A STRUCTURAL EQUATION MODEL OF MENTAL HEALTH LITERACY, PSYCHOLOGICAL FACTORS AND MENTAL HEALTH HELP-SEEKING INTENTION AMONG UNDERGRADUATE STUDENTS IN HEALTH CAMPUS, UNIVERSITI SAINS MALAYSIA

DEBORAH QUAH JU SHUAN

UNIVERSITI SAINS MALAYSIA

2020

A STRUCTURAL EQUATION MODEL OF MENTAL HEALTH LITERACY, PSYCHOLOGICAL FACTORS AND MENTAL HEALTH HELP-SEEKING INTENTION AMONG UNDERGRADUATE STUDENTS IN HEALTH CAMPUS, UNIVERSITI SAINS MALAYSIA

by

DEBORAH QUAH JU SHUAN

Thesis submitted in fulfilment of the requirements for the degree of

Master of Science

(MEDICAL STATISTICS)

JULY 2020

ACKNOWLEDGEMENT

First of all, I wish to express my deepest gratitude to my research supervisor, Dr. Kueh Yee Cheng of her valuable guidance, encouragement and support throughout the research study. The goal of this research study would not have been realized without her persistence help. Thank you for always being there whenever I needed help, patiently answering my questions, clearing the doubts I had and guiding me to the right direction. I am also indebted to my research co-supervisors, Assoc. Prof. Dr. Mohd Azhar Bin Mohd Yasin and Assoc. Prof. Dr. Sarimah Abdullah for their participation, guidance and suggestions. Their valuable insights have helped to further improved the research study.

I would like to extend my sincere thanks to the deans of the schools, academic staffs and student representatives for their assistance and co-operation during the process of data collection, and also to all of the study participants who willingly set aside some of their time to be involved in this study. I am truly grateful for all of their support which contributed to the completion of this study.

I would like to express my gratitude to my family, especially my parents, for their continuous love, prayers and support. They were the main source of assurance and motivation that brought me through from the course of the study to the completion of this research study; I could not have done it without them. Finally, I would like to thank my friends for their comfort and encouragement, constantly cheering me through my difficult times.

TABLE OF CONTENT

ACKNOWLEDGEMENT ii

TABLE OF CONTENT iii

LIST OF TABLES x

LIST OF FIGURES xii

LIST OF ABBREVIATIONS AND SYMBOLS xiii

ABSTRAK xvi

ABSTRACT xix

CHAPTER 1 INTRODUCTION 1

1.1 Overview 1

1.2 Background 2

1.3 Problem Statement 4

1.4 Rationale and Significance of the Study 5

1.5 Scope of the Study 5

1.6 Research Questions 6

1.7 Research Objectives 6

1.7.1 General Objective 6

1.7.2 Specific Objectives 6

1.8 Research Hypotheses 7

1.9 Operational Definition 7

CHAPTER 2 LITERATURE REVIEW 9

2.1 Introduction 9

2.2 Search Term and Databases 9

2.3 Mental Health Help-Seeking 10

2.3.1 Definition and Theoretical Framework 10

2.3.2 Source of Help 12

2.4 Variables of Interest and Their Relationship with Help-Seeking Intention 13

2.4.1 Mental Health Literacy 13

2.4.2 Attitude Towards Mental Health Help-Seeking 15

2.4.3 Perceived Public Stigma 15

2.4.4 Self-Stigma 16

2.4.5 Psychological Distress 17

2.5 Gaps in the Literature 18

2.6 Conceptual Framework 19

2.7 Summary of Past Literature 19

2.8 Review of Measurement Tools 24

CHAPTER 3 METHOD 34

3.1 Introduction 34

3.2 Study Design 34

3.3 Study Location and Period 35

3.4 Study Population and Sample 35

3.4.1 Reference Population 35

3.4.2 Source Population 35

3.4.3 Sampling Frame 35

3.4.4 Eligibility Criteria 36

3.4.5 Study Participants 36

3.4.6 Sampling Method 36

3.4.7 Sample Size Determination 37

3.5 Measures 39

3.5.1 Social-demographic 40

3.5.2 Mental Health Literacy Questionnaire (MHL) 40

3.5.3 Attitudes Toward Seeking Professional Psychological Help-Short Form (ATSPPH-SF) 41

3.5.4 Perceived Devaluation Discrimination (PDD) 42

3.5.5 Self-Stigma of Seeking Help (SSOSH) 43

3.5.6 Kessler Psychological Distress Scale (K10) 43

3.5.7 Mental Health Help Seeking Intention Scale (MHSIS) 44

3.6 Participants Recruitment and Data Collection 44

3.6.1 Phase I (Pre-testing) 44

3.6.2 Phase II (Main study) 45
3.7 Study Flow Chart 47
3.8 Statistical Analyses 48
3.8.1 Preliminary Data Screening 48
3.8.2 Descriptive Statistics 51
3.8.3 Assumption Checking Prior to CFA and SEM Analyses 52
3.8.4 Measurement Model Analyses 53
3.8.5 Structural Equation Modelling 65
3.9 Statistical Flow Chart 67
3.9.1 Measurement Model 68
3.9.2 Structural Equation Modelling 69
3.10 Ethical Issues and Considerations 70
3.10.1 Ethical Approval 70
3.10.2 Participant's Information and Consent 70
3.10.3 Data Protection and Record Keeping 70
3.10.4 Declaration of Conflict of Interest 71
CHAPTER 4 RESULTS 72
4.1 Introduction 72
4.2 Preliminary Data Screening 72
4.2.1 Missing Data 72

4.2.2 Outliers 73
4.2.3 Univariate normality 73
4.3 Response Rate 73
4.4 Respondent Characteristics 74
4.5 Score Distribution of the Items in the Scales 76
4.5.1 Mental Health Literacy Questionnaire (MHL) 76
4.5.2 Attitudes Toward Seeking Professional Psychological Help-Short Form (ATSPPH-SF) 77
4.5.3 Perceived Devaluation Discrimination (PDD) 77
4.5.4 Self-Stigma of Seeking Help (SSOSH) 77
4.5.5 Kessler Psychological Distress Scale (K10) 77
4.5.6 Mental Help Seeking Intention Scale (MHSIS) 78
4.6 Assumption Checking for CFA 84
4.6.1 Univariate Normality 84
4.6.2 Multivariate Normality 84
4.7 Measurement Model Analyses (CFA) 87
4.7.1 Mental Health Literacy Questionnaire (MHL) 87
4.7.2 Attitudes Toward Seeking Professional Psychological Help-Short Form (ATSPPH-SF) 95
4.7.3 Perceived Devaluation Discrimination (PDD) 101

4.7.4 Self-Stigma of Seeking Help (SSOSH) 106
4.7.5 Kessler Psychological Distress Scale (K10) 112
4.8 Structural Equation Modelling Analysis 117
4.8.1 Path Relationships 117
4.8.2 Summary of SEM Testing 120
CHAPTER 5 DISCUSSION 123
5.1 Introduction 123
5.2 Response Rate 123
5.3 Respondent's Socio-demographic Characteristics 124
5.4 Validity and Reliability of the Scales 125
5.4.1 Mental Health Literacy Questionnaire (MHL) 125
5.4.2 Attitudes Toward Seeking Professional Psychological Help-Short Form (ATSPPH-SF) 126
5.4.3 Perceived Devaluation Discrimination (PDD) 128
5.4.4 Self-Stigma of Seeking Help (SSOSH) 130
5.4.5 Kessler Psychological Distress Scale (K10) 132
5.5 Path Relationships 134
5.6 Strength and Limitation of the Study 136
CHAPTER 6 CONCLUSION 139
6.1 Introduction 139

