



A STUDY ON THE KNOWLEDGE OF ADHD AMONGST THAIS AND
INFLUENCE OF THAI CULTURAL FACTORS ON ATTITUDES AND
PERCEPTIONS OF ADHD

Eric K. Mason

I.D. No.: 5719541

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
DOCTORATE OF PHILOSOPHY
in Counseling Psychology

Graduate Program in Counseling Psychology
Graduate School of Human Sciences
ASSUMPTION UNIVERSITY OF THAILAND

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Title: A STUDY ON THE KNOWLEDGE OF ADHD AMONGST THAIS AND INFLUENCE OF THAI CULTURAL FACTORS ON ATTITUDES AND PERCEPTIONS OF ADHD

By: ERIC K. MASON

Field of Study: COUNSELING PSYCHOLOGY

Advisor: DR. PARVATHY VARMA

Accepted by the Graduate School of Human Sciences, Assumption University in Partial Fulfillment of the Requirements for the Master Degree in Counseling Psychology

.....

(Assoc. Prof. Dr. Suwattana Eamoraphan)

Dean of the Graduate School of Human Sciences

Examination Committee

..... Chair

(Dr.Santhosh Ayathupady Mohana, PhD)

.....Advisor

(Dr. Parvathy Varma, PhD)

..... Panel Member

(Dr. Donald Johnson, PhD)

..... Panel Member

(Dr. Rajitha Menon Arikatt, PhD)

..... External Expert

(Assoc. Prof. Dr. Dusadee Intraprasert, PhD)

ABSTRACT

ID. No.: 5719541

Key Words: ADHD, THAILAND, CULTURE AND ADHD, KNOWLEDE OF ADHD

Name: ERIC K. MASON

Dissertation Title: A STUDY ON THE KNOWLEDGE OF ADHD AMONGST THAIS AND INFLUENCE OF THAI CULTURAL FACTORS ON ATTITUDES AND PERCEPTIONS OF ADHD

Dissertation Advisor: DR. PARVATHY VARMA

The current research examined the level of knowledge of ADHD in Thailand (study 1), as well as cultural factors that may influence attitudes/perceptions of ADHD in Thailand (study 3). As part of study 2, psychometric properties of measurement instruments/questionnaires used to assess cultural factors were evaluated for use in the Thai context. These measurement instruments were utilized in study 3. Study 1 utilized a sample of 614 Thai parents with school-aged children. Study 1 found that the sample answered 43.59% of the KADDS correctly. Study 2 (EFA and reliability analysis) utilized 200 Thais and study 3, 323 Thais (CFA) to examine the psychometric properties of the following instruments in a Thai context: Multidimensional Health Locus of Control Scales (MHLC), the SBI (Religious Beliefs/Practices), the Community Attitudes Towards the Mentally Ill scale, the ADHD Stigma questionnaire (ASQ) (attitudes towards ADHD), Choi's Analysis-Holism Scale, the ADHD Beliefs Scale-revised (perceptions of ADHD). Cronbach's alpha ranged from .814 to .909. Study 3 (n = 323) further analyzed the

relationship between cultural factors, such as religiosity, stigmatization of mental disorders, holistic thinking, health locus of control and attitudes/perceptions of ADHD, moderated by prior exposure to ADHD via SEM. Study 3 found significant relationships between cultural factors and negative opinions of ADHD; however, these negative opinions tended to be reduced by having prior exposure to ADHD. The current research aimed to contribute to the understanding of unique aspects of ADHD in Thailand. Future research may explore methods to increase knowledge of ADHD and reduce negative attitudes/perceptions of ADHD.



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E.K.M

TABLE OF CONTENTS

COPYRIGHT.....	ii
APPROVAL.....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS.....	vi
CONTENTS.....	vii
LIST OF TABLES.....	xii
LIST OF FIGURES.....	xiv

Chapters

I.	INTRODUCTION	12
	Back ground of the Study	12
	Statement of the Problem	20
	Purpose of the Study	24
	Significance of the Study	25
	Definition of Terms	27
II.	LITERATURE REVIEW	33
	ADHD: Background	34
	Features of ADHD	35
	ADHD and Personality	41
	Comorbidity and ADHD	42

Instruments used to Diagnose ADHD	46
Treatment of ADHD	54
Biology of ADHD: Genetics	60
Biology of ADHD: Neurological Aspects	62
Knowledge and Awareness of ADHD across Cultures	63
Influence of Culture on ADHD	67
ADHD in Thailand	75
Thai Cultural Factors and ADHD	81
III. METHODOLOGY	95
Study 1	95
Objective	95
Hypothesis	95
Research Design	96
Research Instrumentation	96
Sample/Research Participants	98
Data Collection Procedure	99
Data Analysis	99
Study 2	100
Objective	100
Research Design	101
Research Instrumentation	101
Sample/Research Participants	104
Data Collection Procedure	104

Data Analysis	105
Translations	105
Study 3	106
Objective	106
Research Instrumentation	107
Sample/Research Participants	107
Research Design	107
Data Collection Procedure	108
Data Analysis	108
Translations	108
IV. RESULTS	109
Study 1: Overview of Study	109
Research Participants	109
Data Collection	112
Data Analysis	112
Results	112
Summary	115
Study 2: Overview of Study	116
Research Participants	118
Data Collection	119
Results	119
EFA	120

Reliability Analysis	134
Selection of Measurement Items	145
Summary	152
Study 3: Overview of Study	152
Data Collection Procedure	153
Research Participants	153
Materials	154
Hypothesis	154
Results: CFA	155
Results: SEM	158
Summary	170
V. DISCUSSION	171
Discussion of Findings	172
Limitations of the Study	184
Implications of the Findings	185
Avenues for Future Research	187
Conclusion	188
REFERENCES	190
APPENDICES	202
APPENDIX A: Questionnaires	202
APPENDIX B: EFA	237
APPENDIX C: Translators	322



LIST OF TABLES

Table

1. Demographics of Participants for Study 1	110
2. Chi Square Analysis Results	114
3. Exploratory Factor Analysis Output for Internality dimension of Multidimensional Health Locus of Control Scales (MHLC)	120
4. Exploratory Factor Analysis Output for Religiosity Scale (SBI)	121
5. Exploratory Factor Analysis Output for the Community Attitudes Towards the Mentally Ill Scale	122
6. Exploratory Factor Analysis Output for the Choi's Analysis-Holism Scale	127
7. Exploratory Factor Analysis Output for the ADHD Beliefs Scale-revised	130
8. Exploratory Factor Analysis Output for the ADHD Stigma Questionnaire	132
9. Reliability Statistics MHLC Scale	134
10. Reliability Statistics SBI Scale	136
11. Reliability Statistics Community Attitude Towards the Mentally Ill Scale	137
12. Reliability Statistics Choi's Analysis-Holism Scale	140
13. Reliability Statistics ADHD Beliefs Scale-revised	141
14. Reliability Statistics ADHD Stigma Questionnaire	143
15. CFA: Standard Regress Weights, p Value, and CR	157
16. Discriminant Validity	158
17. Standard Regress Weights, Explained Variances, Residual Variances for the Indicator Variables	161
18. Factor Covariances for the Structural Path Model	161

19. Model Fit, exposure or no exposure to ADHD	164
20. Standardized coefficients of the structural model (no exposure to ADHD)	166
21. Standardized coefficients of the structural model (exposure to ADHD)	169
22. Cultural factors significantly associated with negative attitudes and perceptions of ADHD	182



LIST OF FIGURES

Figure

1. Path Model for Study 3 92
2. Six-factor measurement model representing the latent constructs 156
3. Six-factor structural model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD 160
4. Six-factor structural model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD (no exposure to ADHD). 165
5. Six-factor structural model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD (exposure to ADHD). 168

CHAPTER I

INTRODUCTION

Background of the Study

Attention Deficit Hyperactivity Disorder (ADHD) is a complex disorder which presents with both subtle and obvious symptoms. Due to its subtleties, knowledge of ADHD by the general public has a significant impact on diagnostic rates. Furthermore, cultural factors heavily influence diagnostic rates.

Although, ADHD is a disorder which is often controversial, there is much evidence provided by mental health professionals to support that ADHD is a legitimate mental disorder. These findings are based on research on brain abnormalities, twin studies, and empirical evidence of the effectiveness of medications in reducing symptoms of ADHD; however, many people in the general public deny its existence--citing lack of self-discipline, poor parenting, or personality factors as the cause of ADHD-like behaviors. (Timimi & Taylor, 2004).

Furthermore, adding to the debate, some view ADHD as a social or cultural construct, believing that ADHD symptoms are representative of normal, natural behaviors of youth that have been pathologized (mostly by Western mental health professionals adhering to DSM -5 criteria) (Timimi & Taylor, 2004). Indeed, perceptions of what may be deemed as inappropriate or dysfunctional behaviors usually varies from culture to culture (Smith, 2017). It has been well documented that some psychological disorders are, in fact, culturally bound. That is, some disorders may only appear in one particular culture (Heine, 2012).

Research has demonstrated that the prevalence of ADHD varies across cultures. For example, rates of ADHD in France tend to be lower when compared to rates in Germany which, of course, is one of France's neighboring countries. Despite proximity and cultural similarities, ADHD rates remain very different between these two countries. This is not an isolated example. Rates of ADHD are different across practically all countries. This points towards the influence that culture or cultural perception has on rates of ADHD. Indeed, there are multiple ways in which culture may influence ADHD rates—possibly leading to both under or over diagnosis of the disorder (Faraone, Sergeant, Gillberg, & Biederman, 2003).

There is limited research on ADHD in Thailand. According to Visanuyothin, et al. (2012), rates of ADHD in Thailand are 8.1%. However, according to Benjasuwantep, et al. (2002) rates were 6.1%. Another study found ADHD rates in Thailand to be much lower, overall, at 2.2% (Sakboonyarat, 2018). ADHD, Inattentive was reported as the higher by one study at 3.8%, while ADHD Hyperactive/Impulsive type were the lowest (Visanuyothin et al., 2012). Rates for ADHD, Hyperactive/Impulsive type being lower would be in line with Barkly and colleagues' (1987) assertion that the number of reported cases of ADHD in Thailand are lower due to cultural factors which train children to speak quietly in public and encourage obedience to authority figures. As a result, as mentioned above, ADHD may be more likely to present as Inattentive type, which was also supported by Visanuyothin, et al. (2012).

Aspects of certain cultures may, in fact, lead to lower rates of ADHD or behaviors associated with ADHD. However, it is more likely that culture has a greater effect on one's knowledge of ADHD, as well as one's perceptions and attitudes towards ADHD. For example, some cultures may find certain behaviors in children to be pathological—leading to a greater likelihood for a diagnosis of ADHD, while other cultures may be more tolerant or find such behaviors age appropriate or normal. Such differences in cultural perceptions of

ADHD would certainly lead to differing rates of ADHD between different cultures (Reid et al., 1998).

In addition, knowledge of ADHD may be lower in some societies and cultures. In the United States, where ADHD is often discussed at length in the media, there is greater awareness of ADHD in the general public. This, in turn, most likely leads to higher rates of ADHD, as well as higher treatment-seeking behaviors amongst those who believe they may have symptoms of ADHD. On the other hand, in some countries, media may report less about ADHD—leading to less awareness of ADHD; thus, leading to lower rates (Rohde, 2002). As Sciutto and Feldhammer (2005) noted, “insufficient or inaccurate knowledge regarding the nature of ADHD may play a role in the over-identification or under-identification of children with ADHD.”

It was noted that in cultures where the perceived level of knowledge of ADHD is high, accurate knowledge of ADHD was reported low, even among medical students. This was based on research into knowledge of ADHD amongst pediatric medical students in the Turkey. Of these students, 85% indicated a deficit of accurate knowledge of ADHD, even though their perceived knowledge of ADHD has high (Hirfanoğlu et al., 2008). Other research has evidenced that perceived knowledge of ADHD is often higher than accurate knowledge. For example, a study which measured the perceived knowledge of ADHD compared to actual knowledge of ADHD amongst teachers in South Africa indicated that their perceived knowledge was much higher than their accurate knowledge (Kern et al., 2015). In other words, ADHD appears to be a disorder in which people often think they are knowledgeable even when they are not. Nevertheless, the current research purports that knowledge and awareness of ADHD by the general public may be limited in Thailand.

