
3. 我同意出版時以匿名方式直接引用我的觀點。
4. 我同意隨機選擇。
5. 我同意參加上述的研究。

\_\_\_\_\_  
參與者姓名

\_\_\_\_\_  
簽署

\_\_\_\_\_  
日期

\_\_\_\_\_  
研究員

\_\_\_\_\_  
簽署

\_\_\_\_\_  
日期

當完成： 1 份副本參與者保留；1 份簽署的副本，為研究檔案。

**Appendix F: Questionnaire (Pre-assessment)**

Please **tick** your preferred choice.

**Section A: Personal Information**

1. What is your gender?  
 Female             Male             Prefer not to say
  
2. How old are you?  
 18     19     20     21     22     23     24  
 25     Prefer not to say
  
3. What is your ethnicity?  
Chinese             Pakistani             Indian   
Filipino             Indonesian             White   
Others             Prefer not to say
  
4. What is your education level?  
 Undergraduate Year 3  
 Undergraduate Year 4  
 Post-graduate  
 Prefer not to say
  
5. You have contact with people with mental health problems?  
 Yes             No             Prefer not to say

**Section B: Knowledge on Mental Illness**

Wah is 20 years old and emigrated from China five years ago. For the last six months, she always has a low mood with severe social withdrawal. She cannot keep her mind on her studies and her life is centred at home. She shows no interest or willingness to attend school. She puts off making any decisions, and even day-to-day tasks seem too much for her. Her parents and teachers are very concerned about her.

OR

Wah is a 22-year old man from Pakistan who lives at home with his parents. Over the last three months, he has dropped out of college and has become involved with a group of teenagers who have introduced him to ketamine, ice and alcohol. His parents hear him walking around in his bedroom at night, shouting and arguing as if someone else is with him. When they encourage him to do more things, he shouts at his parents that he will take revenge because he is being persecuted by the neighbours. His parents worry about his potential for violence.

6. Is everything fine with Wah? If not what would you say is wrong with her?

---

---

---

---

7. Has anyone in your family or close circle of friends ever had problem similar to Wah's? Have they received any professional help or treatment for these problems? What are they?

---

---

---

---

8. Do you think the followings interventions or treatments are helpful to Wah? If not, what are they?

- |  |  |
|--|--|
| <input type="checkbox"/> GP                          | <input type="checkbox"/> psychiatrist      |
| <input type="checkbox"/> clinical psychologist       | <input type="checkbox"/> admission to ward |
| <input type="checkbox"/> antipsychotics              | <input type="checkbox"/> antidepressants   |
| <input type="checkbox"/> cognitive-behaviour therapy | <input type="checkbox"/> counselling       |
| <input type="checkbox"/> others                      |  |

---

---

---

---

9. If Wah was a patient that you cared about. What would you do to help?

---

---

---

---

10. How confident are you in the ability to help?

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> very confident       | <input type="checkbox"/> fairly confident | <input type="checkbox"/> slightly confident |
| <input type="checkbox"/> Not at all confident |   |   |

**Section C: Attitude on Mental Illness**

Score: 1. strongly agree; 2. agree; 3. disagree; 4. strongly disagree

	Score
11. It is difficult to communicate with people with mental illness	
12. It is common for people with mental illness to have propensity for violence	
13. The majority of people with mental illness can recover	
14. People with mental illness are weak, they should blame themselves for their illness	
15. The society should treat people with mental illness with a tolerant attitude	
16. It is difficult to predict the behaviours and mood of people with mental illness	
17. Everyone has the chance to develop mental illness	
18. I would not tell others that I suffer from mental illness	
19. People having a relative suffering from mental illness would be looked down upon by others	
20. I feel afraid of talking with people with mental illness	
21. I oppose the building up of residential hostels for people with mental illness near to my household	
22. There are no medication treatments for mental illness and people with mental illness have very low chance of being recovered	
23. It is difficult for me to make friends with people with mental illness	
24. I feel embarrassed to go out with my relative if my relative has mental illness	
25. It is a waste of money to increase the expenditure on the service to care for people with mental illness	

Thank you very much for completing the questionnaire!