6.2 Summary of the Research 139

6.3 Implication of the Research 140

6.4 Recommendation for Future Research 141

REFERENCE 143

APPENDICES 160

A. HUMAN ETHICS APPROVAL 160

B. PERMISSION FROM AUTHORS TO USE QUESTIONNAIRES 162

C. RESEARCH INFORMATION AND INFORMED CONSENT FORM (PRE-TESTING) 168

D. RESEARCH INFORMATION AND IMPLIED CONSENT (MAIN STUDY) 173

E. RESEARCH TOOL 176

F. BROCHURE 180

G. PRELIMINARY ANALYSIS AND ASSUMPTION CHECKING 182

H. MULTIVARIATE NORMALITY 199

LIST OF TABLES

Table 1.1 Operational Definitions 7

Table 2.1 Literature Search Strategy 10

Table 2.2 Summary of Past Literature 20

Table 2.3 Potential Measurement Tools 24

Table 3.1 Comparison of Sample Size with Study Power 38

Table 3.2 Measures Used for the Study 39

Table 3.3 Statistical Analyses for the Study 48

Table 3.4 Methods to Deal with Missing Data 50

Table 3.5 Summary of Goodness-of-fit Indices 61

Table 4.1 Summary of Respondents' Characteristics (n = 755) 74

Table 4.2 Distribution of Item Scores in MHL (n = 755) 79

Table 4.3 Distribution of Item Scores of ATSPPH-SF (n = 755) 80

Table 4.4 Distribution of Item Scores in PDD (n = 755) 81

Table 4.5 Distribution of Item Scores for SSOSH (n = 755) 82

Table 4.6 Distribution of Item Scores in K10 (n = 755) 83

Table 4.7 Distribution of Item Scores for MHSIS (n = 755) 84

Table 4.8 Model Fit Indices for MHL 88

Table 4.9 Standardized Item Loading for Models of MHL, Model M(0) to M(3) 91

Table 4.10 Standardized Item Loading for Models of MHL, Model M(4) to M(6) 92

Table 4.11 Standardized Factor Covariance For Model M(6) of MHL 93

Table 4.12 Model Fit Indices for ATSPPH-SF 95

Table 4.13 Standardized Item Loading for Unidimensional Models of ATSPPH-SF, Model A(0) to A(4) 99

Table 4.14 Standardized Item Loading for Two-factor Model of ATSPPH-SF, Model A(5) to A(7) 99

Table 4.15 Composite Reliability and Standardized Factor Covariance for Model A(7) of ATSPPH-SF 100

Table 4.16 Model Fit Indices for PDD 101

Table 4.17 Standardized Item Loading for Models of PDD, Model P(0) to P(3) 103

Table 4.18 Standardized Item Loading for Models of PDD, Model P(4) to P(6) 104

Table 4.19 Model Fit Indices for SSOSH 106

Table 4.20 Standardized Item Loading for Models of SSOSH, Model S(0) to S(3) 109

Table 4.21 Standardized Item Loading for Models of SSOSH, Model S(4) to S(6) 110

Table 4.22 Model Fitness Indices for K10 112

Table 4.23 Standardized Item Loading for Models of K10, Model K(0) to K(3) and K(5) 115

Table 4.24 Composite Reliability for Model K(4) and K(5) 115

Table 4.25 Variables, Measurement Model, Type of Variables and Their Respective Number of Observed Variables 118

Table 4.26 The Specific Hypotheses of the Initial SEM Model 118

Table 4.27 Fit Indices for the Structural Model 120

Table 4.28 Comparison of the Standardized Regression Weight of Pathways for Model-1 and Model-2 121

LIST OF FIGURES

Figure 2.1 Conceptual Framework for the Current Study 19

Figure 3.1 Study Flow Chart 47

Figure 3.2 Flow of Measurement Model Analysis 68

Figure 3.3 Flow of Structural Equation Modelling 69

Figure 4.1 Chi-square Versus Mahalanobis Distance Graph for ATSPPH-SF Scale 85

Figure 4.2 Chi-square Versus Mahalanobis Distance Graph for PDD Scale 85

Figure 4.3 Chi-square Versus Mahalanobis Distance Graph for SSOSH Scale 86

Figure 4.4 Chi-square Versus Mahalanobis Distance Graph for K10 Scale 86

Figure 4.5 Standardized Parameters of the Second-ordered Model for MHL, Model M(7) 94

Figure 4.6 Standardized Parameters of the Second-order Model for ATSPPH-SF, Model A(8) 100

Figure 4.7 Standardized Parameters of the PDD Scale, Model P(7) 105

Figure 4.8 Standardized Parameters of the SSOSH Scale, Model S(7) 111

Figure 4.9 Standardized Parameters of the K10 Scale, Model K(4) 116

Figure 4.10 Final Structural Equation Model for Mental Health Literacy, Psychological Factors and Mental Health Help-Seeking Intention with Standardized Path Regression Coefficient and it's *p*-values 122

LIST OF ABBREVIATIONS AND SYMBOLS

ATSPPH	Attitude Towards Seeking Professional Psychological Help
ATSPPH-SF	Attitude Towards Seeking Professional Psychological Help-Short Form
ATT	Attitude
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Confidence Interval
CR	Composite Reliability
FIML	Full Information Maximum Likelihood
GHQ-12	General Health Questionnaire-12
HS	Help-Seeking
HSI	Help-Seeking Intention
IASMHS	Inventory of Attitudes Towards Seeking Mental Health Services
ISCS	Intention to Seek Counselling Inventory
ISMI	Internalized Stigma of Mental Illness
JEPeM	Human Ethics Committee of Universiti Sains Malaysia
K10	Kessler Psychological Distress Scale
KR-20	Kuder-Richardson Formula 20
MAR	Missing at Random
MCAR	Missing Completely at Random
MHL	Mental Health Literacy Questionnaire

MHLS	Mental Health Literacy Scale
MHSIS	Mental Help-Seeking Intention Scale
MI	Modification Index
ML	Maximum Likelihood
MLR	Robust Maximum Likelihood
MNAR	Missing Not at Random
PD	Psychological Distress
PDD	Perceived Devaluation-Discrimination Scale
PPS	Perceived Public Stigma
RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SE	Standard Error
SEM	Structural Equation Modelling
SRMR	Standardized Root Mean Square Residual
SS	Self-Stigma
SSMIS	Self-Stigma of Mental Illness Scale
SSOSH	Self-Stigma of Seeking Help Scale
SSRPH	Stigma Scale of Receiving Psychological Help
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behavior
US	United States
USM	Universiti Sains Malaysia

WHO	World Health Organization
WLSMV	Weighted Least Squares Mean and Variance Adjusted
WRMR	Weighted Root-Mean-Square Residual
b	Regression Coefficient
β	Standardized Path Regression Coefficient
df	Degree of Freedom
m	Number of Observed Variables
n	Number of Participants
p	Probability Value
r	Correlation Coefficient
χ^2	Chi-square