Cultural factors prevalent in Thailand may also influence perceptions and attitudes towards ADHD. For example, religiosity, tendency to stigmatize mental disorders, holistic thinking, and low levels of health internal locus of control.

Thailand scores very high in religiosity with 94% identifying as Buddhist (Taylor, 2008). Previous research in the United States, reported that those high in religiosity held negative opinions towards ADHD, although the research participants in this study identified as Christians (Li, 2013).

Regarding stigmatization of mental disorders, Wong-Anuchit (2016) reported that Thai culture may sway Thais to stigmatize mental health disorders. Although this aforementioned research did not analyze if Thai culture encouraged stigmatization of ADHD, since ADHD is also a mental disorder, Thais may be more likely to stigmatize ADHD, as well.

Thai culture is a collective culture and members of collective cultures are more likely to engage in holistic thinking (Heine, 2012). Previous research by Kwan and Chiu (2014) linked holistic thinking to inaccurately attributing blame to individuals based on circumstances, rather than actual fault of the individual. Therefore, it is possible that those who have a cultural tendency to engage in holistic thinking may blame the individual for his or her mental disorder, rather than the circumstances (e.g., genetics, biology, societal norms, etc.) within which the individual exists. Such a thinking style may lead Thais to have negative views of ADHD.

Furthermore, members of collective cultures tend to have lower internal locus of control when compared to Western cultures (Heine, 2012). Previous research points out that those with lower internal locus of control may be more likely to have negative views of mental health disorders (Beckman, 1972). As mentioned above, ADHD is a mental disorder

leading one to extrapolate that those who hold negative views of mental health disorders, would also hold negative views of ADHD.

Cultural factors and knowledge of ADHD may influence other aspects related to ADHD. For example, cultural influence and knowledge of ADHD is important, in terms of treatment seeking and treatment compliance, as Sciutto (2016) pointed out that inadequate knowledge of ADHD can lead to treatment noncompliance, even when there is an accurate diagnosis. For example, parents with insufficient knowledge may be reluctant to give their children medications prescribed by their doctor or enroll them into behavioral treatment programs and counseling. Intervention programs which improved knowledge of ADHD amongst parents resulted in increased satisfaction with ADHD treatment protocols.

In Vietnam, Weis, et al. (2014) reported that ADHD was prevalent amongst children from higher socioeconomic backgrounds. Weis, et al. (2014) also indicated that awareness and knowledge of ADHD may be higher amongst the educated elite, which could result in them having their children assessed for ADHD more often; thus, leading to higher rates of ADHD.

In addition, it was also reported that children in Vietnam who attained more exercise had lower rates of ADHD (Weis et al., 2014). Children coming from more rural backgrounds in Vietnam tended to get more exercise than their counterparts from wealthier backgrounds. This is due, in part, to lifestyle factors, such as their families not owning cars and/or having to be involved in helping their families with manual labor jobs, such as farming (Weis et al., 2014).

It is likely that knowledge may also vary according to socioeconomic status within Thailand. That is, families coming from a higher socioeconomic status may have more awareness of ADHD which could, in turn, lead to higher rates of ADHD in children from

these families. It is possible that the socioeconomic status could affect the rates of ADHD in Thailand, similar to Vietnam (Weis et al., 2014). However, in the United States, unlike Vietnam, rates of ADHD have been found to be higher amongst those from a lower socioeconomic status (Russell, Ford, & Russell, 2015). This discrepancy could result from the fact that those from a lower socioeconomic status in the U.S. have greater access to mental health care than their counterparts in Vietnam.

Most likely there are many reasons why ADHD varies across different countries and cultures, in addition to knowledge and awareness of ADHD. For example, there may be differences in diagnostic tools used by clinicians, differing attitudes and perceptions towards ADHD, differing levels of familiarity with the disorder itself, as well as access to proper mental health care may all play a role in the diagnostic variability of ADHD across countries and cultures (Reid, DuPaul, Anastopoulos, & Riccio, 1998). In short, the variation of rates of ADHD across countries and cultures is complex.

Most certainly, the culture itself would also play a role. For example, some cultures may define certain behaviors as problematic and abnormal, while other cultures may regard these same behavior as normal (Heine, 2012). Clinicians working within cultures that have the tendency to pathologize certain behaviors may be more likely to diagnose children and adolescents with ADHD (Brewis, Schmidt, & Casas, 2003).

However, even within a particular culture, bias may result in variance in rates at which ADHD is diagnosed. For example, Hall, et al. (2005) reported that confirmation bias may occur depending on whether a negative symptom format assessment questionnaire or positive symptom format assessment questionnaire was used when parents and teachers completed the respective questionnaires (2005). The assessments which used a format that queried for the presences of symptoms in a negative way, resulted in more children meeting

diagnostic criteria for ADHD than when the presence of symptoms was queried in positive way—leading to bias results, potentially (Hall et al., 2005).

Such confirmation bias suggests that rates of ADHD are highly sensitive to perceptions of ADHD; therefore, one could extrapolate that differing cultural attitudes toward ADHD may result in varying rates of ADHD. In addition, Hall's, et al. (2005) study indicated how instrumentation may influence ADHD rates. They also indicated that ADHD assessment tools could potentially be flawed, resulting in either false positive or false negative results (Hall et al., 2005). Therefore, it is important for ADHD assessments instruments to be culturally neutral, since culturally bias instruments could negatively or positively influence perception of ADHD.

Like many psychological disorders, the causes and expression of ADHD are full of complexities. Nevertheless, most research emphasizes a bio-psycho-social-cultural etiology of ADHD. The bio-psycho-social-cultural etiology of mental disorders is the concept that biological (internal to individuals) and environmental (external to individuals) factors interact in a way which results in the mental disorder. Although this explanation may not be simplistic to understand, it incorporates the arguments of both camps (those in support of ADHD as a real disorder versus those who consider it a cultural construct) mentioned above and provides a more accurate and meaningful explanation of ADHD (Pham, 2015).

Ultimately, those on both sides of the argument may be right. That is, ADHD may be both a real psychological disorder, which is also heavily influenced by cultural and sociological factors. Cultural influence could potentially lead to ADHD either being over or underdiagnosed, depending on culture. For example, due to limited awareness of ADHD in Thailand, it is likely to be underdiagnosed, while in some Western countries, such as the

United States, where ADHD is very well known by the general public, it may be over-diagnosed.

As mentioned above, ADHD affects people across all cultures and backgrounds—albeit at different rates. In the U.S. prevalence rates are estimated at between 5% and 10% for children and 2.5% for adults (APA, 2013). According to the DSM-5, males are twice more likely to have ADHD in childhood than females and six times more likely to have it in adulthood (APA, 2013). However, other research has found that females are just as likely to have ADHD as males; however, females may go undiagnosed as they tend to manifest more inattentive features than hyperactive and impulsive features of ADHD (Ramtekka, Reiersen, Todorov, & Todd 2010).

Although ADHD is found across multiple cultures, prevalence rates are not equal across cultures. In regards to cultural-related diagnostic issues and ADHD, the DSM-5 states that the variation in rates of ADHD across countries and cultures appears to be due, in large part, to difference in how ADHD is assessed. Nevertheless, culture plays a large role in what is interpreted as normal or abnormal childhood behavior. For example, the diagnostic rates of ADHD in the U.S. for Latino populations and African-American populations are often lower than for Caucasians, which is believed to result from different cultural interpretations of what is normal behavior for children. Therefore, it is necessary to utilize culturally suitable assessment instruments to determine diagnostic criteria for ADHD is met (APA, 2013).

It is important to understand differences across cultures when assessing for ADHD. For example, due to certain cultural factors, such as respect and deference to authority, in Thailand it is possible that children and teens with ADHD exhibit more inattentive features of ADHD than impulsive and hyperactive features (Moon, 2008). That is, Thai children with

ADHD may be able to suppress hyperactivity and impulsivity due to strong cultural norms that require one to comply with rules and authority.

Nevertheless, in Thailand, there is limited research on ADHD. Furthermore, in general, there appears to be less awareness of the concept of ADHD as a disorder (Visanuyothin, 2013). Therefore, it is probable that Thai people could regard ADHD behaviors as either age appropriate and normal, or regard those with ADHD as less intelligent, less motivated, or stubborn. Such misconceptions are common in cultures in which there is limited awareness of ADHD. In addition to investigating knowledge and awareness of ADHD amongst Thais, the current research also investigated cultural factors which may influence attitudes and perceptions of ADHD in Thailand.

Statement of the Problem

ADHD is a disorder which should be taken seriously, as it can have dramatic effects on an individual's life. There are many problems that may directly result from the dysfunctional behaviors of ADHD. Children with ADHD often perform poorly in school, while adults may suffer occupational difficulties. Indirectly, children with ADHD appear to be more likely to develop other disorders later in life, such as substance use disorders, conduct disorders, antisocial personality disorder, depression, and anxiety. In addition to mental health problems, children with ADHD are more likely to be injured in accidents and may even be more likely to develop obesity (Cortese & Tessari, 2017). Social problems may also result from ADHD, as those with ADHD may miss subtle social cues of their peers or their disruptive behaviors may cause their peers to avoid them (Conners, 2009).

Nevertheless, it is important to keep in mind that some positive attributes may result from ADHD. For example, people with ADHD are often creative, enthusiastic, and energetic.

However, appropriate guidance is usually still needed to foster these positive attributes in people with ADHD (Conners, 2009).

Those who advocate for appropriate treatment of ADHD site the potential for lifelong difficulties if not addressed early. Like most psychological disorders, research has shown that various types of treatment are effective in reducing ADHD symptoms. Treatments for ADHD include medications, behavioral management techniques, parenting classes, one-on-one counseling, as well as teacher/school involvement (Conners, 2009). Usually, a combination of the aforementioned treatments is the most effective approach; however, some research has indicated that medication alone may be effective as a standalone treatment for clients with ADHD and comorbid Conduct Disorder and/or ODD (Conners, 2009) (Wender Wolf, & Wasserstein, 2001).

There has been little research into knowledge of ADHD in Thailand. Study 1 of the current research will explore knowledge of ADHD in Thailand. Indeed, in Thailand, the general public does not seem to be as aware of ADHD as in Western countries. Research reported that only 19.4% of teachers in Thai schools answered at least 70% of the Knowledge of Attention Deficit Disorder Scale (KADDS) correctly (Muanprasart, Traivaree, Arunyarnat, & Teeranate, 2014).

Countries with less knowledge of ADHD often have lower diagnostic rates (Scuitto et al., 2016). In Thailand, hyperactive/impulsive children are more likely to be stigmatized and regarded as stubborn, defiant, or simply, bad kids, while children who are inattentive may be viewed as aloof, spacey, or at worst, stupid (Sakboonyarat, 2018). This further emphasizes the need to establish the level of accurate knowledge in Thailand. In addition, the researcher is unaware of research on the knowledge of ADHD amongst Thai parents with school-aged children. Establishing the level of knowledge of ADHD amongst Thai parents is important, as

parents may be the first people to notice cognitive deficits or behavioral problems in their children.

Awareness of mental health disorders in Thailand continues to lag behind Western countries and Thai public schools usually lack specialized support staff, such as school counselors, psychologists, or special education teachers. Therefore, the potential for Thai students with treatable ADHD to slip through the cracks and not receive appropriate treatment is very high. At best, such students may not reach their full potential. At worst, they may fail and ultimately drop out of school. Indeed, untreated ADHD often leads to many adverse effects in addition to school failure, such as substance abuse and addiction (Maxem, 1995).