## Questionnaire (Post-assessment)

Please **tick** your preferred choice.

### Section B: Knowledge on Mental Illness

Wah is 20 years old and emigrated from China five years ago. For the last six months, she always has a low mood with severe social withdrawal. She cannot keep her mind on her studies and her life is centred at home. She shows no interest or willingness to attend school. She puts off making any decisions, and even day-to-day tasks seem too much for her. Her parents and teachers are very concerned about her.

OR

Wah is a 22-year old man from Pakistan who lives at home with his parents. Over the last three months, he has dropped out of college and has become involved with a group of teenagers who have introduced him to ketamine, ice and alcohol. His parents hear him walking around in his bedroom at night, shouting and arguing as if someone else is with him. When they encourage him to do more things, he shouts at his parents that he will take revenge because he is being persecuted by the neighbours. His parents worry about his potential for violence.

1. Is everything fine with Wah? If not what would you say is wrong with her?

---

---

---

---

---

2. Has anyone in your family or close circle of friends ever had problem similar to Wah's? Have they received any professional help or treatment for these problems? What are they?

---

---

---

---

---

3. Do you think these interventions or treatments are helpful to Wah?  
If not, what are they?

- |  |  |
|--|--|
| <input type="checkbox"/> GP                          | <input type="checkbox"/> psychiatrist      |
| <input type="checkbox"/> clinical psychologist       | <input type="checkbox"/> admission to ward |
| <input type="checkbox"/> antipsychotics              | <input type="checkbox"/> antidepressants   |
| <input type="checkbox"/> cognitive-behaviour therapy | <input type="checkbox"/> counselling       |
| <input type="checkbox"/> others                      |  |

---



---



---



---

4. If Wah was a patient that you cared about. What would you do to help?

---



---



---



---

5. How confident are you in the ability to help?

- very confident       fairly confident       slightly confident  
 Not at all confident

### Section C: Attitude on Mental Illness

Score: 1. strongly agree; 2. agree; 3. disagree; 4. strongly disagree

	Score
6. It is difficult to communicate with people with mental illness	
7. It is common for people with mental illness to have propensity for violence	
8. The majority of people with mental illness can recover	
9. People with mental illness are weak, they should blame themselves for their illness	
10. The society should treat people with mental illness with a tolerant attitude	
11. It is difficult to predict the behaviours and mood of people with mental illness	
12. Everyone has the chance to develop mental illness	
13. I would not tell others that I suffer from mental illness	



14. People having a relative suffering from mental illness would be looked down upon by others	
15. I feel afraid of talking with people with mental illness	
16. I oppose the building up of residential hostels for people with mental illness near to my household	
17. There are no medication treatments for mental illness and people with mental illness have very low chance of being recovered	
18. It is difficult for me to make friends with people with mental illness	
19. I feel embarrassed to go out with my relative if my relative has mental illness	
20. It is a waste of money to increase the expenditure on the service to care for people with mental illness	

Thank you very much for completing the questionnaire!

## Questionnaire (Follow up)

Please **tick** your preferred choice.

### **Section B: Knowledge on Mental Illness (Schizophrenia/Depression Vignette)**

Wah is 20 years old and emigrated from China five years ago. For the last six months, she always has a low mood with severe social withdrawal. She cannot keep her mind on her studies and her life is centred at home. She shows no interest or willingness to attend school. She puts off making any decisions, and even day-to-day tasks seem too much for her. Her parents and teachers are very concerned about her.

OR

Wah is a 22-year old man from Pakistan who lives at home with his parents. Over the last three months, he has dropped out of college and has become involved with a group of teenagers who have introduced him to ketamine, ice and alcohol. His parents hear him walking around in his bedroom at night, shouting and arguing as if someone else is with him. When they encourage him to do more things, he shouts at his parents that he will take revenge because he is being persecuted by the neighbours. His parents worry about his potential for violence.