MODEL PERSAMAAN STRUKTUR BAGI LITERASI KESIHATAN MENTAL, FAKTOR-FAKTOR PSIKOLOGI DAN NIAT MEMINTA PERTOLONGAN UNTUK KESIHATAN MENTAL DALAM KALANGAN PELAJAR SARJANA MUDA DI KAMPUS KESIHATAN, UNIVERSITI SAINS MALAYSIA

ABSTRAK

Pengenalan: Kadar meminta pertolongan kesihatan mental dari sumber formal seperti doktor, pekerja sosial, kaunselor, pakar psikologi atau psikiatri adalah rendah dalam kalangan pelajar sarjana muda, walaupun tahap kesihatan mental yang semakin buruk dilaporkan kebelakangan ini. Dengan menggunakan niat sebagai ukuran untuk tingkah laku, kajian ini menerokai kesan literasi kesihatan mental dan faktor-faktor psikologi (sikap, stigma awam yang dirasai, stigma diri dan distres psikologi) ke atas niat meminta pertolongan untuk kesihatan mental. **Objektif**: Tujuan utama kajian ini adalah untuk menentukan hubungan struktur antara literasi kesihatan mental, sikap, stigma awam yang dirasai, stigma diri dan distres psikologi dengan niat meminta pertolongan untuk kesihatan mental dalam kalangan pelajar sarjana muda di Kampus Kesihatan, Universiti Sains Malaysia (USM). **Kaedah**: Kajian keratan rentas dengan menggunakan tinjauan soal-selidik yang diisi sendiri oleh peserta kajian tanpa bantuan telah dijalankan dalam kalangan pelajar sarjana muda di Kesihatan Kampus USM. Peserta kajian dipilih dengan menggunakan kadeah persampelan mudah. Analisis pengesahan faktor dijalankan untuk memastikan kesahan dan kebolehpercayaan soal-selidik untuk mengukur pemboleh ubah kajian ini, dan model persamaan struktur dijalankan untuk menentukan hubungan sturktur antara pemboleh ubah. **Keputusan**: Seramai 755 orang pelajar sarjana muda telah

mengambil bahagian dalam kajian ini. Untuk model pengukuran literasi kesihatan, model terakhir yang terdiri daripada 21 item sesuai dengan data berdasarkan indek-indek kepadanan (*Comparative Fit Index* (CFI) = 0.949, *Tucker-Lewis Index* (TLI) = 0.942, *Weighted Root-Mean-Square Residual* (WRMR) = 1.091, *Root Mean Square Error of Approximation* (RMSEA) (90% CI) = 0.027 (0.021, 0.033), RMSEA p-value = > 0.950). Bagi *Attitude Towards Seeking Professional Psychological Help-Short Form* (ATSPPH-SF), skala peringkat kedua dengan dua faktor menunjukkan kepadaan yang agak baik (CFI = 0.936, TLI = 0.913, *Standardized Root-Mean Square Residual* (SRMR) = 0.039, RMSEA (90% CI) = 0.045 (0.033, 0.057), RMSEA p-value = 0.752). Skala *Perceived Devaluation-Discrimination* (PDD) menunjukkan kepadanan yang baik (CFI = 0.968, TLI = 0.948, SRMR = 0.024, RMSEA (90% CI) = 0.056 (0.038, 0.074), RMSEA p-value =0.200) setelah mengeluarkan tiga item daripada skala asal dan menambahkan korelasi antara item. Skala *Self-Stigma of Seeking Help* (SSOSH) yang terdiri daripada lapan item dan korelasi antara item mempunyai kepadanan yang sangat baik (CFI = 0.969, TLI = 0.950, SRMR = 0.029, RMSEA (90% CI) = 0.042 (0.025, 0.059), RMSEA p-value = 0.770). Skala *Kessler Psychological Distress Scale* (K10) menunjukkan kepadaan yang boleh diterima (CFI = 0.955, TLI = 0.935, SRMR = 0.034, RMSEA (90% CI) = 0.080 (0.68, 0.091), RMSEA p-value < 0.001). Struktur model terakhir mempunyai kepadanan yang amat baik berdasarkan indek-indek (CFI = 0.946, TLI = 0.939, SRMR = 0.063, RMSEA (90% CI) = 0.038 (0.034, 0.042), RMSEA p-value > 0.950). Struktur model terakhir menyokong lapan hipotesis yang menunjukkan hubungan langsung dan tidak langsung antara pemboleh ubah kajian. Pemboleh ubah kajian sikap, stigma awam yang dirasai, dan stigma diri mempunyai saling perhubuangan antara satu sama lain untuk meramalkan niat meminta pertolongan. Sementara itu, literasi kesihatan mental ada

hubungan secara langsung ke atas niat meminta pertolongan, dan hubungan secara tidak langsung melalui sikap dan stigma diri. **Kesimpulan**: Penemuan kajian ini mencadangkan bahawa niat meminta pertologan dapat ditingkatkan (secara langsung dan tidak langsung) dengan meningkatkan literasi kesihatan mental. Oleh itu, adalah sangat penting bahawa infomasi yang jitu dan lengkap mengenai gangguan mental dan sumber rawatan, pengekuatan kepercayaan yang positif diberikan kepada pelajar sarjana muda.

Kata kunci: *literasi kesihatan mental, sikap, stigma awam yang dirasai, stigma diri, distres psikologi, niat meminta pertolongan*.

A STRUCTURAL EQUATION MODEL OF MENTAL HEALTH LITERACY, PSYCHOLOGICAL FACTORS AND MENTAL HEALTH HELP-SEEKING INTENTION AMONG UNDERGRADUATE STUDENTS IN HEALTH CAMPUS, UNIVERSITI SAINS MALAYSIA

ABSTRACT

Introduction: The rate of mental health help-seeking from formal sources such as doctors, social workers, counselors, psychologists or psychiatrists is low in undergraduate students, despite reports of worsening mental health in recent years. Using intention to as gauge for behavior, this study looks into the effects of mental health literacy and psychological factors (attitude, perceived public stigma, self-stigma and psychological distress) on mental health help-seeking intention. **Objective**: The main aim of this study is to determine the structural relationship between mental health literacy, attitude, perceived public stigma, self-stigma, and psychological distress with mental health help-seeking intention among undergraduate students in Health Campus, Universiti Sains Malaysia (USM). **Method**: A cross sectional study using self-administered questionnaire was conducted among undergraduate students in Health Campus, USM. Study participants were selected by means of convenience sampling. Confirmatory factor analysis was performed to ensure the questionnaires used were valid and reliable to measure the study variables, and structure equation modelling was performed to determine the path relationships between the variables. **Results**: A total of 755 undergraduate students participated in this study. For the measurement model of mental health literacy, the final model which consisted of 21 items fit the data well based on the fit indices (Comparative Fit Index (CFI) = 0.949, Tucker-Lewis Index (TLI) = 0.942, Weighted Root-Mean-Square