In addition, cultural factors play an important role in certain aspects of how the public views ADHD. For example, it is possible that ADHD-like behaviors are regarded as normal age-appropriate behaviors in Thailand. As such, some behaviors that may be regarded as abnormal in other countries are more tolerated in Thailand (Sakboonyarat, 2018). A study in Mexico reported that teachers were more tolerant of ADHD-like behaviors than their American counterparts (Brewis, Schmidt, & Casas, 2003). In general, however, in Thailand, it is likely that children and teens with ADHD are more likely regarded as lazy, stubborn, or bad kids (Sakboonyarat, 2018). In other words, they may be seen as having a character flaw, rather than having a mental disorder. Such a misunderstanding of ADHD may lead to greater negative or even disastrous consequences for children with ADHD in Thailand.

Cultural factors prevalent in Thailand that may influence perceptions and attitudes towards ADHD have not been well researched in Thailand. Study 3 of the current research will explore cultural factors that influence perceptions and attitudes towards ADHD, such as tendency to stigmatize mental disorders, holistic thinking, religiosity, and locus of control.

In order to determine how these cultural factors influence perceptions and attitudes towards ADHD, it is necessary to establish the psychometric properties of instruments that have been developed for Western cultures for use in a Thai context. Therefore, study 2 will establish the psychometric properties of the SBI (religiosity), the Community Attitudes towards the Mentally Ill Scale (stigmatization), Choi's Analysis-Holism Scale (holistic thinking), the Multidimensional Health Locus of Control Scale (locus of control), the ADHD Stigma Questionnaire (attitudes towards ADHD), and the ADHD Beliefs Scale-revised (perceptions of ADHD). Study 2 will allow the researcher to use these instruments in study 3 to investigate how each of the aforementioned cultural factors influence perceptions and attitudes towards ADHD.

It is important to investigate the link between these cultural factors and attitudes and perceptions of ADHD, since Thai culture has the tendency to stigmatize mental disorders; Thais are more likely to think holistically; Thais are high in religiosity; Thais are more likely to have an external locus of control (Burnard, Naiyapatana, & Lloyd, 2006) (Heine, 2012) (Nisbett & Miyamoto, 2005) (Taylor, 2008).

Furthermore, the researcher is unaware of previous research in Thailand on the effects of previous exposure to ADHD. This is, having a friend or family member with the disorder. Having previous exposure to ADHD may moderate one's attitudes and perceptions of ADHD, despite the influence of cultural factors that may otherwise influence one's opinions on the disorder. Indeed, research in the Netherlands has found that previous exposure to ADHD reduced negative opinions of the disorder (Mueller, Fuermaier, Koerts, & Tucha, 2012).

Purpose of the Study

The research objectives of this study were to investigate knowledge and awareness of ADHD in Thailand (study 1). This researcher hypothesized that knowledge of ADHD was lower in Thailand than in Western countries. In addition to measuring knowledge of ADHD, the present study investigated how Thai cultural factors influence attitudes/perceptions of ADHD, as well as how previous exposure to ADHD moderates perceptions and attitudes. Study 2 investigated the psychometric properties of the measurement instruments to be used in study 3. Specifically, study 3 examined the influence of the cultural factors religiosity, locus of control, holistic versus analytical thinking, and stigmatization of mental illness (cultural factors) on the perceptions and attitudes towards ADHD in Thailand.

The current study explored ADHD in Thailand. It explored knowledge of the disorder and it addressed some controversial aspects of ADHD; namely, to what extent attitudes and perceptions of ADHD are influenced by culture. In addition, the effect of previous exposure was examined to determine its moderating effects on attitudes and perceptions of ADHD. The following were the objectives of the research.

Research Objectives

1. To determine the level of knowledge of ADHD amongst a sample of Thai adults who are the parents of school-aged children.
2. To establish the psychometric properties of the questionnaires that will be used to understand the attitudes and perceptions towards ADHD in a Thai context.
3. To determine the relationship between religiosity, tendency to stigmatize mental disorders, health locus of control, holistic thinking and perception/attitudes towards ADHD.

4. To determine if prior exposure to ADHD had a moderating effect of perceptions and attitudes towards ADHD.

Significance of the Study

Presently, there is limited research on ADHD in Thailand. Although awareness of ADHD is high in many countries, such as in the U.S. and Australia, knowledge and awareness of ADHD in Thailand seems to be limited. Even though simple awareness is high in Western countries, whether or not the general public has accurate knowledge of ADHD is debatable. For example, perceived knowledge of ADHD is often higher than accurate knowledge of ADHD.

Nevertheless, study 1 of the present study investigated the level of awareness and knowledge of ADHD in Thailand. This study focused on determining the level of accurate knowledge of ADHD amongst a sample of Thai adults. Determining the level of awareness and knowledge of ADHD in Thailand may assist mental health professionals with developing methods to increase awareness of ADHD, as well as assist mental health professionals with correctly identifying ADHD in Thailand.

Furthermore, perceptions of ADHD and cultural-specific attitudes toward ADHD in Thailand have not been well researched in Thailand to this researcher's knowledge. Improving the understanding of perceptions of ADHD and cultural-specific attitudes toward ADHD in Thailand assists clinicians with understanding unique aspects of ADHD in Thailand.

This, in turn, assists clinicians with more accurately diagnosing ADHD, as well as designing culturally appropriate interventions and treatment plans for those with ADHD in Thailand. In addition, it improves clinicians' ability to educate teachers and family members about the prevalence of ADHD and culturally unique aspects of ADHD in Thailand. As such,

study 3 explored aspects of Thai culture that influence perceptions and attitudes towards ADHD. Study 3 examined how religiosity, stigmatization of mental illness, holistic thinking, and locus of control—moderated by exposure to ADHD—influence perceptions and attitudes towards ADHD in Thailand.

Overall, the present study sought to improve understanding, as well as awareness of ADHD in Thailand. Furthermore, cultural-specific attitudes were analyzed in order to establish if there were unique aspects of how ADHD is viewed and/or experienced in Thailand. Improving our understanding of ADHD in Thailand contributes to improving treatment of ADHD and the development of diagnostic instruments for ADHD.

Students in Thailand may be more likely to exhibit ADHD, Inattentive Type rather than hyperactive type, since Thai classrooms may be more structured. That is, Thai culture requires more obedience to authority figures, while also emphasizing harmony and conformity. As such, Thai children may be more likely to conform and follow rules. Under such circumstances, children and adolescents may repress their hyperactivity and impulsivity (due to the strong cultural norms), leading to lower rates of these symptoms of ADHD.

Therefore, it is possible that ADHD is more likely to go unnoticed, since there could be disproportionate rates of ADHD, Inattentive type as compared to ADHD, Hyperactive/Impulsive type, which further supports the need for developing methods to increase awareness and developing accurate diagnostic instruments. Therefore, improving knowledge and awareness of ADHD in Thailand is needed to identify symptoms of ADHD which may not be so obvious.

The results of this study are useful in improving the lives of children and adolescents in Thailand. By improving the general understanding of ADHD in Thailand, it contributes to ensuring that Thai youth with ADHD have better access to treatment. This allows such youth

to be more successful in school and may contribute to reducing drop out rates. In the long run, improving access to treatment for ADHD in Thailand plays a part in improving Thai society as a whole, since students with ADHD would be more likely to achieve higher educational levels, be more productive, and have better employment opportunities—ultimately, contributing more to Thai society.

Definition of Terms

Exposure to ADHD

Having some exposure to ADHD by either having been diagnosed with ADHD or knowing a friend or family member who has been diagnosed with ADHD.

DSM-5

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition or DSM-5 is a diagnostic book published by the American Psychiatric Association. It is used internationally, but mostly in the United States. The DSM-5 provides mental health professional with a classification system for mental health disorders, as well as diagnostic criteria for mental health disorders (APA, 2013).

Thai Person

For the purpose of this study, a Thai person refers to a person who possesses Thai citizenship and has lived most of his or her life in Thailand. This would not refer to a Thai citizen who has lived most of his or her life abroad, since he or she may be less culturally influenced by Thai culture.

Western Person

For the purpose of this study, a person who possesses citizenship of a culturally Western country, such as the United States, Germany, Australia, etc., and has lived most of his or her life in a Western environment outside of Thailand. A dual national, for example, who

possesses American and Thai citizenship, but has lived the majority of his or her life in Thailand would not be considered as a Western person for the purpose of this study.

Continuous Performance Test (CPT)

A continuous performance test, sometimes referred to as a continuous performance task, is a neuropsychological test that measures a person's ability to maintain focus and attention for a sustained period of time. These tests may deduce a person's impulsivity or distractibility, as well. They are used as part of a comprehensive assessment for ADHD.

TOVA 9

The TOVA 9 or Test of Variables of Attention, ninth edition is a FDA approved computerized assessment which aids healthcare professionals with objective measurements of attention and inhibitory control. As such, it is a tool that aids in the evaluation of ADHD. Furthermore, it is language and culturally neutral, although developed and normed in the United States (Greenberg & Waldman, 1993).

Multi-rater/Multi-informant Assessment

This is any psychological assessment which obtains information from several different people or sources. This often includes the person being assessed, family members, teachers, or other people who know the client well. These assessments are important to determine if certain symptoms are present in multiple settings, as this may be a criteria for the diagnosis of certain disorders, such as ADHD (Conners, 2009).

Conners 3

The Conners 3 (third edition) is a multi-informant ADHD assessment which includes questionnaire forms for teachers, parents, and clients; however, forms can be administered independent if, for example, teachers or parents are not available. In addition to ADHD, the Conners 3 can identify other disorders, such as ODD and Conduct Disorder (Conners, 2009).

THASS

Thai ADHD Screening Scales (THASS) is a Thai language, multi-informant ADHD assessment questionnaire (developed and normed in Thailand) which includes forms for teachers, parents, and clients; however, forms can be administered independent if, for example, teachers or parents are not available. The THASS assesses for hyperactivity/impulsivity and inattentiveness (Pornnoppadol et al., 2014).

ADHD

A mental health disorder defined by the DSM-5 in which “the essential feature of attention-deficit/hyperactivity disorder (ADHD) is a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (APA, 2013).”

ADHD, Inattentive Type

One of three types of ADHD in which inattention is the essential feature without hyperactivity and impulsivity. According to the DSM-5, “Inattention manifests behaviorally in ADHD as wandering off task, lacking persistence, having difficulty sustaining focus, and being disorganized and is not due to defiance or lack of comprehension (APA, 2013).”

ADHD, Hyperactive/Impulsive Type

One of three types of ADHD in which Hyperactivity and impulsivity is the main feature. According to the DSM-5,

“hyperactivity refers to excessive motor activity (such as a child running about) when it is not appropriate, or excessive fidgeting, tapping, or talkativeness. In adults, hyperactivity may manifest as extreme restlessness or wearing others out with their activity. Impulsivity refers to hasty actions that occur in the moment without forethought and that have high potential for harm to the individual (e.g., darting into the street without looking) (APA, 2013).”

ADHD, Combined Type

One of three types of ADHD identified in the DSM 5 whose main features are a combination of inattentiveness and hyperactivity/impulsivity (as described above) (APA, 2013).

Oppositional Defiant Disorder (ODD)

According to the DSM-5, ODD is a mental disorder in which “the essential feature...is a frequent and persistent pattern of angry and irritable mood, argumentative/ defiant behavior, or vindictiveness (APA, 2013).” Usually, a diagnosis of this disorder is reserved for those between the ages of 7 and 13.

Conduct Disorder

According to the DSM-5, “the essential feature of conduct disorder is a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (APA, 2013).” Typically, it is diagnosed in those between the age range of 14 and 18 years old.

Antisocial Personality Disorder

According to the DSM-5, “the essential feature of antisocial personality disorder is a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood (APA, 2013).” It is only diagnosed in those 18 years old and above.

Operationalized Definition of Terms

Attitudes toward ADHD

For the purpose of this study, this will refer to one’s mental position or feelings either positively or negatively towards ADHD. That is, one’s tendency to stigmatize ADHD. Attitudes towards ADHD will be measured by the ADHD Stigma Questionnaire which measure gradients of rejection of those with ADHD.