1. Is everything fine with Wah? If not what would you say is wrong with her?

---

---

---

---

---

2. Has anyone in your family or close circle of friends ever had problem similar to Wah's? Have they received any professional help or treatment for these problems? What are they?

---

---

---

---

---

3. Do you think these interventions or treatments are helpful to Wah?  
If not, what are they?

- |  |  |
|--|--|
| <input type="checkbox"/> GP                          | <input type="checkbox"/> psychiatrist      |
| <input type="checkbox"/> clinical psychologist       | <input type="checkbox"/> admission to ward |
| <input type="checkbox"/> antipsychotics              | <input type="checkbox"/> antidepressants   |
| <input type="checkbox"/> cognitive-behaviour therapy | <input type="checkbox"/> counselling       |
| <input type="checkbox"/> others                      |  |

---



---



---



---

4. If Wah was a patient that you cared about. What would you do to help?

---



---



---



---

5. How confident are you in the ability to help?

- very confident       fairly confident       slightly confident  
 Not at all confident

### Section C: Attitude on Mental Illness

Score: 1. strongly agree; 2. agree; 3. disagree; 4. strongly disagree

	Score
6. It is difficult to communicate with people with mental illness	
7. It is common for people with mental illness to have propensity for violence	
8. The majority of people with mental illness can recover	
9. People with mental illness are weak, they should blame themselves for their illness	
10. The society should treat people with mental illness with a tolerant attitude	
11. It is difficult to predict the behaviours and mood of people with mental illness	
12. Everyone has the chance to develop mental illness	

13. I would not tell others that I suffer from mental illness	
14. People having a relative suffering from mental illness would be looked down upon by others	
15. I feel afraid of talking with people with mental illness	
16. I oppose the building up of residential hostels for people with mental illness near to my household	
17. There are no medication treatments for mental illness and people with mental illness have very low chance of being recovered	
18. It is difficult for me to make friends with people with mental illness	
19. I feel embarrassed to go out with my relative if my relative has mental illness	
20. It is a waste of money to increase the expenditure on the service to care for people with mental illness	

Thank you very much for completing the questionnaire!

# GLOSSARY OF TERMS

## **Action plan of ALGEE**

stands for Approach the person, assess and assist with any crisis, Listen non-judgmentally, Give support and information, Encourage appropriate professional help and Encourage other support. Developed and practically applied in the MHFA curriculum.

## **Adverse event**

is defined as any unintended signs, including suicide, self-harm behaviours and very unstable mental states.

## **Applied Suicidal Intervention Skills Training**

is the suicide prevention gatekeeper training programme.

## **Attrition**

is defined as the number of students who fail to complete the trial.

## **Bonferroni correction**

is a correction applied to the alpha level to control the overall Type I error rate when multiple significance tests are conducted.

## **Carryover effects**

occur when the effect of an experimental condition carries over, influencing performance in a subsequent condition.

## **Category**

is a description of the phenomenon under investigation.

**CINAHL (Cumulative Index to Nursing and Allied Health Literature)**

Is records of literature on all aspects of nursing and allied health disciplines.

**Code**

is a descriptive label of a meaning unit.

**Codebook**

is that all variables of interest are specified and guidance is provided to the coders concerning the coding sequence for the different variables. The development of the codebook is strongly rooted in theory.

**Confidence Interval (CI)**

for a given statistic is calculated for a sample of observations (e.g., the mean). The CI is a range of values that the statistic is believed to contain, with a certain probability (e.g., 95%) and represents the true value of that statistic (i.e., the population value).

**Confirmation bias**

occurs when the researcher has a natural inclination to accept and support the face value of previous beliefs and hypotheses rather than challenge these convictions.

**Confounding bias**

is caused by factors that causally affect the exposure and outcomes and can blur the associations between these.