Residual (WRMR) = 1.091, Root Mean Square Error of Approximation (RMSEA) (90% CI) = 0.027 (0.021, 0.033), RMSEA p-value = > 0.950). As for the Attitude Towards Seeking Professional Psychological Help-Short Form (ATSPPH-SF), the second-order two factor scale showed relatively good model fitness (CFI = 0.936, TLI = 0.913, Standardized Root-Mean Square Residual (SRMR) = 0.039, RMSEA (90% CI) = 0.045 (0.033, 0.057), RMSEA p-value = 0.752). The Perceived Devaluation-Discrimination (PDD) scale showed good model fitness (CFI = 0.968, TLI = 0.948, SRMR = 0.024, RMSEA (90% CI) = 0.056 (0.038, 0.074), RMSEA p-value =0.200), after removing three items from the original scale and adding correlations between items. The 8-item Self-Stigma of Seeking Help (SSOSH) scale with correlated items had excellent model fitness (CFI = 0.969, TLI = 0.950, SRMR = 0.029, RMSEA (90% CI) = 0.042 (0.025, 0.059), RMSEA p-value = 0.770). The Kessler Psychological Distress Scale (K10) showed acceptable model fitness (CFI = 0.955, TLI = 0.935, SRMR = 0.034, RMSEA (90% CI) = 0.080 (0.68, 0.091), RMSEA p-value < 0.001). The final structural model had an excellent fit based on the fit indices (CFI = 0.946, TLI = 0.939, SRMR = 0.063, RMSEA (90% CI) = 0.038 (0.034, 0.042), RMSEA p-value > 0.950). The final structural model supported eight hypotheses showing direct and indirect relationship between the study variables. The variables attitude, perceived public stigma and self-stigma have interrelationship between each other to predict help-seeking intention. Meanwhile, mental health literacy has direct effect on help-seeking intention, and indirectly through attitude and self-stigma. **Conclusion**: Findings of this study suggest that help-seeking intention may be enhanced (directly and indirectly) by improving mental health literacy. Therefore, it is vital that accurate and complete information about mental disorders and treatment

resources, and reinforcement of positive attitude or beliefs are provided to the undergraduate students.

Keywords: *mental health literacy, attitude, perceived public stigma, self-stigma, psychological distress, help-seeking intention.*

CHAPTER 1 INTRODUCTION

1.1 Overview

Mental health is defined by the World Health Organization (WHO) as "a state of well-being in which the individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (World Health Organization, 2005). In other words, mental health is not solely composed of an individual's psychological well-being, but also includes an individual's emotional and social well-being which affects how one thinks, feels, and acts. It is not solely defined as the absence of mental disorders.

The constitution of WHO states that "health is a state of complete physical, mental and social well-being and not merely absence of disease or infirmity" (World Health Organization, 2013). Mental health is not a standalone issue, but an essential and integrated part of every individual's health. This is reflected by various studies which have shown positive associations between mental disorders (such as anxiety and depression) with coronary heart disease, gastrointestinal disorder and musculoskeletal disease (de Heer *et al.*, 2014; De Hert *et al.*, 2018; Haug *et al.*, 2002; Kuper *et al.*, 2002; Leino and Magni, 1993).

The WHO states that, at some stage of life, one person in every four will be affected by mental disorder (World Health Organization, 2001). Globally, mental health problem is on the rise. It is estimated that mental disorder will cost the global economy US$ 2.5 trillion in year 2010 and is forecasted to increase to US$ 6 trillion in year 2030 – totaling up to US$ 16.3 trillion in a span of 20 years (Bloom *et al.*, 2011).

Similar to the global trend, Malaysia is also witnessing a significant increase in mental health problems attributed to high pressure and tension in the workplace, schools, and communities due to the rapid socioeconomic advancement in the country (Yeap and Low, 2009). According to the National Health and Morbidity Survey 2015, the prevalence of mental health problems in adults increased from 16.7% in year 1996 to 29.2% in year 2015 (Ministry of Health Malaysia, 2015). When stratified by age group, the prevalence of mental health problem was the highest among young adults age 16 to 19 years old with the prevalence of 34.7%, and the 20 to 25 years old with a prevalence of 32.1%. The estimated loss due to mental disorder in Malaysia is US$ 10.6 billion for year 2010 and is predicted to increase to US$ 24.3 billion by 2030 (Atun *et al.*, 2016).

1.2 Background

In recent years, there is a growing concern about the worsening mental health among undergraduate students (Duffy *et al.*, 2019). For most people, the transition from secondary school to university is a particularly stressful event. Apart from having to work harder and spend more time trying to meet the current educational system's high demands, undergraduate students face a series of stressor: building new relationships, living apart with parents and family, and developing study habits in the new academic environment (Parker *et al.*, 2004). Besides, they would also need to learn how to budget their time and money, living to act as independent adults. Deterioration in mental health would lead to mental disorders, thus hampering the student's growth and productivity as an individual. It is also reported that 75% of chronic mental disorder is established by 24 years old (Kessler *et al.*, 2005). Therefore, early diagnosis and intervention from formal sources,

such as doctors, social workers, counselors, psychologists or psychiatrists, can be beneficial to the undergraduate students' personal grown and productivity, and also prevent the development of chronic mental disorders. However, a study by Wang *et al.* (2005) found that there is a delay in help-seeking of treatment in this age group. The rate of help-seeking from formal sources in undergraduate students is also low. A study conducted in six French universities found that only 30.5% of the students with mental disorder sought treatment from formal sources (Verger *et al.*, 2009). More recent studies also reported low rates of help-seeking from formal sources, ranging from 12.9% to 43.4% (Dyrbye *et al.*, 2015; Puthran *et al.*, 2016; Rotenstein *et al.*, 2016). The Theory of Planned Behavior (TPB) suggests that intention strongly predicts for a behavior. The stronger the intention to seek-help, the more like the individual will perform the help-seeking behavior. Hence, understanding the intention to seek help can be seen as the predictor for mental health help-seeking among undergraduate students. Among factors that could affect help-seeking intention are mental health literacy and psychological factors such as attitudes towards mental health help-seeking, perceived public stigma, self-stigma towards seeking help, and psychological distress. There are several questionnaires developed to measure these factors are they will be discussed is Chapter 2. For this study, the mental health literacy questionnaire (MHL) developed by Jung *et al.* (2016), the Attitude Towards Seeking Professional Psychological Help – Short Form (ATSPPH-SF), the Perceived Devaluation-Discrimination Scale (PDD), the Self-Stigma of Seeking Help Scale (SSOSH), the Kessler Psychological Distress Scale (K10) and the Mental Help-Seeking Intention Scale (MHSIS) were used.

1.3 Problem Statement

In a study conducted in a university in Malaysia, the prevalence of undergraduate students experiencing symptoms of depression, anxiety and stress were 42.2%, 73.7%% and 34.8% respectively (Shahira *et al.*, 2018). Despite the high prevalence of psychological distress reported in young people, they tend not to seek help from professionals (Rickwood *et al.*, 2007; Shahira *et al.*, 2018). A majority (49.1%) of university students have negative attitudes towards seeking and using professional help, if they do seek help, they would prefer to seek help from informal sources such as friends or parents (Salim, 2010). Help-seeking from informal sources is of concern because is not known how equipped or knowledgeable informal sources could manage mental health problems in undergraduate students.

Other than having negative attitudes towards seeking help from formal sources, studies have found that factors such as perceived public stigma, self-stigma towards seeking help, mental health literacy and psychological distress are associated with mental health help-seeking in undergraduate students (Beatie *et al.*, 2016; Gulliver *et al.*, 2010; Pheko *et al.*, 2013; Vogel *et al.*, 2007). However, majority of these studies examine the correlations between the factors and mental health help-seeking, whereas studies on predicting help-seeking intention usually focus mainly on stigma and attitude.