Perceptions of ADHD

For the purpose of this study, this will refer to one's beliefs about ADHD and one's tendency to perceive ADHD favorably/unfavorably and accurately/inaccurately. Perceptions of ADHD will be measured by the ADHD beliefs scale, which "reflects a variety of beliefs concerning ADHD, such as the causes of ADHD (e.g., "ADHD is related to neurological functioning in the brain" or "Some children develop ADHD because they want attention") and various treatment options (e.g., "A combination of medication and behavior management is best for treating ADHD" or "Limiting a child's sugar intake can be an effective treatment for ADHD") (Gudmundsdottir, 2014)."

Religiosity

As defined by the Systems of Beliefs Inventory (SBI), one's tendency to identify with or subscribe to spiritual or religious practices. Belief in supernatural powers or a higher power that has the ability to influence one's life in a positive way (Kash, et. al, 1995). In a Thai context, Buddhist "beliefs have also been associated with supernatural power, ghosts, and spirits of Brahmin influence (Hefti & Buessig, 2018)" Therefore, the SBI, which measures supernatural beliefs, was chosen for the current study. Although the SBI does not measure, religious service attendance, research has found that such attendance is not a good indicator of religiosity for Buddhist. Thais report being Buddhist at a rate of 95% (Hackett, 2018).

Locus of Control

The extent to which one believes one is able to exert control over the events in one's life (internal locus of control) or if other factors outside of one's control exert more over one's life (external locus of control). As measured by the Multidimensional Health Locus (MHLC) scale the extent to which one believes that health-related behaviors is primarily internal, a matter of chance, or under the control of powerful others (Wallston, 2005).

Holistic Thinking

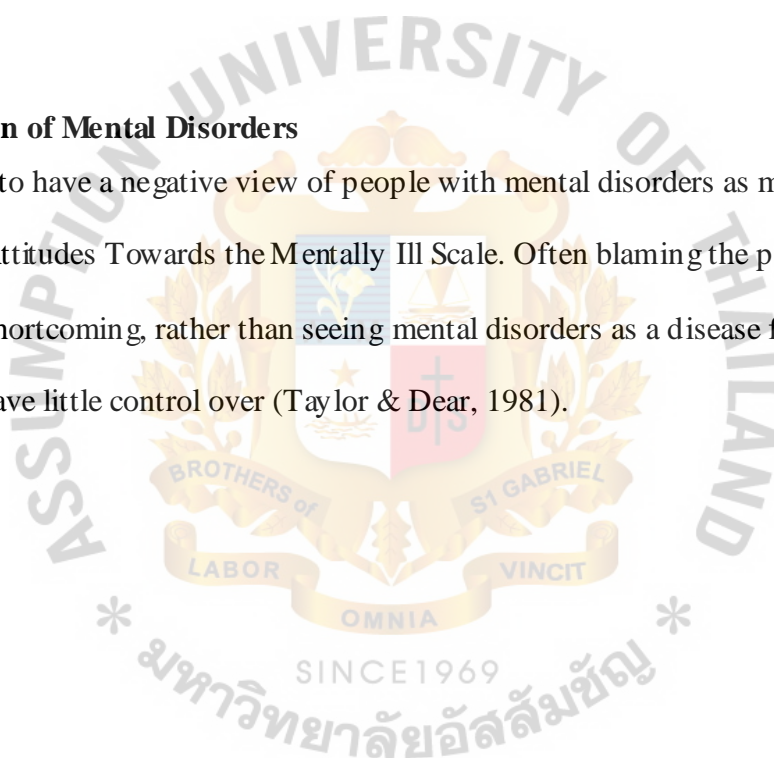
The extent to which one thinks in terms of an objects' or phenomena's context. The tendency to see objects and phenomena as a whole as measured by Choi's Analysis-Holism Scale (AHS) (Choi, et al., 2007).

Analytical Thinking

The extent to which one engages in deconstructive thinking and sees objects and phenomena as separate from their greater context. The tendency to see breakdown objects into parts that make up the larger whole as measured by Choi's Analysis-Holism Scale (AHS) (Choi, et al., 2007).

Stigmatization of Mental Disorders

The tendency to have a negative view of people with mental disorders as measured by the Community Attitudes Towards the Mentally Ill Scale. Often blaming the person or regarding it as a moral shortcoming, rather than seeing mental disorders as a disease for which the person may have little control over (Taylor & Dear, 1981).



CHAPTER II

LITERATURE REVIEW

The following literature review will present research on ADHD as it pertains to the present study. In so doing, the literature review will begin by discussing general information about ADHD before proceeding to describe studies specifically related to the present research, such as knowledge/awareness of ADHD, cultural factors of ADHD, perceptions and attitudes towards ADHD, as well as diagnostic instruments used to assess for ADHD.

Specifically, the literature review will follow the structure below in order:

- ADHD: Background
- Features of ADHD
- ADHD and Personality
- Comorbidity and ADHD
- Instruments used to Diagnose ADHD: Conners 3, THASS, and TOVA
- Treatment of ADHD
- Biology of ADHD: Genetics
- Biology of ADHD: Neurological Aspects
- Knowledge and Awareness of ADHD Across Cultures
- Influence of Culture on ADHD: Perceptions and Attitudes towards ADHD
- ADHD in Thailand
- Thai Cultural Factors and ADHD

Attention-deficit/Hyperactivity Disorder: Background

The DSM-5 defines ADHD as a mental health disorder in which the essential feature is “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development.” ADHD emerges in childhood and may or may not persist into adulthood. ADHD is one of the most common childhood psychological disorders with prevalence rates as high 8% to 12% worldwide (Wilens et al, 2002).

ADHD was first recognized as a mental disorder over 100 years ago. Gerooge Frederic Still is often given credit as the first medical practitioner to recognize ADHD as a medical condition. He hypothesized that ADHD was due to a brain injury at birth and not due to bad parenting or immoral character. Indeed, before it was recognized as a medical condition, those with ADHD were usually regarded as bad children who deserved punishment. Originally, ADHD was thought only to affect male children (Hallowell & Ratey, 2011).

Throughout history the disorder has been called various things—some more stigmatizing than others—including “hyperkinesis disorder of childhood,” “minimal brain damage,” and “minimal brain dysfunction (MBD).” In the 1920s and 1930s, although it was still believed by some that ADHD resulted from brain damage, doctors began to prescribe stimulant medication to treat the symptoms of ADHD (Kos & Richdale, 2004). In the 1970s, ADHD began to be thought of as more of a disorder of attention rather than brain damage, as the current view of ADHD, which prevails today, began to take shape (Hallowell & Ratey, 2011).

At one time it was believed that children would “grow out of ADHD,” leading some to regard it only as a childhood disorder. Indeed, to this day, even some mental health professionals incorrectly believe that ADHD is a condition that occurs only in childhood. Nevertheless, research has revealed that ADHD is a disorder that affects adults almost as

often as children (Biderman, 1998). However, some adults may simply learn to manage their ADHD symptoms over time, which gives the impression of having “grown out of it.”

Research has indicated that 30 - 60% of children will continue to have ADHD symptoms in adulthood (Seidman et al, 2004)

Features of ADHD

In order to accurately diagnose ADHD, the symptoms must have been present by the age of 10 or younger. Although there is some controversy surrounding the validity of ADHD as a real psychological disorder, a vast amount of research indicates that ADHD is a legitimate disorder, as “it is among the best-validated childhood diagnoses from a clinical and neurobiological perspectives (Faraone & Mick, 2010).”

The DSM-5 describes the essential feature of attention-deficit/hyperactivity disorder as a “persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (APA, 2013).” Presently, there are three sub-categories of ADHD listed in the DSM-5. They are as follows: ADHD, Combined Presentation; ADHD, Predominantly Inattentive Presentation; ADHD, Predominantly Hyperactive/Impulsive Presentation. Furthermore, ADHD may be specified as mild, moderate, or severe (APA, 2013).

According to the DSM-5, ADHD presents in the following three forms: ADHD, Combined Presentation (when criteria for both inattention and hyperactivity-impulsivity is met); ADHD, Predominately inattentive presentation (criteria for inattention is met, but not for hyperactivity); ADHD, Predominately hyperactive/impulsive presentation (criteria for hyperactivity-impulsivity is met, but not inattention). ADHD, Combined Presentation appears to be the most common type of ADHD (APA, 2013).

Below is the diagnostic criteria for ADHD as presented by the DSM-5:

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):

1. **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

- a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or doing other activities (e.g., overlooks or misses details, work is inaccurate).
- b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy).
- c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
- d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).
- e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
- f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).

- g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
- i. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments) (APA, 2013).

2. Hyperactivity and Impulsivity: Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

- a. Often fidgets with or taps hands or feet or squirms in seat.
- b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in the others situations that require remaining in place).
- c. Often runs about or climbs in situations where it is inappropriate. (**Note:** In adolescents or adults, may be limited to feeling restless).
- d. Often unable to play or engage in leisure activities quietly.
- e. Is often “on the go,” acting as if “driven by a motor” (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by other as being restless or difficult to keep up with).

- f. Often talks excessively.
 - g. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).
 - h. Often has difficulty waiting his or her turn (e.g., while waiting in line).
 - i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing) (APA, 2013).
- B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.
- C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).
- D. There is clear evidence that the symptoms interfere with, or reduce the quality or, social academic, or occupational functioning.
- E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal) (APA, 2013).

In addition, the DSM-5 allows for the use of specifiers to further describe ADHD as either mild, moderate, or severe (APA, 2013). These specifiers point towards the idea that ADHD may be a disorder which is on a spectrum from a minor inability to maintain focus, with which one may cope easily, to debilitating symptoms, with which one may need professional psychological services to cope.

The prognosis for those with ADHD, Predominately hyperactive/impulsive presentation appears to be the worst, as it is often associated with more dysfunctional and

problematic behaviors. For example, these children and teens are often disruptive in school, have more social dysfunction, and may exhibit conduct related problems. In turn, such difficulties can lead to academic underachievement and poor employment prospects or other issues, such as substance abuse (Mannuzza & Klein, 2000).

On the other hand, some positive attributes may be associated with ADHD, Predominately hyperactive/impulsive presentation. For example, those with ADHD, predominately hyperactive/impulsive presentation may display more creativity and higher energy levels, which may allow them to be very productive once they have learned to manage their impulsivity. Although there is limited research and reports are mostly anecdotal, some claim that those with ADHD, Predominately hyperactive/impulsive presentation are more athletically gifted (Hallowell & Ratey, 2011).

Although the prognosis for ADHD, Predominately hyperactive/impulsive presentation may be worse overall, those with ADHD, Predominately inattentive presentation may function less optimally than those with ADHD, Predominately hyperactive/impulsive presentation in some instances. For example, individuals with ADHD, Predominately inattentive presentation tend to be worse at mathematics than those with ADHD, Predominately hyperactive/impulsive presentation (Daniela & Cabrele, 2006).

Additionally, those with ADHD, Predominately inattentive presentation are more likely to go undiagnosed, as their behavior is not overtly disturbing to others. Unfortunately, they are more likely to be considered as lazy or less intelligent than those not suffering from ADHD. Since they are less likely to be diagnosed, they are less likely to receive proper treatment, as well. It is not uncommon for those with ADHD, Predominately inattentive presentation to go undiagnosed until adulthood. Females tend to present with this type of ADHD (Hallowell & Ratey, 2011).

Overall, the reading skills of children with ADHD (regardless of type) lagged behind those of their non-ADHD peers. Furthermore, symptoms of ADHD in preschool children predicted academic underachievement later in elementary school. Indeed, in an academic setting, ADHD most likely has much more disadvantages than advantages (Spira & Fischel, 2005).

Symptoms of ADHD are usually apparent across multiple settings, but may be exacerbated or minimal depending on the context of the situation. For example, individuals with ADHD may be able to improve focus while being supervised closely or when engaged in an activity in which they particularly enjoy or find entertaining. Parents often observe that their children and teens can focus extremely well when engaged in playing video games, but are unable to sustain minimal focus when doing other tasks, such as reading or listening in class (APA, 2013).