**Confounding variable**

A confounding variable, also known as a third variable or a mediator variable, can adversely affect the relationship between the independent

variable and dependent variable. This may cause the researcher to analyse the results incorrectly and may damage the internal validity of an experiment.

### **Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN)**

is a valid and reliable tool using a quality rating system of nine domains, including internal consistency, reliability, measurement error, content validity, structural validity, hypothesis testing, cross-cultural validity, criterion validity and responsiveness.

### **Consistency checks**

checks for internally consistent information.

### **Contact**

involves introducing people with mental illnesses who are stigmatised to the public, either in person or indirectly via film.

### **Content analysis**

is a technique of studying responses to open-ended questions by coding written words into categories and patterns. Content analysis involves word-frequency counts to determine common themes emerging from the data.

### **Content validation**

is defined as agreement by a panel of mental health experts to support concept production or coding issues.

### **Counterbalancing**

is a process of systematically varying the order in which experimental conditions are conducted. For example, with two conditions (A & B),

half of the participants would receive condition A first followed by condition B; the other half would receive condition B first followed by condition A. The aim is to remove systematic bias caused by practice effects.

**Credibility**

relates to the way in which data are interpreted based on theoretical rationale and consensus validation.

**Data cleaning**

involves checks for outliers and wild codes and consistency checks.

**Data entry**

is an error-prone process that requires verification and data cleaning.

**Data transformations**

include reversing the coding of items, recoding the values of a variable, and transforming data to meet statistical assumptions.

**Deinstitutionalisation**

is an increasing prevalence of patients requiring mental health services being cared for and treated in general hospital settings.

**Delphi method**

establishes the consensus of expert panels on a particular topic and is often used for the development of guidelines.

**Dependability**

involves providing sufficient information on both the data collection and data analysis processes that determine how the findings are developed.



**Diagnostic overshadowing**

is the process where the physical problems of a patient are overshadowed by their psychiatric diagnosis and may contribute to detrimental effects on physical and mental health.

**Dichotomous variable**

consists of only two categories, represented by '0' and '1'.

**Duration of untreated illness (DUI)**

is the time period between the onset of first non-psychotic symptoms and first effective psychiatric treatment received.

**Duration of untreated psychosis (DUP)**

is a measure of treatment delay in psychosis and can be conceptualised into waiting time and help-seeking duration.

**Education**

involves overcoming the myths of mental illness and replacing them with facts.

**Expectation–maximisation (EM) analysis**

is used to estimate means and correlations and to determine if data are missing completely at random. The EM algorithm is an efficient iterative procedure to compute the maximum likelihood (ML) estimate in the presence of missing data. ML estimation involves estimating the model parameters for which the observed data are the most likely.

**External pilot**

is defined as the results of a pilot study that stand alone without combination into the main study.

**Feasibility study**

focuses on a process that includes five objectives, namely recruitment and sample characteristics; procedures and measures; intervention acceptability; resources and ability to manage study; and preliminary evaluation of participant responses.

**Hawthorne effect**

is an effect that occurs when people know that they are the subjects of an experiment and automatically change their behaviour.

**Healthcare students**

are defined as students in the fields of medicine, nursing, medical social work, pharmacy and midwifery.

**Help-seeking duration**

is the period from the first help-seeking behaviour until the receipt of effective psychiatric treatment.

**Intention to treat (ITT)**

ITT analysis is interpreted as including all participants in the groups to which they were randomly assigned, regardless of whether they actually satisfied the entry criteria, the treatment actually received, and subsequent withdrawal or deviation from the protocol. The use of ITT analysis ensures maintenance of comparability between groups as obtained through randomisation, maintains sample size, and eliminates bias

**Intercoder reliability (ICR)**

establishes the reliability of coding through independent processing of the coding units by two coders. Their results are subsequently compared to reach coding consensus. ICR is often reported as a kappa

statistic.

**Interference effects**

occur when previous responses disrupt performance on a subsequent task, the response required in the second task conflicts with the response required in the first task.