There is also a lack of studies found on the mental health literacy, attitude and stigma of mental health in Malaysia in relation to mental health help-seeking. Therefore, little is known about the undergraduate students' mental health literacy, attitudes, perceived public stigma and self-stigma on mental health help-seeking from formal sources such as doctors, counselors, and social workers, psychologists or psychiatrists in Malaysia.

1.4 Rationale and Significance of the Study

The consequences of untreated mental health problems are alarming. It could decrease the young adult's academic performances, impair social interaction due to self-withdrawal, and cause loss of productivity (Eisenberg *et al.*, 2009a; Wittchen *et al.*, 1998). Significant action is needed because this issue involves undergraduate students who are the future leaders of the nation.

Therefore, by examining the path relationship of mental health literacy, psychological factors (attitudes, self-stigma, perceived public stigma and psychological distress) and mental health help-seeking intention, it is expected to uncover the relationship, and to predict help-seeking intention among undergraduate students. In the process of the study, the validity and reliability of the questionnaires used to measure mental health literacy, attitude, perceived public stigma, self-stigma, psychological distress and help-seeking intention in undergraduate students in Malaysia are also determined. These findings should contribute to the current literature about mental health help-seeking intention and to aid development of effective strategies to encourage mental health help-seeking among undergraduate students in Malaysia.

1.5 Scope of the Study

The scope of the study focuses on mental health literacy, attitudes, perceived public stigma, self-stigma, psychological distress and help-seeking intention among undergraduate students studying in Health Campus, Universiti Sains Malaysia (USM) during the first semester of the 2019/2020 academic session.

1.6 Research Questions

1. Are the MHL, ATSPPH-SF, PDD, SSOSH and K10 valid and reliable for assessing mental health literacy, attitudes, perceived public stigma, self-stigma and psychological distress among undergraduate students in Health Campus, USM?

2. Is there any significant path relationship between mental health literacy, attitudes, perceived public stigma, self-stigma, psychological distress and help-seeking intention among undergraduate students in Health Campus, USM?

1.7 Research Objectives

1.7.1 General Objective

To determine the structural relationship between mental health literacy and psychological factors (attitudes, perceived public stigma, self-stigma and psychological distress) with mental health help-seeking intention among undergraduate students in Health Campus USM

1.7.2 Specific Objectives

1. To determine the validity and reliability of the MHL, ATSPPH-SF, PDD, SSOSH and K10 among undergraduate students in Health Campus, USM by using confirmatory factor analyses.

2. To examine the path relationship between mental health literacy, attitude, perceived public stigma, self-stigma, psychological distress and mental health help-seeking intention among undergraduate students in Health Campus, USM by using structural equation modelling.

1.8 Research Hypotheses

1. The MHL, ATSPPH-SF, PDD, SSOSH and K10 are valid are reliable for assessing mental health literacy, attitudes, perceived public stigma, self-stigma and psychological distress among undergraduate students in Health Campus, USM using confirmatory factor analyses.

2. There are significant path relationships between mental health literacy, attitudes, perceived public stigma, self-stigma, psychological distress and mental health help-seeking intention among undergraduate students in Health Campus, USM using structural equation modelling.

1.9 Operational Definition

For this study, the following definition were applied.

Table 1.1 Operational Definitions

Terms	**Definition**
Mental Health Literacy	Knowledge and beliefs about mental disorder, treatment and resources (Jung *et al.*, 2016)
Perceived public stigma (PPS)	An individual's perception of the public stigmatizing attitudes towards those with mental illness (Corrigan, 2004).
Self-stigma (SS)	An individual's perception that he or she is socially unacceptable, reduction in self-esteem or self-worth if the person seeks psychological help (Vogel *et al.*, 2006)
Attitude (ATT)	An individual's positive/negative evaluation and beliefs about help-seeking from mental health professionals.
Psychological distress (PD)	Non-specific psychological distress such as feeling nervous, hopeless, restlessness, depressed, worthless, etc.

Intention	Indication of how hard an individual is willing to try and the effort they are willing to exert to perform a behavior (Ajzen, 1991).
Help-seeking (HS)	Any action or activity carried out by an individual who perceived herself/himself as needing external assistance for any form of psychological distress or mental health disorders from formal sources such as doctors (general practitioners), social workers, counselors, psychiatrist or psychologist.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter presents an overview of literature related to the definition, conceptual framework of mental health help-seeking and source of help. Next is the review on the relationship of the variables of interest (mental health literacy, attitude, perceived public stigma, self-stigma and psychological distress) with mental health help-seeking intention. The literature review provides an explanatory theory that links between the concept of mental health knowledge, psychological factor and mental health help-seeking intention to produce the conceptual framework for this study. This chapter also provide a review of the measurement tool used for this study.

2.2 Search Term and Databases

Database and search engines such as Google Scholar, PsycINFO, ProQuest and Sage Journal were used to search for published journals, theses and books. The literature search was conducted between April 2019 to April 2020. Literature search was conducted using the following keywords: mental health, help-seeking intention, attitude, mental health literacy, knowledge, stigma, perceived public stigma, self-stigma, psychological distress, student, university, college and young adults. Boolean operators such as “AND” or “OR” was used in combination with the keywords when performing the search. Table 2.1 is an example of how the literature search strategy was performed.

Table 2.1 Literature Search Strategy

	Search Engine			
	Google Scholar	PsycINFO	ProQuest	Sage Journals
Using Phrase				
Mental health help-seeking intention	30,700	397	17,509	41,598
Factors associated with mental health help-seeking intention	32,500	56	16,616	2,731
Using Boolean Operators and keywords (examples)				
"Mental health" AND "help-seeking intention"	665	49	176	7
"Mental health" AND "help-seeking intention" AND "self-stigma"	265	11	111	5
"Mental Health" AND "help-seeking intention" AND "self-stigma" AND "mental health literacy"	105	1	43	2

2.3 Mental Health Help-Seeking

2.3.1 Definition and Theoretical Framework

Despite many studies conducted on mental health help-seeking, the definition of it has not been clearly defined, nor is there a consensus on the theoretical framework for help-seeking in mental health. In a systematic review conducted by Rickwood and Thomas (2012), it was found that the definitions used in studies were minimally described as "visiting a doctor", "utilization of care", "seek advice and assistance" and "willingness to seek help". The most comprehensive definition was from the WHO study on adolescent help-seeking which they define help-seeking as: "any action or activity carried out by an adolescent who perceived herself/himself as needing personal, psychological, affective

assistance or health or social services, with the purpose of meeting this need in a positive way. This includes seeking help from formal services – for example, clinical services, counselors, psychologist, medical staff, traditional healers, religious leaders or youth programmers – as well as informal sources, which includes peer groups and friends, family members or kinship groups and/or other adults in the community. The "help" provided might consist of a service (e.g., a medical consultation, clinical care, medical treatment or a counselling session), a referral for a service provided elsewhere or the follow-up care or talking to another person informally about the need in question. We emphasize addressing the need in a positive way to distinguish help-seeking behavior from behavior such as association with anti-social peers, or substance use in a group setting, which a young person might define as help-seeking or coping, but which would not be considered from a health and well-being perspective" (World Health Organization, 2007).