Although the stereotypical symptoms of ADHD, such as impulsivity and hyperactivity, are often well-known, most people fail to understand the social problems which result from ADHD. For example, making friends requires that one be able to pay attention to another person, which requires sustaining attention for a reasonable length of time. What's more, those with ADHD often fail to notice subtle social cues, which those without ADHD tend to notice effortlessly (Hallowell & Ratey, 2011). Indeed, the social isolation caused by ADHD may end up being more damaging than the ADHD itself. The negative impact of social isolation to self-esteem and self-confidence could lead to other disorders, such as depression, anxiety disorders, or substance use disorders (Elkins, et al., 2011).

Children with ADHD often have other impairments which co-occur with the disorder, but are not necessarily caused by ADHD or the result of ADHD (Amen, 2001). According to

the DSM-5 “mild delays in language, motor, or social development...often co-occur (APA, 2013).” Furthermore, as the adolescent becomes an adult, substance use disorders, such as alcoholism, as well as personality disorders, such as antisocial personality disorder frequently (but not always) accompany ADHD (Maxmen, 1995). As children, those with ADHD may also exhibit symptoms of Oppositional Defiant Disorder (ODD), which is often a precursor for Conduct Disorder (CD) and sometimes antisocial personality disorder later in life as adults (Conners, 2009).

ADHD does seem to cause some problems directly, in addition to indirectly (described above). For example, children and adolescents with ADHD often have difficulties in school, both academically and socially (Hallowell & Ratey, 2011). Their lack of focus makes it difficult for them to keep up their grades, while their disruptive behavior may lead them to become socially isolated. In addition, familial conflict often arises due to many factors, such as the parent’s frustration with the child’s shortcomings in school. Those with ADHD may, in turn, become depressed and anxious, as a result of their negative experiences which come as a “byproduct” of ADHD (Maxem, 1995).

ADHD and Personality

ADHD symptoms were found to be related to three personality dimensions from the Big Five Personality Characteristics—namely agreeableness, conscientiousness, and neuroticism. That is, those with ADHD symptoms scored lower on agreeableness and conscientiousness, and higher on neuroticism. People low in conscientiousness often perform more poorly in school and the workplace (Nigg, et al. 2002).

Research has found that extraversion (usually regarded as a positive personality trait and often mistakenly believed by the general public to correlate positively with ADHD) did not actually have a positive correlation with ADHD (Nigg et al, 2002). Therefore, research

has identified a connection between personality and ADHD symptoms and the perception of one's personality by others. In other words, people may interpret the symptoms of ADHD as a personality characteristic. Furthermore, it opens up the possibility that ADHD symptoms in childhood may influence development of personality (Nigg et al., 2002). Perhaps, this reveals the importance of treating ADHD symptoms in children as it may lead to undesirable personality traits later in life.

Comorbidity and ADHD

Multiple mental disorders often co-occur with ADHD. Common disorders that co-occur with ADHD include oppositional defiant disorder (ODD), conduct disorder, anxiety disorders, depression, disruptive mood dysregulation disorder, intermittent explosive disorder, obsessive-compulsive disorder, tic disorders, autism spectrum disorder, learning disabilities, and substance use disorders. Since ADHD often co-occurs with other disorders, it can make it difficult to identify and diagnose ADHD at times. According to research, 80% of children or teens with ADHD will also have another co-occurring mental disorder (Wilens, Biederman, & Spencer 2002).

Perhaps, the most common disorder that co-occurs with ADHD is ODD. Studies report that ODD is present in about 50% of children with ADHD (combined type), while conduct disorder is present in 25% of adolescents with ADHD (combined type). Since ODD is more common in ADHD combined type than inattentive type, there appears to be a link between the hyperactivity/impulsivity aspects of ADHD combined type and ODD (APA 2013).

If severe conduct problems are present in adolescents, a diagnosis of conduct disorder should be used instead of ODD. ODD is used for children only. A decrease in conduct problems (at least in diagnosable conduct problems) suggests that some children with ADHD

and comorbid ODD learn to manage their conduct problems into adolescents, even though their ADHD continues to persist (APA 2013).

Research has examined comorbidity with ADHD--specifically, ODD/CD (Oppositional Defiant Disorder/Conduct Disorder), depression, and anxiety. The purpose was to determine if comorbidity with ADHD may actually represent unique disorders; therefore, warranting a separate category of a mental disorder or at least a subcategory (Jensen, 2001).

Researchers used Cantwell's approach as a guideline to determine if a disorder represent a separate distinct disorder. This approach provides criteria for how a disorder could be consider distinct from other disorders. The guidelines are as follows: Clinical pharmacology, demographic correlates, psychosocial correlates, family factors, biological factors, response to treatment, and clinical outcomes (Jensen et al., 2001).

Prior research by Jensen, et al. (2001) revealed evidence to support the idea that ADHD with ODD/CD constitutes more than a unique subtype of ADHD, but rather a distinct disorder. The researchers used Cantwell's criteria to determine if ADHD with ODD/CD met criteria to be considered unique subtype of ADHD. According to this approach, ADHD with comorbid ODD/CD does, in fact, meet criteria to be considered a distinct subtype of ADHD (Jensen, et al. 2001).

In addition, Jensen, et al. (2001) reported that ADHD with mood disorders, as well as ADHD with ODD/CD may constitute subtypes of ADHD. These clients responded differently to treatment. For example, ADHD with mood disorders responded to all treatments. ADHD with ODD/CD responded only to medications, while behavior therapy may even be contraindicated. ADHD with mood disorders plus ODD/CD responded best to a combination of behavioral therapy and medication treatment (Jensen, et al. 2001).

Other research supports the idea that subtypes of ADHD may actually represent distinct or separate disorders. For example, in a review of research on ADHD, Milich, et al. (2002) argued that ADHD, Inattentive Type should be considered a separate mental disorder from ADHD, Hyperactive/Impulsive Type, since ADHD, Inattentive Type seemed to represent more of a deficiency in motivation, in which hypoactivity, sluggishness, daydreaming, and feeling “spaced out” are the primary symptoms. On the other hand, when it comes to ADHD, Hyperactive/Impulsive Type, the primary symptoms were disinhibited, distractible, and hyperactivity (Milich et al., 2002).

The researchers noted that ADHD with mood disorders responded much better to treatment than clients with just ADHD or clients with ADHD and ODD/CD. In some ways, comorbid mood disorders may have offered ameliorating effects on ADHD; thus, predicting better outcomes for these individuals (Jensen et al., 2001).

As described above, different comorbid types of ADHD responded differently to treatment. This has implications when providing treatment for clients with ADHD. Having a thorough understanding of the symptoms experienced by clients, will help clinicians make better choices when choosing treatment options. For example, it may be important to know when medication is most effective and behavioral treatment is less effective (Jensen et al., 2001).

Other disorders which are more common in those with ADHD than in the general population, include disruptive mood dysregulation disorder, major depressive disorder, and anxiety disorders. According to the DSM-5, most children who meet criteria for disruptive mood dysregulation disorder will also meet criteria for ADHD. Although a minority of people with ADHD meet criteria for major depressive disorder and anxiety disorders, these

disorders are more common in individuals with ADHD than in the general population (APA, 2013).

Beyond whether or not those with ADHD ever meet full criteria for other disorders, does not take away the damage to one's self-esteem that ADHD can inflict. Indeed, it is probably the biggest risk and can be the most detrimental outcome of untreated ADHD (Mrug et al., 2012). Those with ADHD may be talented and gifted, but they may never thrive fully as ADHD can rob them of their self-esteem, leaving them feeling incompetent and unintelligent. The key is to identify ADHD in children as early as possible and provide the appropriate treatment. It is essential to do this before they start to fail in school and begin to internalize pejorative labels that lead to low self-esteem (Hallowell & Ratey, 2011).

A study in Thailand which analyzed the rates of ADHD among boys in a juvenile detention center reported that ADHD rates were 12.5% (Ketumarn, Hataiyusuk, Pornnoppadol, & Apinuntavech, 2016). This rate is much higher than rates reported in the general population of Thailand, which range from two to eight percent (Sakboonyarat et al., 2018) (Visanuyothin, 2013). The study also found that they had higher rates of comorbidity, such as drug/alcohol problems, family dysfunction, and employment difficulties (Ketumarn, Hataiyusuk, Pornnoppadol, & Apinuntavech, 2016).

This study is in line with findings in the U.S. which points out that those with ADHD are more likely to be incarcerated. Among prisoners in the United States, ADHD rates are known to be much higher than the general public, as well. One study found ADHD rates among prisoners at 40% (Ginsberg, Hirvikoski, & Lindefors, 2010).

Since ADHD can resemble other mental disorders, it is imperative for clinicians to establish a differential diagnosis. In other words, it is important to ensure that the symptoms are due to ADHD and not some other disorder. For example, those with depressive disorders

can have difficulty with focusing and sustaining attention, which may be mistaken for ADHD. Other mental disorders which may cause attention problems (or give the appearance of attention problems) include, among others, ODD, conduct disorder, bipolar disorders, anxiety disorders, substance use disorders, learning disabilities, and neurodevelopmental disorder. However, clinicians must keep in mind that it is very common for ADHD to exist alongside other disorders, as well. For example, both ADHD and depressive disorders may be present simultaneously (APA, 2013).

Instruments used to Diagnose ADHD: The TOVA, the Conners 3, and the THASS

ADHD is one of the most common mental health disorders in children. It is estimated that at least five percent of children in the U.S. have ADHD (Conners, 2009). Nevertheless, the general public often knows very little about the disorder, other than stereotypical symptoms of the disorder. Some studies have found that perceived knowledge of ADHD is much higher than actual knowledge. Since all children can be hyper, impulsive, and careless, people may chalk up the symptoms of ADHD to normal the behaviors of children. However, the severity at which those with ADHD display these behaviors is far from normal. Nevertheless, ADHD may go untreated due to misconceptions about what constitutes normal behaviors (Hallowel & Ratey, 2011).

Furthermore, due to the many factors, such as mental disorders with overlapping symptoms, co-occurring mental disorders, cultural norms, and the subjective nature of diagnosing ADHD, reaching an accurate ADHD diagnosis can be tricky (and often controversial). As such, mental health professionals have developed a number of diagnostic assessments and diagnostic tools to assist clinicians with making an accurate and more objective diagnosis. Indeed, without such assessments and diagnostic tools, an ADHD diagnosis is reached rather subjectively; that is, mental health professionals must rely solely

on their professional opinions to determine if an individual meets diagnostic criteria as laid out by the DSM-5 (APA, 2013).

These assessment instruments may reduce some of controversy associated with the legitimacy of an ADHD diagnosis, as they serve to limit the fallibility often attributed to clinicians by those skeptical of the existence of ADHD. In other words, skeptics may not believe the professional opinion of mental health professionals in regards to diagnosing ADHD. Assessment instruments, which are backed by years of research, provide psychologists with hard data to support the existence of ADHD as a legitimate mental health disorder.

Assessment instruments used for ADHD come in several different forms. For example, they may consist of simple pencil and paper checklists based on the diagnostic criteria of the DSM-5 (which are often self-administered), simple ADHD rating scales (in which perceived symptoms of ADHD are rated according to severity), complex multi-rater scales, such as the Conners 3, (which have more in-depth questions and rely on multiple sources, in addition to the individual suspected of having ADHD, such as parents, teachers, friends, or others familiar with the individual), semi-structured diagnostic interviews (which are typically administered by a qualified mental health professional), and CPTs or continuous performance tests (usually computer based tests which measure an individual's ability to sustain focus over time).

Indeed, ADHD is often difficult to diagnose, as criteria can be vague and often relies on self-report measures and clinicians' opinions which can be biased. Self-reports are prone to manipulation by those who wish to malingering, perhaps to gain access to stimulant medications. "A solution is the use of multimodal assessment, including self-report and [psychological] testing designed to identify underlying cognitive and executive dysfunction (Wilens, 2004)."