**Internal pilot**

is the pilot study population included in the main study.

**Interpretive convergence**

is a process that clarifies terms and code definitions. Code consensus can be influenced by supervision, interpersonal persuasion, conformity and training effects.

**Item non-response**

refers to an individual who does not provide information about a specific measure.

**Kappa**

is the magnitude of agreement between observers.

**Little's MCAR test**

is useful for determining whether imputation is necessary.

**Mauchly's test of sphericity**

is a test of the assumption of sphericity. Sphericity is compound symmetry that assumes that the variances of the differences between data from the same participant are equal. This assumption of sphericity is commonly found in repeated measure ANOVA. Mauchly's test of

sphericity is used to test the null hypothesis that the variances of the differences are equal. If this test is statistically significant ( $p < 0.05$ ), we can reject the null hypothesis and accept the alternative hypothesis that sphericity has been violated.

**Medline**

Includes bibliographic records (with and without abstracts) of biomedical literature from 1966 onwards.

**Mental health clinical practicum**

is a component of all contemporary undergraduate nursing education programmes.

**Mental Health First Aid (MHFA)**

is defined as *the help provided to a person developing a mental health problem or in a mental health crisis.*

**Mental Health Literacy (MHL)**

is defined as *knowledge and beliefs about mental disorders which aid their recognition, management or prevention.*

**Mental Health Stigma (MHS)**

is an attitudinal barrier that affects basic human needs of SMI patients, including self-perception (e.g., self-esteem), employment and housing, interpersonal relationships, and physical and mental health, including help seeking.

**Meta-analysis**

is a study about studies. A researcher reviews previously published papers on a subject and analyses a pool of results to find general trends across studies.

**Missing at Random (MAR)**

is missingness that depends on observed data and not unobserved data.

**Missing Completely at Random (MCAR)**

is that missing values are not significantly related to any other variables in the dataset.

**Missingness**

occurs in prospective studies as a result of failure to follow up, drop-outs and non-adherence.

**Missing Not at Random (MNAR)**

is missingness that depends on unobserved data.

**Monotonous missing data pattern**

is due to participants in the longitudinal study dropping out prior to the end of the study and not returning to the study.

**Motivational Interviewing**

is an evidence-based, collaborative, goal-oriented style of counselling to help client to address ambivalence and to facilitate the change process.

**Multiple imputation (MI)**

is a statistical technique for handling missing data. MI addresses the limitations of single imputation by using multiple imputed datasets which yield unbiased estimates, and also accounts for the within- and between-dataset variability. MI is based on the MAR assumption

**Mutually exclusive codes**

mean that every statement is coded with no more than one code.

Mutually exclusive codes allow application of Cohen's kappa statistics.

**Observational study**

is a study in which a researcher observes behaviour in a systematic way without interfering with the behaviour.

**Odds ratio (OR)**

measures the ratio of the odds that an event will occur to the odds of the event not happening.

**Outcome bias**

is the tendency to evaluate a decision on the basis of its outcome rather than on what factors led to the decision.

**Order effect**

is the choice of presentation order of vignettes and may significantly affect respondents' answers.

**Orientation bias**

refers to how a researcher forms and shapes the research questions, hypotheses, aims and objectives then inclines his/her personal convictions to frame and answer them.

**Partial eta-squared**

is defined as the ratio of variance accounted for by an effect and that effect together with its associated error variance within an ANOVA study. Partial eta-squared are measures of effect size that have different magnitudes (e.g., 0.01 = small, 0.06 = medium, 0.13 = large).

**Per protocol (PP) analysis**

is a compliers-only analysis that includes only those participants who completed the originally allocated treatment protocol.

**Post hoc analysis**

Post hoc tests are used when the researcher has already obtained a significant omnibus F-test with a factor that consists of three or more means. They are used for additional exploration of the differences among means to provide specific information on which means are significantly different from each other.