As for the measurement of mental health help-seeking, the majority of studies on mental health help-seeking did not use any conceptual framework (81%) (Rickwood and Thomas, 2012). Of those that utilized conceptual framework, the Theory of Planned Behavior (TPB) by Ajzen (1991) was commonly used (Rickwood and Thomas, 2012). According to the TPB, intention is considered to be a strong predictor and determinant of behavior. The stronger the intention, the stronger possibility to perform the behavior. The intention, in turn, is determined by three constructs: attitudes, subjective norms and perceived behavior control (Ajzen, 1991). Attitude, subjective norms and perceived behavior control are each motivated by an individual's belief about the likely positive or negative consequences of behavior (behavioral belief), the expectation of others (normative belief) and perceived ease or difficulty of performing the behavior (control belief) respectively. It is

hypothesized that an individual's belief influences the intention to perform the behavior. The more positive the individual's belief, the more likely he/she would have the intention to perform the behavior.

While the TPB can be generally applied to different behaviors and illnesses, Rickwood *et al.* (2005) conceptualized a theory for mental health help-seeking to aid their investigation about factors that influence mental health help-seeking among young adults. Their theory proposed that the process of help-seeking involves four stages: (1) individual's own awareness of the symptoms and appraisal of the problem; (2) expressing the symptoms and the need for support; (3) availability and accessibility of the sources of help; (4) willingness of the individual to seek out and disclose to the source of help. However, Rickwood *et al.* (2005) stated that intention does not always lead to behavior, as many other factors affect the progression of the help-seeking process.

2.3.2 Source of Help

Help-seeking can come from both formal or informal sources. Formal sources are generally those who are professionally recognized to provide mental health advice, support and/or treatment, they could be doctors (general practitioners), social workers, counselors, psychiatrists and psychologies; while informal sources are usually referred to friends, parents, family members, intimate partners and neighbors (Rickwood and Thomas, 2012). However, the definition of formal and informal help, or the terminology used to define help-seeking may differ in different culture and population. For example, traditional healers and religious leaders may be classified as formal help under World Health Organization (2007) definition for adolescent help-seeking, however, usually not

so in a western-influenced healthcare setting (Brown *et al*., 2014; Kerebih *et al*., 2017). Rickwood and Thomas (2012) states that the terms "formal" must be explained within the context of the healthcare system under studied. As for Malaysia, formal mental healthcare services are delivered through mental health services in hospitals, primary healthcare, and community-based mental health services (Lim, 2018). Generally, people would prefer to seek help from informal sources rather than formal sources (Brown *et al*., 2014; D'Avanzo *et al*., 2012; Kerebih *et al*., 2017). The pattern is similar in university students as reported by Salim (2010) and Gebreegziabher *et al*. (2019). In both studies, university students would rather seek help from friends, parents, or intimate partners, rather than formal sources such as counselors or doctors.

2.4 Variables of Interest and Their Relationship with Help-Seeking Intention

2.4.1 Mental Health Literacy

"Health literacy" has been defined as the ability to gain access to, understand, and use information to maintain good health. The term "mental health literacy" was an extension of health literacy coined by Jorm *et al.* (1997), in which they defined it as "knowledge and beliefs about mental disorders which aids their recognition, management or prevention". The framework of mental health literacy includes the ability to recognize symptoms of mental disorders; knowledge of risk factors and beliefs about causes, knowledge of self-treatment and professional help available; attitudes which facilitates recognition and help-seeking; and knowledge of how to seek mental health information (Jorm *et al.*, 1997). Lacking in mental health literacy can be seen as a barrier that affects the progression of the help-seeking process suggested by Rickwood *et al.* (2005). The theory suggested that

help-seeking begins with awareness and appraisal of the symptoms, therefore the lack of knowledge about the symptoms about mental disorder could impede the help-seeking process. In a systematic review conducted by Gulliver *et al.* (2010), difficulty identifying the symptoms of mental disorders was one of the commonly perceived barriers identified by young adults. They are not aware of the mental health problem since they lack understanding of the symptoms (Gulliver *et al.*, 2010). Following the recognition of symptoms, if the individual is unsure of where to find help or unaware of the help available, the person will still be unable to progress to seek help according to the theory proposed by Rickwood *et al.* (2005). Smith and Shochet (2011) conducted a study to evaluate the relation between mental health literacy and intention to seek professional help for mental disorders in a sample of university students, they found that higher levels of mental health literacy were associated with greater help-seeking intention from formal sources. In contrast, study conducted by Ratnayake and Hyde (2019) showed no association between mental health literacy and general help-seeking intention were in a sample of adolescents.

Other than help-seeking intention, mental health literacy was found to be associated with attitudes towards help-seeking ($r = 0.15$, $p < 0.01$) in a study conducted in undergraduate students, whereby higher level of mental health literacy is associated with more positive attitudes towards mental health help-seeking (Beatie *et al.*, 2016). Jung *et al.* (2017) conducted path analysis and reported that mental health literacy could directly predicts attitudes towards mental help-seeking ($b = 0.62$, $p < 0.001$) in a population of layperson.

In addition to attitudes towards mental health help-seeking, higher mental health literacy is also associated with lower stigma. This has been demonstrated by a study conducted by Lopez *et al.* (2018), involving diagnosed depressive women who were not on any

treatment. It was found that higher knowledge for depression is associated with lower stigma for depression (r = -0.17, p = 0.03). Similar findings were reported by Beatie *et al.* (2016) in sample of university students, whereby higher mental health literacy is associated with lower self-stigma to seek help (r = -0.15, p < 0.01).

2.4.2 Attitude Towards Mental Health Help-Seeking

As per the TPB, attitude is one of the key constructs that influence help-seeking behavior via intention to seek help (Ajzen, 1991). Meta-analysis evidence has shown that help-seeking attitudes has the strongest association with help-seeking intention compare to other psychosocial factors such as anticipated utility, adherence to Asian values and public stigma (Li *et al.*, 2014). Therefore, it is an important variable to predict help-seeking intention. When attitude is express positively, it would result in favorable intention to seek help. This aligns with the study reported by Pheko *et al.* (2013) and Jean-Michel (2014), whereby positive attitudes towards help-seeking from professionals (ATT) was associated with positive intention to seek counseling.

2.4.3 Perceived Public Stigma

Stigma is a major barrier that prevents individuals to seek treatment for mental health problems (Corrigan, 2004). Despite recognizing the need for mental health treatment, stigma against mental disorders discourages individuals from acknowledging the need for treatment or help (Corrigan, 2004; Mojtabai *et al.*, 2011). One of the subtypes of stigma is perceived public stigma. Perceived public stigma is an individual's own impression of

the public's stigmatizing attitudes and views towards those with mental disorders (Corrigan, 2004). In a cross-sectional study conducted by Evan-Lacko *et al.* (2012), involving 1835 participants with self-reported diagnosis of depression, bipolar disorders or schizophrenia, it was found that higher prevalence of seeking help from a healthcare professional was marginally associated with lower levels of perceived public stigma (b = -0.06, p = 0.05). In another study conducted by Nearchou *et al.* (2018) in a population of secondary school children, it was also found that perceived public stigma was a significantly associated with intention to seek help for depression/anxiety (b = -0.13, p < 0.001) and intention to seek help for self-harm (b = -0.13, p < 0.001). In both studies, it has shown that lower perceived public stigma may encourage mental health help-seeking.