The TOVA (Test of Variables of Attention) is one psychological test which has shown promise in assisting in an objective diagnosis of ADHD.

TOVA

The TOVA is a psychological test used to measure attention or lack thereof. Essentially, it is used to aid in the diagnosis of ADHD, though it may be used to assist in identifying other disorders that may affect attention (such as brain damage). The TOVA falls into the category of psychological measures known as CPTs (Continuous Performance Tests) (Monastra, Monastra, & George, 2002).

“Like most CPTs, the TOVA uses a fixed, mid-range interstimulus interval and visual stimuli. However, unlike most CPTs, the TOVA’s stimuli are nonsequential, simple geometric configurations and monochromatic. Since these features along with the use of a 2.5 minute practice, minimize practice effects, the TOVA can be used for serial measurements (Leark, 2007).”

The TOVA takes about 21 minutes to finish. During the test, a square is flashed at the top or bottom of the computer screen. When taking the test, participants are instructed to click a handheld switch for targets (square at the top) and avoid clicking for nontargets (squares at the bottom) (Leark, 2007).

The first half of the TOVA contains low ratio of targets to nontargets and purports to measure inattentiveness/distractibility as reflected by errors of omission (not responding when the test subject should respond). The second half of the TOVA is characterized by a high target to nontarget ratio and is aimed at assessing impulsivity, as indicated by errors of commission (responding when there should be no response). Dependent variables include response time (how quickly the microswitch is pressed), response time variability (response time consistency), commission errors (impulsivity), and omission errors (inattentiveness) (Leark, 2007).

Studies have indicated that the TOVA has significant correlations with parent and teacher rating scales for ADHD and is reliable in discriminating between individuals with a prior ADHD diagnosis and those without ADHD. This supports the validity of the TOVA test. Additionally, the TOVA has good face validity in that evaluating a client's ability to sustain focus on a boring task for at least 21 minutes would appear to measure attention. Clients with poor scores on the TOVA often show improved scores after receiving medication for ADHD, while scores do not show much improvement for those who are not medicated. This further supports the validity of the TOVA in measuring attention and assessing symptoms for ADHD (Monastra, Monastra, & George, 2002).

Indeed, one benefit of the TOVA is that it may be used to adjust the doses of medications used to treat ADHD, since the TOVA may be re-administered while the client is under the influence of different doses of medications. This was found appropriate, because the sequence of stimuli on the TOVA is random and never follows the same sequence. This randomness reduces the likelihood that TOVA scores improve due to familiarity with the stimuli. Nevertheless, the TOVA should be regarded as one tool to improve the accuracy of an ADHD diagnosis, rather than a standalone diagnostic instrument (Leark, 2007).

The TOVA was normed on 1,596 people (1,346 children/teens and 250 adults). It was normed on randomly selected children and adults in Minnesota, United States—99% being Caucasian and 1% other races. Multiple independent studies have found the TOVA to be reliable (Greenberg & Waldman, 1993). For example, researchers have examined the reliability of the TOVA—finding it to have internal consistency and good test/retest reliability. For example, research that compared the error scores of each quarter and first half to second half of the test, found reliability coefficients ranged from .82 to .96, indicating good internal consistency (Lorent et al., 2001). Regarding test/retest reliability, research found that response did not improve between the first administration and a second

administration, with the average response time score on the first administration being 94.63 and 90.85 on the second administration. This difference was found not to be significant (Jensen & Kenny, 2004).

Practice effects did not appear to be significant. That is, clients do not appear to improve their TOVA scores significantly with multiple administrations of the TOVA test. Furthermore, Weyandt, Mitzla, and Thomas (2002) did not find any correlation between intelligence and TOVA scores. Their study involved administering both the WAIS-R intelligence assessment and the TOVA to a group of participants. No correlations were found between these, supporting discriminant validity of the TOVA (Weyandt, Mitzla, and Thomas, 2002).

Independent research has found criterion validity and discriminate validity, as well as test sensitivity/specificity to be high. For example, in one study, the TOVA correctly identified non-ADHD participants over 93% of the time and ADHD participants 75% of the time. This study included non-ADHD participants and ADHD participants who had been classified into these categories by a group of experienced psychologists and psychiatrists (Leark, 2007).

Research has found that CPTs are valid and reliable as a corroborative test for ADHD. Other studies have shown the TOVA resulted in false negatives 10% - 15% of the time and false positives 10% - 20% of the time (Nass, 2006). Test takers with co-occurring disorders, such as depression, may result in more false positives on the TOVA (Nass, 2006).

Furthermore, CPTs are regarded as more culturally neutral, since they are language free and do not rely on perceptions which may be culturally influenced. A study in Taiwan which assessed the validity of the TOVA amongst Taiwanese adolescents utilized 31 adolescents previously diagnosed with ADHD and 30 students who did not have ADHD. The

study found that those without ADHD significantly outperformed those with ADHD (as should be expected). In addition, there was convergent validity and divergent validity for the TOVA and another ADHD screening tool called the Child Behavior Checklist (CBCL) (Wu et al., 2007).

According to a study in Mexico which utilized the TOVA, 81.6 percent of children in the study were classified as having ADHD. Overall, the Mexican children in this study made more errors on the TOVA, compared to the U.S. norms. However, when examining scores across age groups (6 – 12 years old), it is clear that scores on the TOVA improved considerably. That is, the scores improved amongst the older children when compared to the younger children (Brewis, 2003).

This would confirm the concept of childhood developmental trajectory of attention and impulse control in children in Mexico. However, the authors disagreed with the results of the TOVA which classified the majority of the children as having ADHD and attributed the differences in scores to cultural differences. The authors noted that in classroom observations all children in the study appeared well-adjusted and happy. However, no other ADHD assessment instruments were used to evaluate for ADHD in the above sample (Brewis, 2003).

Nevertheless, the TOVA was found to be valid and reliable in Taiwan and many other countries; therefore, this would support the likelihood that would be valid and reliable in Thailand, as well (Wu, 2007). The culturally neutral design of the TOVA lends itself to be useful across multiple cultures. However, it is possible that the response styles of adolescents could vary across cultures, such as in the study in Mexico which found that Mexican children tended to do more poorly on the TOVA than their American counterparts (Brewis, 2003).

Conners 3

The Conners 3 is a multi-rater assessment of ADHD for children and adolescents, ages 6 to 18 years old, which utilizes three different forms—a teacher form, parent form, and a self-report form. Having multiple raters to rate possible symptoms of ADHD allows for a more thorough and accurate assessment, as ADHD symptoms may be present in some situations, such as school, but not in other situations, such as at home (Conners, 2009).

In order to assess for ADHD, all Conners 3 forms can be given or only one or two of the forms. For example, if teachers or parents are not available, then the self-report form (which the client completes him or herself) may be used as a standalone assessment. The raters are required to answer a series of questions on a scale from zero to three—zero being never and three being always. This system identifies symptoms of ADHD and their severity (Conners, 2009).

In addition to ADHD, it assesses for the most commonly occurring comorbid disorders, such as ODD and conduct disorder. These disorders were found to co-occur with ADHD 40% and 10% of the time, respectively. It also screens for anxiety and depressive symptoms, though this is not its primary purpose (Conners, 2009). Nevertheless, this is important in the assessment process, since up to 60% of children with ADHD also have a co-occurring disorder. One study found, 30% of children with ADHD had an anxiety disorder and 25% to 33% had at least one depressive episode. There is a short and long version of the Conners 3, with both versions found to be equally valid and reliable (Conners, 2009).

The Conners 3 self-report (Conners 3-SR) form was normed on 1,100 children and teens, ages 8 to 18. This included 550 girls and 550 boys from each age group (8 to 18 years). Norms were gathered through the United States and Canada. Participants were from various ethnic backgrounds; however, Caucasians constituted slightly more than half of the sample.

Asians made up about five percent of the sample. As part of the standardization process a further 6,825 assessments were collected in a following study (Conners, 2009).

The Conners 3-SR was found to be reliable and valid. The mean Cronbach's alpha for internal consistency content scales is .88. Test-retest correlation for the Conners 3-SR ranged from .75 to .83, with a mean of .79. Regarding validity, convergent and divergent validity were significant (Conners, 2009). Well-known assessments, such as the BASC-2, BRIEF, and ASEBA were used in the convergent and divergent validity studies. The discriminate validity score, in terms of accuracy of classification, was 72.92% accurate (Conners, 2009).

The psychometric properties of the Conners 3 was found to be acceptable in studies using a Spanish version of the Conners 3 in Spain, a Chinese translation of the Conners 3 in Hong Kong, and a Japanese translation in Japan, as well (Morales-Hidalgo, 2017) (Leung & Lee, 1988) (Takeda, Tsuji, & Kurita, 2017). Furthermore, a study in Iran using the Conners 3 found its criterion validity to be acceptable (Abdekhodaie & Gholizadeh, 2011). Therefore, it is likely that the psychometric properties of the Conners 3-SR would also be acceptable in Thailand.

A scale similar to the Conners 3 called the Weiss Functional Impairment Rating Scale (WFIRS) was found to be reliable and valid amongst ADHD patients in Thailand. This study utilized a version of the WFIRS which was translated from English to Thai. This study tested 137 patients and 147 caregivers in Thailand (Pornnoppadol, Piyasilp, Jittorn, & Chanpen, 2015).

“CVI of both self-report (WFIRS-S) and the parent-report (WFIRS-P) have been verified with the average score of 0.96-0.99. The Cronbach's alpha in all domains was 0.77 to 0.99. The test-retest reliability (r) of WFIRS-S and WFIRS-P were 0.68 ($p =$

0.003) and 0.88 ($p = 0.01$), respectively (Pornnoppadol, Piyasilp, Jittorn, & Chanpen, 2015).”

The Thai ADHD Screening Scales

The Thai ADHD Screening Scales (THASS) is a multi-rater ADHD scaled normed and developed in Thailand. The THASS, like the Conners 3, has a self-report form, teacher report form, and parent report form. The THASS measures two factors-- hyperactivity/impulsivity and inattentiveness. However, unlike the Conners 3, it does not screen for learning disabilities, oppositional defiant disorder, family problems, or possible depressive or anxiety symptoms. The THASS was normed on 15,360 participants in Thailand. In its development it was found to be a valid and reliable screening instrument for ADHD (Pornnoppadol et al., 2014). “All versions of the THASS had excellent internal consistency. Cronbach’s alpha coefficient ranged from 0.94 – 0.98. Two-week test-retest reliability confirmed the scales stability. Pearson’s correlation coefficient (r) ranged from 0.80 – 0.91 (mean = 0.86, $p < 0.001$ (Pornnoppadol et al., 2014).”

Treatment of ADHD

There are a variety of approaches which are effective in the treatment of ADHD. These approaches include pharmacological, psychological, behavioral treatments, psychosocial, and academic interventions. Often, parental training to teach parents how to manage children with ADHD is recommended, as well. A combination of all of the aforementioned approaches is the most effective method to ensure the best treatment outcomes (Conners, 2009).

Pharmacological Treatments

Pharmacological treatments (see table 1) include the use of stimulant medications, such as Ritalin, Dexedrine, Concerta, Adderall, and Metadate. Modafinil is a stimulant

medication used for the treatment of narcolepsy, but it is sometimes used “off label” for ADHD. Stimulant medications appear to be the most effective medications for treating ADHD (Conners, 2009).

Non-stimulant medications used to treat ADHD include anti-depressants, such as Wellbutrin and imipramine. A non-stimulant and non-antidepressant medication which has proven effective in treating ADHD is called Strattera. In addition, a blood pressure medication, known as Hypodine, has shown some effectiveness in improving ADHD symptoms. However, this medication is usually used in combination with one of the stimulant medications mentioned above (Jain, Segal, Kollins, & Khayrallah, 2010).