**Power Analysis**

is the ability of a test to detect an effect of a particular size (usually at 0.8). The power of 80% means that the test has an 80% probability of correctly detecting a difference between groups when such a difference exists.

**Practice effects**

occur when participants warm up or improve their performance over time.

**Priming effects**

occur when the order of information has an effect on individual's decision-making behaviour, where information processed earlier in the sequence will have greater or less influence than information that is being processed later.

**Problem-solving skills**

include adopting a positive problem orientation and formulation, generating alternative solutions, evaluating options, implementing solutions, and evaluating salutation performance.

**Protest**

is a finger-wagging approach that aims to challenge inaccurate and negative representations of mental illness in the media.

**PsycINFO**

includes records of the literature on psychology and related behavioural and social sciences from 1987 onwards.

**Psychosocial interventions**

are a group of non-pharmacological therapeutic interventions that address the psychological, social, personal and relational problems associated with mental health disorders.

**PubMed**

is a free search engine accessing primarily the MEDLINE database of references and abstracts on life sciences and biomedical topics.

**Recency effects**

occur when respondents are more likely to select items they last heard.

**Outliers**

are the values that lie outside the normal range of values.

**Qualitative study**

is oriented towards understanding meanings and experiences. Qualitative researchers often use content analysis to capture meaning within the data.

**Quasi-experimental study**

involves a study design that is similar to an experimental design but lacks



random assignment.

**Randomised controlled trial (RCT)**

is a study in which participants are allocated at random to either the intervention group or control (standard practice) group.

**Recruitment rate**

is calculated by determining the percentage of eligible people enrolled in a trial.

**Reflexivity**

is the process of reflecting critically on the self and personal values and could affect data collection and interpretation.

**Research assistant (RA)**

was accountable for research processes such as recruiting participants, obtaining consent documents, tracking participants and collecting data.

**Response consistency (RC)**

means that respondents use the response categories in the same way when rating the vignettes as when rating themselves.

**Retention rate**

is defined as the percentage of enrolled participants who completed a study.

**Selection bias**

means the comparison groups differ in terms of important baseline characteristics that are important outcome predictors due to selection

error. This type of bias may lead to incorrect associations between exposure and outcome variables.

**Self-stigma**

is the co-occurrence of the components used in labelling, stereotyping, separation, status loss and discrimination.

**Sensitivity analysis (SA)**

involves repetition of an analysis under different assumptions to examine the impact of these assumptions on the results.

**Serious mental illness (SMI)**

refers to a diagnosis of schizophrenia, bipolar disorder or major depression as specified in the DSM-IV-TR.

**Simple imputation methods**

are commonly applied in many studies, partly because they are simple and easy to understand, but are overused.

**Small-study effect**

is the phenomenon that occurs when smaller studies are more likely to be published when they show significant positive results.

**Social stigma**

is the discrediting or 'blemishing' of one's behaviour, identity or status.

**Stigma by association**

refers in this study to those who are associated with the mentally ill being judged by the same stigmatising stereotypes.

**Stereotypes**

represent the expectations society holds about a particular stigmatised status, for example, the mentally ill are dangerous and unpredictable.

**Transferability**

is a clear description of the context, selection and characteristics of participants, data collection and analysis processes of a study.

**Unit non-response**

refers to an individual's refusal to participate in a wave of data collection.

**Usual Education Practice (UEP)**

is the 10-day clinical placement for students completing a mental health nursing experience at Kwai Chung Hospital.

**Vignette equivalence (VE)**

is the assumption that the level of the variable represented in any one vignette is perceived by all respondents in the same way and on the same unidimensional scale, apart from random measurement error.

**Vignette technique**

is a method that can elicit beliefs and attitudes from responses to stories depicting scenarios and situations.

**Waiting time**

is the time between the occurrence of first psychotic symptoms and the first help-seeking behaviour.

**Weighted kappa**

is the reliability measure for data from ordinal scales.

**wild codes**

codes that are not legitimate.