2.4.4 Self-Stigma

Self-stigma, in the current study context, refers to self-stigma of seeking help for mental health – an individual's perception that he or she is socially unacceptable, reduction in self-esteem or self-worth if the person seeks psychological help (Vogel *et al.*, 2006). Self-stigma was found to be inversely correlated with help-seeking intention (r = -0.65, p < 0.65) and inversely correlated with attitude (r = -0.51, p < 0.001) (Damghanian and Alijanzadeh, 2018). The higher an individual's self-stigma towards seeking help, the lower is his/her intention to seek-help for mental health problems.

Some studies have suggested that different types of stigma do not influence mental health help-seeking independently, but are interrelated in their influence on mental health help-seeking (Eisenberg *et al.*, 2009b; Vogel *et al.*, 2007). The modified labelling theory (Link *et al.*, 1989) suggested that individual can internalize perceived negative perceptions in

concerning mental health problem. Negative images expressed by society towards those with mental health problem may be internalized, leading to people to develop self-stigmatization, thus perceiving themselves as inadequate and weak (Corrigan, 2004; Holmes and River, 1998). Therefore, individuals may decide not to seek help for the sake of maintaining their self-image. In a population of university students, Vogel *et al.* (2007) explored the role of self-stigma and attitude between perceived public stigma with help-seeking intention. They found that self-stigma and attitude fully meditate between perceived public stigma and help-seeking intention. Shechtman *et al.* (2018) conducted a study almost similar (without the variable: attitude) to Vogel *et al.* (2007) in a population of adults aged between 20 to 65 years old and yielded similar results. Path analysis by Shechtman *et al.* (2018) found that perceived public stigma directly predicts self-stigma, which in turn predicts help-seeking intention.

2.4.5 Psychological Distress

Studies have found that university students, in general, reported higher level of psychological distress compared to the general population (Stallman, 2010; Wong *et al.*, 2006). Thus, intuitively, the level of psychological distress was examined as a predictor that may influence mental health help-seeking in various studies (Gorczynski *et al.*, 2017; Leahy *et al.*, 2010; Li *et al.*, 2014; Wilson, 2010). However, a search for past literatures on the association between current levels of psychological distress and help-seeking produced mixed results. Findings by Leahy *et al.* (2010) reports that undergraduates who had sought treatment for mental health problems had significantly higher levels of psychological distress to those who did not seek treatment. It suggested that high level of

psychological distress was a predictor for higher likelihood to seek help. In contrast, Wilson (2010) found that high levels of psychological distress were associated with intention not to seek help from anyone. Similarly, Gorczynski *et al.* (2017) also reported that students with higher level of psychological distress was associated with lower intention to seek help; while a meta-analysis examining the psychosocial correlates of college students' help-seeking intention found that psychological distress had no significant correlation with help-seeking intention (Li *et al.*, 2014).

2.5 Gaps in the Literature

To the researcher's knowledge, none of the studies attempted to link mental health literacy, psychological factors (attitudes, perceived public stigma, self-stigma and psychological distress) and help-seeking intention among undergraduates in a single model, on how these factors collectively influence help-seeking intention. The majority of the studies on other factors reported on the correlations between variables but do not demonstrate the direct and indirect relationship of the factors has on help-seeking intention. Given that early intervention typically results in better health outcomes, it is crucial that variables which influence help-seeking intention in university students are fully understood. The relationship between attitude and intention is suggested by the Theory of Planned Behavior. In addition, the relationship between perceived public stigma, self-stigma with attitudes and/or help-seeking intention has been established by path analyses in previous studies (Damghanian and Alijanzadeh, 2018; Shechtman *et al.*, 2018; Vogel *et al.*, 2007). The conceptual framework for this study expends from these findings by adding mental

health literacy and psychological distress according to the relationship found through the literature review.

2.6 Conceptual Framework

Based on the extensive literature review, the relationships found between the variables are shown in Figure 2.1. The interrelationships between the variables were tested in this study.

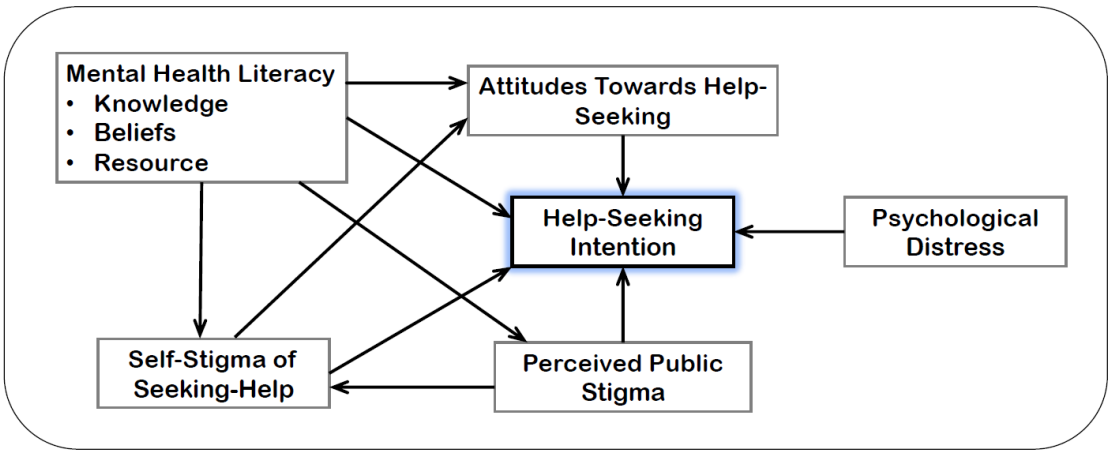

Figure 2.1 Conceptual Framework for the Current Study

2.7 Summary of Past Literature

A summary of past literature that provided support for the hypothesized relationships between the study variables (mental health literacy, attitude, perceived public stigma, self-stigma, psychological distress and help-seeking intention) is shown in Table 2.2.

Table 2.2 Summary of Past Literature

Author	Study Design/ Sample	Topic	Relevant findings
Vogel *et al*. (2007)	Cross-sectional study n = 680 University students	Examine role of stigma in mental health help-seeking.	The hypothesized structural model shown excellent fit: Perceived public stigma → Self-stigma → Attitude → Help-seeking intention χ^2 (51, n = 676) = 86.09, p = 0.001, CFI = 0.99, SRMR = 0.03, RMSEA (90%CI) = 0.03 (0.02, 0.04) All pathways in the model were significant.
Schechtman *et al*. (2018)	Questionnaire Survey n = 196 Arab community (20-65 years old)	Examine role of public stigma and self-stigma with help-seeking intention.	The hypothesized structural model shown excellent fit: Perceived public stigma → Self-stigma → Help-seeking intention χ^2 (1) = 0.48, p = 0.49, CFI = 1.00, SRMR = 0.013 All pathways in the model were significant.
Damghanian and Alijanzadeh (2018)	Longitudinal study n = 1011 Adult (> 18 years old)	Using Theory of Planned Behaviour, self-stigma and perceived barriers to explain help-seeking behavior.	Self-stigma inversely correlated with help-seeking intention (r = -0.65, p < 0.001) and inversely correlated with attitude (r = -0.51, p < 0.001) The hypothesized pathway was significant Self-stigma → help-seeking intention (β = -0.122, p < 0.001) Attitude → help-seeking intention (β = 0.098, p < 0.001)
Gulliver *et al*. (2010)	Systematic review Adolescent and young adult	Examine perceived barriers and facilitator of mental health help-seeking.	Thematic analysis shown that perceived stigma and poor mental health literacy are amongst the barriers to mental health help-seeking in young people.