Although the medications above are quite different in many ways (from stimulants to antidepressants to blood pressure medications), they share in common one way in which they affect the brain in ways to provide relief from symptoms of ADHD—namely, stimulating or activating the frontal lobes of the brain. Other than having this in common, these medications affect the various neurotransmitters in the brain differently. For example, stimulants tend to have a greater effect on dopamine, while the non-stimulant medications tend to act predominately on norepinephrine levels. Both of these neurotransmitters have a stimulating effect on the brain which is why these medications are believed to reduce symptoms of ADHD. It is believed that the aforementioned blood pressure medication works by affecting norepinephrine levels, as well, leading to an improvement in ADHD symptoms (Biederman & Spencer, 1999).

One of the most comprehensive studies of ADHD revealed that medications alone may be effective in reducing ADHD symptoms. That is, medications without the use of other treatment approaches, such as psychological or behavioral interventions, significantly reduce the symptoms of ADHD in 80% of people, according to this study. Although medications are

often effective in reducing symptoms of ADHD, due to the complex nature of ADHD, it is advisable to combine treatment approaches, nevertheless. For example, the complexities of ADHD are evident as it pertains to the challenges those with ADHD face, such as poor school performance, emotional difficulties, social isolation, other mental disorders, as well as family discord and parenting skill needs; therefore, psychotherapy or behavioral approaches remain important (Conners, 2009).

Psychological Treatments

Although psychological treatments, such as psychotherapy and counseling, typically are not recommended as a standalone treatment for ADHD, they may be very effective in treating some aspects for ADHD, especially when incorporated as part of a comprehensive treatment approach. Psychotherapy may be used to address other concerns that arise indirectly from ADHD, such as family conflict and poor self-esteem, as well as other disorders which may co-occur alongside ADHD (e.g., depression and anxiety disorders). Furthermore, psychologists and counselors often employ cognitive strategies, such as collaborative problem-solving techniques to address negative thoughts and perceptions which can be exacerbated by ADHD and/or symptoms of other mental disorders (Conners, 2009).

Researchers have revealed that an EEG Biofeedback System for ADHD was effective in reducing ADHD symptoms. Specifically, its effectiveness in the treatment of ADHD symptoms in clients in a residential addiction treatment program was the focus of the research. Although the effectiveness of EEG biofeedback on the treatment of addiction was not directly addressed, indirectly one may reason that treating a co-occurring psychological disorder in a client with addiction would improve treatment outcomes for addiction, as well (Keith, 2015).

According to the study, ADHD is prevalent in clients with addiction. Although ADHD affects about 4% of the adult population, it affects as up to 35% of cocaine addicts. Furthermore, clients with co-occurring ADHD and addiction are less likely to complete inpatient treatment and more likely to relapse than those without ADHD. Further confounding the treatment of ADHD in clients who also have addiction is the common use of psychostimulant medications. Not surprisingly, these medications are often a drug of abuse for those with ADHD and addiction (Keith, 2015).

In addition to looking at the effects of EEG biofeedback, Keith (2015) compared clinician-guided EEG biofeedback and automated EEG biofeedback. The control group received an additional 15 counseling sessions (in addition to the treatment as usual offered at the residential rehab program). Both EEG biofeedback groups received 15 sessions of EEG biofeedback (in addition to the treatment as usual offered at the residential rehab). The TOVA (Test of Variables of Attention) was used as the measure to determine if EEG biofeedback was effective in decreasing symptoms of ADHD. This was done in a test-retest format. According to the study, both groups which received EEG biofeedback (both clinician-guided and automated biofeedback) showed a reduction in ADHD symptoms as measured by the TOVA. The clients who received the additional 15 counseling sessions showed no improvement on their TOVA scores (Keith, 2015).

Behavioral Treatments

Behavioral treatments are an essential part of a comprehensive approach to treating ADHD, as behavioral treatments are designed to reduce problematic behaviors associated with ADHD.

“Behavioral approaches include positive reinforcement, token economies, and response-cost programs. In general, effective behavioral plans for symptoms of

ADHD have the following common features: increased structure and support, reinforcement of appropriate behaviors, an immediate response, and a focus on rewards. Systematic behavior modification programs can help manage behaviors, particularly oppositional behaviors (Connors, 2009).”

In a study by Volkow, et al. (2009), it was found that children with ADHD may require stronger rewards and incentives to change behaviors than children without ADHD. The study proposed that this may be the result of a dysfunctional dopamine reward pathway in the brains of those with ADHD, which results in deficits in motivation (Volkow, 2009). Furthermore, the study found that those diagnosed with ADHD had lower scores on the Achievement Scale of the Multidimensional Personality Questionnaire (MPQ), which “evaluates a motivational disposition that comprises social dominance, enthusiasm, energy, assertiveness, ambitiousness, and achievement striving (Volkow et al., 2009)”.

Parental training/education plays an important role in behavioral treatment for ADHD. Studies have reported that parents of children with ADHD exhibit a more negative style of parenting in which the parents are power assertive, punitive, and inconsistent. Parental training which encourages a more positive and warm style of parenting, based on rewards and incentives is often more effective for children with ADHD (Pffiner & Hack, 2014).

Psychosocial Treatments

Psychosocial treatments essentially aim to improve the social skills of those with ADHD, especially with peers. Although most people with ADHD do not lack social skills, they may fail to apply appropriate social skills at the appropriate time. Psychosocial treatments tend to rely on cognitive and behavioral methods to teach better social skills to those with ADHD. Additionally, social skills training may include practical tips, such as

teaching the person with ADHD to pay attention to social cues (e.g., body language, social context, or tone of voice), not just the words that people use to communicate. Unfortunately, children and adolescents with ADHD may become socially isolated which, in turn, may lead to other issues, such as depression or substance abuse (Conners, 2009).

Therefore, psychosocial treatments and social skills training are an important part of a comprehensive approach to the treatment of ADHD. Research has reported that the two most effective methods for improving social skills in children with ADHD evolved positive reinforcement of appropriate social skills in the moment (in vivo or real situations) and teaching the peers of children with ADHD to be more accepting and socially inclusive of those whose social skills may be somewhat delayed (Mikami, Smit, & Khalis, 2017).

Academic Interventions

Academic interventions are designed to improve the odds of school success for those with ADHD. These interventions tend to be practical solutions and involve teachers, school counselors, and parents—ensuring all those involved with the student with ADHD are on the same page and working together to help the student by “evening the playing field.” Dupaul (2011) points out in his research that is essential for parents, teachers, school counselors, and school psychologist to collaborate together with students with ADHD in order to develop appropriate academic interventions.

“Academic interventions include specific recommendations for change. Modified instruction (e.g., increased hands-on work), specialized instructions, and specific skill instruction (e.g., improving organization and time management) are all forms of academic intervention that can be very effective for youth ADHD (Conners, 2009).”

Academic interventions are essential in improving organizational skills by practical applications, such as encouraging the student to use separate folders for each school subject,

having teachers place the student's homework in a specified homework folder (which parents can check daily), explicit and step-by-step instructions, testing accommodations (such as allowing more time), as well assignment modifications (such as allowing the student to divide large assignments into multiple smaller assignments which would equate to the original assignment) (Conners, 2009).

These interventions are not intended to make school assignments and tests easier for students with ADHD, but rather serve to allow the student time to develop the necessary skills to cope with ADHD while also ensuring that the student receives an equal education to those without ADHD. In addition, these interventions may serve to prevent the student from becoming overly discouraged by school which, in turn, limits the probability of the student developing other problems, such as low self-esteem or depressive disorders (Conners, 2009).

Although medications alone may be effective in treating ADHD, a comprehensive assessment should be completed in order to decide the best treatment approach. Comprehensive assessments performed by a qualified mental health professional can identify co-occurring disorders which may require treatment approaches other than ADHD medications. In addition, comprehensive assessments are essential in identifying the unique circumstances in each person's life which can assist the mental health professional with creating an individualized treatment plan. Regardless of the mental health disorder in questions, research has indicated that individualized, person-centered treatment plans lead to the most optimal outcomes. Indeed, treatment plans should take into consideration all aspects of the client's culture, as well (Hinshaw et al, 1997).

The Biology of ADHD: Genetics

Although studies have failed to identify an "ADHD gene" conclusively, there appears to be a genetic component to ADHD (Faraone & Mick, 2005). Even though the search for an

ADHD gene has been inconclusive, some studies point towards the genes involved in dopamine receptors as potential “ADHD genes” (Lanau, Oneal, & Baker 2009). Specifically, researchers are focusing on the “dopamine transporter (DAT1) gene...and dopamine receptor D4 (DRD4) gene (Swanson, 2000).”

Whether or not there is an ADHD gene, it is well established, nevertheless, that ADHD runs in families. Individuals with ADHD often have a first-degree relative who also exhibits symptoms of ADHD (APA, 2013). For example, the brothers of those with ADHD are three times more likely to have symptoms of ADHD when compared to the brothers of non-ADHD individuals (Maxem, 1995).

Furthermore, parents with ADHD are more likely to have children with ADHD. In one study, Biderman (1998) found that 30% of parents who had children with ADHD also had ADHD themselves. It could be argued that parents with ADHD inadvertently create an environment that fosters ADHD; however, studies which have controlled for environmental factors, such as socioeconomic status and intactness of family, confirmed the heritability of ADHD to be significant (Faraone & Mick, 2010).

Additionally, adoption and twin studies have pointed toward a biological and genetic component of ADHD. (APA, 2013). For example, ADHD rates have been found to be higher amongst non-adopted family members of people with ADHD than in adopted family members. According to one twin study, which looked at twins from Australia, the United States, and various countries in Europe, heritability was found to be 76% (Faraone, Sergeant, Gillberg, & Biederman 2003). Another study found that ADHD in identical twins had an 81% concordance rate--making ADHD one of the most heritable of all psychological disorders (Conners, 2009).

Some argue that the heritability of ADHD may explain why ADHD rates in the United States are higher than other countries. For example, some claim that there may be a

higher concentration of “ADHD genetics” in the U.S. Hallowell and Ratey (2011) have argued that those who immigrate to foreign countries may be more likely to have traits of ADHD, such as impulsivity, risk taking, and sensation seeking. Since the United States is mostly a country of immigrants, it seems likely that genes associated with ADHD could potentially concentrate themselves amongst Americans (Hallowell & Ratey, 2011).

The Biology of ADHD: Neurological Aspects

The attentional system of the brain is highly complex and involves nearly all parts of the brain working together, simultaneously (Hallowell & Ratey, 2011). Multiple studies have revealed that the brains of people with ADHD and the brains of those without ADHD show significant differences, as revealed by brain scans. Although those with ADHD do not necessarily have brain damage (in that they are not disabled), neurologist often describe them as having areas in the brains which exhibit some brain dysfunction (Carter, 2010). It is believed that these brain differences are responsible, at least in part, for the symptoms of ADHD (Carter, 2010).

Research points towards the frontal lobes of the brain as the dysfunctional areas which lead to some of the symptoms of ADHD. This area of the brain appears more underactive compared to the brains of people without ADHD (as revealed by brain scans) (Carter, 2010). Specifically, the prefrontal cortex of the brain, which plays an important role in organizing, planning, attention, working memory, and impulse control, is believed to be the main area of the brain involved in ADHD. Multiple studies have reported that the volume size of the prefrontal cortex of people with ADHD is smaller as compared to those without ADHD (Seidman et al, 2004).

Furthermore, there has been a relationship identified between the dopamine neurotransmitter and ADHD, as those with ADHD appear to have a deficiency in their

dopamine system (Faraone & Mick, 2010). Although other neurotransmitters may play some role in causing symptoms of ADHD, such as serotonin and norepinephrine, dopamine seems to be the most important neurotransmitter regarding ADHD (Lanau, Zenner, Civelli, & Hartman 1997). Common pharmaceutical treatments for ADHD (which usually involved the use of stimulant medications) promote dopamine in the brain which, in turn, stimulates the frontal lobes of the brain (which alleviates the underactivity of that part of the brain).

ADHD often (but not always) co-occurs with learning disabilities (Maxem, 1995). Seidman, et al. (2005) stated that they co-occur as often as 30% of the time. In some cases, the same areas of the brain which show abnormalities are present for both ADHD and learning disabilities. For example, research reported that the brains of those with ADHD and dyslexia both had smaller right anterior-width measurements. Therefore, in some cases, it may be difficult to determine the true physiological abnormalities that result in ADHD, specifically (Seidman et al, 2005).