Smith and Shochet (2011)	Cross-sectional n = 150 University students	Examine impact of mental health literacy on help-seeking intention.	Mental health literacy components accounted for 27% of variance in help-seeking intention. Suggest increase in mental health literacy will enhance mental health help-seeking.
Gorcynski *et al*. (2017)	Cross-sectional n = 379 University student (> 16 years old)	Examine level of mental health literacy and its association with mental health outcome and help-seeking intention.	Correlation were reported between: Mental health literacy with general help-seeking intention ($r = 0.12$, $p = 0.017$) Psychological distress with general help-seeking intention ($r = -0.03$, $p < 0.001$)
Jung *et al*. (2017)	Cross-sectional n = 211 Employee of local public housing authority (22 – 62 years old)	Examine hypothesized relationships between mental health literacy, stigma, social support and attitude towards mental health help-seeking.	The hypothesized pathways were significant: Mental health literacy → attitude ($\beta = 0.62$, $p < 0.001$) Self-stigma → attitude ($\beta = 0.25$, $p < 0.001$)
Beatie *et al*. (2016)	Cross-sectional Questionnaire survey n = 486 Undergraduate students	Examine association of psychological factors with mental health help-seeking.	Correlation between variables were found between: Mental health literacy with help-seeking attitude ($r = 0.15$, $p < 0.01$) Mental health literacy with help-seeking behaviour ($r = 0.16$, $p < 0.01$) Self-stigma with help-seeking behavior ($r = -0.13$, $p < 0.01$) Self-stigma with help-seeking attitude ($r = -0.68$, $p < 0.01$) Psychological distress with help-seeking behavior ($r = 0.24$, $p < 0.01$)

			Multiple regression shown that self-stigma is a predictor for help-seeking attitude, and it accounted for 46% of variance in help-seeking attitude.
Lopez *et al*. (2018)	Cross-sectional n = 319 Depressive adult Hispanic women not on treatment	Examine association between stigma and depression knowledge.	Higher knowledge for depression is associated with lower stigma for depression (r = -0.17, p = 0.03)
Pheko *et al*. (2013)	Cross-sectional n = 519 University students	Examine association of stigma, help-seeking attitude with mental health help-seeking intention.	Attitude towards help seeking positively predicts intention to seek counseling (b = 0.380, p < 0.01). However, contrary to other literature, self-stigma was not a predictor for help-seeking intention (b = -0.045, p = 0.388)
Jean-Micheal (2014)	Cross-sectional n = 159 African American church members (18 – 75 years old)	Examine barriers and predictors for mental health help-seeking intention.	Correlations were reported between: Attitude towards seeking professional help and help-seeking intention (r = 0.35, p < 0.01) Self-stigma with help-seeking intention (r = -0.17, p < 0.05) Psychological distress correlate with help-seeking (r = -0.21, p =0.044). The hypothesized pathway was significant: Attitude towards seeking professional help →help-seeking intention (β = 0.291, p < 0.001)
Li *et al*. (2014)	Meta-analysis College students	Examine association between psychosocial	Correlation were shown between: Attitude towards seeking professional psychological help with help-seeking intention (r = 0.46, p < 0.001)

		variables and help-seeking intention.	Public stigma with help-seeking intention (r = -0.10, p < 0.01)
Evans-Lacko *et al*. (2012)	Cross-sectional n = 1835 Individuals with self-reported diagnosis of mental disorders	Examine predictors for perceived discrimination and stigma for mental illness.	Higher prevalence of seeking help from a healthcare professional was marginally associated with lower levels of perceived discrimination (b = -0.06, p = 0.05)
Nearchou *et al*. (2018)	Cross-sectional n = 722 Secondary school students	Examine association of personal and perceived public stigma with help-seeking intention.	Perceived public stigma is a significant predictor for help-seeking for depression/anxiety (b = -0.13, p < 0.001) and self-harm (b = -0.13, p < 0.001)
Wilson (2010)	Questionnaire Survey n = 109 Students (15 – 25 years old)	Examine association of distress and barrier on intention NOT to seek help.	Higher level of general distress symptoms was associated with stronger intention not to seek help from anyone (b = 0.34, p < 0.001). Distress accounts for 16% of variance for intention not to seek help from anyone.

2.8 Review of Measurement Tools

When performing the literature search, several comparable questionnaires that measure the variables of interest were found. The questionnaires found are presented in Table 2.3. The questionnaires were reviewed to evaluate its' suitability to measure the variables involved in the study. The rationales of choosing the selected questionnaires to be used in this study are also described in this section.

Table 2.3 Potential Measurement Tools

Variables	**Instrument's name**	**Descriptive**	**Source**
Mental health literacy	Mental health Literacy Questionnaire (MHL)	Consists of 26 items with 3 subscales measuring knowledge and beliefs about mental disorders, and knowledge about mental health resources, namely knowledge-oriented, beliefs-oriented and resource-oriented. Involves two different scales: Knowledge-oriented & beliefs-oriented: 5-point Likert Scale (Strongly disagree – Strongly agree) with I don't know option Resource-oriented: Yes/No	(Jung *et al.*, 2016)
	Mental Health Literacy Scale (MHLS)	Consists of 35 items, measuring individual's ability to recognize disorders, knowledge on how to seek information, risk factors and causes, self-treatment, professional help available and attitude to promote recognition or appropriate help-seeking behavior No subscale Involves four different rating scales:	O'Connor and Casey (2015)

		4-point Likert scale (Very unlikely to Very likely) 4-point Likert scale (Very unhelpful – Very helpful) 5-point Likert scale (Strongly disagree – Strongly agree) 5-point Likert scale (Definitely unwilling – Definitely willing)	
Attitude	Attitude Towards Seeking Professional Psychological Help – Short Form (ATSPPH-SF)	A 10-item scales measuring attitude towards seeking professional help. A shorten revision of the original 29-item version. 4-point Likert scale (Disagree - Agree)	Fischer and Farina (1995)
	Inventory of Attitudes towards Seeking Mental Health Services (IASMHS)	Consists of 24 items with 3 subscales: psychological openness, help-seeking propensity, indifference to stigma 5-point Likert scale (Disagree - Agree)	Mackenzie *et al.* (2004)
Perceived public stigma	Perceived Devaluation Discrimination Scale (PDD)	A 12-item scale assessing individual's perception of what most other *people* view and treat about people with mental illness. 6-point Likert scale (Strongly agree – Strongly Disagree)	Link (1987)
	Stigma Scale for Receiving Psychological Help (SSRPH)	A 5-item scale to assess individual's perception of how stigmatizing it is to received psychological help. 4-point Likert scale (Strongly disagree – Strongly agree)	Komiya *et al.* (2000)
Self-stigma	Self-Stigma of Seeking Help (SSOSH) Scale	A 10-item scale to assess an individual's self-stigma in the process of mental health help-seeking. 5-point Likert scale (Strongly agree – Strongly disagree)	Vogel *et al.* (2006)