Nevertheless, there are a wide range of studies that have linked brain abnormalities or dysfunctional areas of the brain to ADHD. Each one of these dysfunctional areas of the brain most likely plays some role in the various symptoms of ADHD (Hallowell & Ratey, 2011). Such evidence supports the claim that ADHD is a true disorder with a biological component, which would most likely appear across all societies, regardless of culture.

Knowledge and Awareness of ADHD

Although there is ample research pointing towards ADHD being a legitimate disorder, knowledge and awareness of ADHD is often lacking. It is well established that knowledge and awareness of ADHD varies across countries, cultures, and even sub-cultures within a particular country. For example, Bussing and colleagues (1998) stated that African-Americans' knowledge and awareness of ADHD was much lower than Caucasians in the

United States. Further, having has previous exposure to ADHD would likely result in more awareness of the disorder.

Bussing and colleagues (1998) reported that 95% of Caucasians had heard of ADHD, while only 69% of African-Americans were aware of the disorder. Furthermore, 70% of Caucasians claimed to know ‘some or a lot about’ ADHD, while only 36% of African-Americans reported knowing ‘some or a lot’ about ADHD (Bussing et al., 1998). According to other research, Mcleod and colleagues (2007) reported that in total 64% of Americans had heard of ADHD, with women and those from a higher socioeconomic status being more likely to have heard of the disorder. Based on information gleaned from a national survey in the United States (National Stigma Study—Children) ($n = 1,130$), older people and nonwhite racial and ethnic groups were less likely to have heard of ADHD (Mcleod et. al, 2007).

The aforementioned studies point out how knowledge of ADHD between ethnic groups, age groups, sexes, and differing socioeconomic status can vary greatly even within the same country. Therefore, it would be expected that knowledge and awareness of ADHD could vary even more dramatically across different cultures and countries. This researcher purported that knowledge of ADHD was most likely lower in Thailand than in Western countries, since knowledge of mental health disorders by the general public appears to be limited in Thailand. Research supports that knowledge ADHD is often lower in developing countries (Sciutto & Feldhammer, 2005).

The Knowledge of Attention Deficit Disorder Scale (KADDS) is often used to measure knowledge of ADHD. The KADDS is a 39 item scale designed to reveal one’s level of knowledge about ADHD. The KADDS was found to have “high internal consistency ($.80 < \alpha < .90$) and test-retest correlations for the KADDS scores were moderate to high ($.59 < r < .76$) (Sciutto & Feldhammer, 2005).” Studies have found the KADDS to be valid. For

example, those with previous exposure of ADHD score higher on the KADDS than those without exposure to ADHD (Sciutto & Feldhammer, 2005).

Additionally, cross-cultural studies have found the KADDS to be useful across various cultures. A study of the KADDS in the following nine countries found it to be reliable with high validity: Czech Republic, Germany, Greece, Iraq, the Republic of Korea, Saudi Arabia South Africa, United States, and Vietnam. In addition, the researcher also reported considerable variability in levels of knowledge of ADHD across these nine countries (Sciutto et al., 2016). For example, 70% of those surveyed in Greece seemed to confuse Autistic Spectrum Disorder with ADHD, compared to 30% in the USA and 33% in the Vietnam (Sciutto et al., 2016).

In another study in Thailand, only 19% of teachers answered at least 70% of the KADDS correctly (Muanprasart et al., 2014). A study in India, which used the KADDS to test teacher's knowledge of ADHD, reported that only 49% questions were answered correctly (the scores of all teachers combined in total, $n = 106$) (Schroff, Sawant, & Prabhudesai, 2017). Another study which used an instrument designed by the researchers to measure knowledge of ADHD found that the American teachers answered 47% of the questions correctly, while Australian teachers scored 59% correct, overall (Anderson, Watt, & Noble, 2012).

A study in Israel using an instrument designed by the researchers to measure teachers' knowledge of ADHD reported that only 8% answered correctly questions that described symptoms that met the definition for ADHD, while 58.8% answered correctly questions that described symptoms that partially met the definition for ADHD (Livitan, 2015). This study indicates that the majority of teachers in this survey had some knowledge of ADHD, but lacked a complete or thorough understanding of ADHD.

In addition, perceived knowledge of ADHD may be higher than actual knowledge of ADHD. That is, people may believe they are knowledgeable of ADHD; however, when tested their actual knowledge of ADHD may be much lower. For example, a study in South Africa designed to measure actual knowledge and perceived knowledge of ADHD, which utilized the KADDS and a self-rating scale of their knowledge of ADHD, reported that teachers overestimated their understanding of ADHD (Kern, Amod, Seabi, & Vorster, 2015).

Other studies reported knowledge and awareness of ADHD to vary across South America. Although some studies have reported that there is a high level of awareness of ADHD in Latin American countries, awareness of the biological component of the disorder was very limited. For example, in a sample of 311 research participants (192 participants from the Dominican Republic, 84 participants from Mexico, 35 from Bolivia), over 73% were aware of ADHD as a disorder, but only 11% understood that there was support for ADHD having, at least partially, a biologically component to it. This study points out that there are varying levels of knowledge of ADHD. This is an important aspect of ADHD, as it may affect treatment-seeking behaviors. That is, those who fail to understand the biological aspect of ADHD may be less likely to seek out all treatment options, such as psychotherapy and/or medications (Palacios-Cruz et al., 2013).

Clearly, knowledge of ADHD would affect diagnostic rates and, in turn, treatment for ADHD. Levels of knowledge could lead to both under or over diagnosis of ADHD and, in turn, both under- and overtreatment of ADHD. For example, some argue that awareness of ADHD in Western countries leads to inflated rates of the disorder and, therefore, overtreatment of ADHD with medications (Timmi & Taylor, 2004). However, it may also be argued that under awareness of the disorder in places, such as Thailand, could lead to under-diagnosis of ADHD and under treatment of ADHD.

Although knowledge of ADHD would obviously have an effect on diagnostic rates, other factors, such as culture, as well as perceptions/attitudes, and previous exposure to the disorder could have an effect on diagnostic rates. Cultures where ADHD symptoms are regarded as normal childhood behaviors or where ADHD is regarded as a cultural construct often have lower rates of ADHD, as well (Timmi & Taylor, 2004)..

Influence of Culture on ADHD: Perceptions and Attitudes towards ADHD

Culture is an extremely important part of every person's life; nobody can completely escape its influence, whether one's native culture or adopted culture. Indeed, culture is extremely powerful and shapes multiple aspects of society, as well as the individual. Although we feel ourselves unique (of course some cultures encourage this feeling more than others, such as individualistic cultures in comparison to collectivistic cultures), we are inextricably tied to our culture and influenced by it in ways of which we may not even be conscious (Heine, 2012).

Although most people are aware of how culture may influence one's taste in food and music, cultural influence goes far beyond this. In fact, culture shapes the way we think and even our perceptions of reality. A branch of psychology, known as cultural psychology or cross-cultural psychology is dedicated to studying how culture shapes our psychological processes and perceptions. One aspect of cultural psychology is the study of how culture affects mental health, as well as the influence culture has over our perceptions of mental health (Heine, 2012).

Additionally, cultural psychology, reveals how culture provides a framework or context which determines how mental disorders are expressed. Indeed, certain mental disorders may be more prevalent in certain cultures or even unique to a particular culture. That is, a mental disorder may exist only within one culture (Heine, 2012).

Mental disorders which tend to be unique to a particular culture are known as culture-bound syndromes. Hikikomori, koro, and anorexia nervosa are cited as examples of culture-bound syndromes. Hikikomori, which appears to be unique to Japanese culture, refers to a mental disorders in which the primary feature is extreme social withdrawal, while koro is culture-bound syndrome found in South and East Asia which is a phobia or extreme fear that one's penis will shrink inside one's body. Eating disorders, such as anorexia nervosa and bulimia are more prevalent in Western cultures or where Western-cultural influence is more abundant, leading some researchers to claim that they are, in fact, culture-bound syndromes (Heine, 2012).

Mental disorders which are found across the world regardless of culture are known as universal syndromes. Researchers purport that universal syndromes tend to have a biological root, meaning that culture plays less of a role. Nevertheless, perceptions of these particular disorders by members of certain cultures may be uniquely influenced by said culture. Universal disorders include depression, schizophrenia, social anxiety disorder, and bipolar disorder, for example (Heine, 2012).

ADHD appears to be a universal syndrome, although perceptions of the disorder or the degree to which it is pathologized or normalized varies widely across cultures (Sakboonyarat, 2018). Although perceptions and/or attitudes toward other mental health disorders (such as major depressive disorder or schizophrenia, for example) may vary somewhat across cultures, perceptions and/or attitudes towards ADHD may vary much more widely than other mental health disorders. This makes ADHD unique in this regard. For example, these varying perceptions and attitudes towards ADHD may lead to inaccurate prevalence rates. Livingston (1999) points out that there is evidence to suggest that ADHD prevalence rates do, in fact, vary widely across nations, ethnicities, and between subcultures.

Nevertheless, there are mental health professionals and researchers who claim that ADHD is simply a cultural construct. Eric Taylor, a psychiatrist in the UK, argues that ADHD is a cultural construct. He states that there are “no specific cognitive, metabolic or neurological marker and no medical tests for ADHD.” Although this may be accurate to some degree, this is the case for most all mental disorders. Indeed, mental disorders may not be identifiable via standard medical tests, such as blood tests or tissue biopsies (Timmi & Taylor, 2004).

Taylor (2004) reports that brain imaging studies are not able to determine if there are abnormalities in the brains of children with ADHD and that any differences found are inconclusive; that is, the differences cannot be said to be the cause of the ADHD symptoms. Furthermore, comorbidity is very high in people with ADHD; therefore, it could be argued that many other factors are the cause of the ADHD symptoms observed. Perhaps, ADHD-like behaviors are better explained by other disorders, according to Taylor (Timmi & Taylor, 2004).

Taylor (2004) believes that the only way to explain the rise in the prevalence of ADHD in the U.S. is by a shifting cultural perspective. He believes that changes in culture have led to an increase in ADHD diagnosis. For example, there are many factors that adversely affect the mental health of children and people in general. This includes breakdown in families (more single-parent families), parents less willing to discipline their kids (i.e., teach appropriate behaviors), schools which are over-stretched, and an economic system which emphasizes individuality and competitiveness. Taylor believes that many families lead a “hyperactive lifestyle,” as well, which leads to children learning hyperactive behavior. Taylor concludes, that all of this combined may be more difficult to change than to simply create a disorder and blame the disorder for the child’s problems (Timmi & Taylor, 2004).

Taylor (2004) also argued that a medical model for ADHD is not helpful. He believe it simplifies the problem and leads to doctors, parents, and teachers disengaging from social responsibility. Instead they come up with a “cultural disorder” in which they purport to have a cure (Timmi & Taylor, 2004).

On the other side of the argument Timimi believes that ADHD is neither a genetic disorder nor a social construct, but rather the interaction of the two which results in ADHD. Timimi (2004) cites research which points out that there are differences in brain structure, especially in regards to the dopamine system. Furthermore, he states that those from all socioeconomic statuses are affected by ADHD, which he believes supports the idea of it being an actual disorder. He goes on to state that two studies 20 years apart in the UK showed that rates of ADHD have been mostly stable over time, indicating that that rates have not been dramatically influenced by a change in cultural values (Timmi & Taylor, 2004).

In short, he admits that social factors may play a role, but he does not believe that ADHD can be relegated to a cultural or social construct. He believes that it is more complex than that. Timmi also states that in the UK, ADHD is more likely to go underdiagnosed; however, he acknowledges it can be over diagnosed in some cultures, such as in the U.S. (although this, too, is debatable) (Timmi & Taylor, 2004).

The present research approaches ADHD from a similar perspective as that of Timmi (2004) (described above). In other words, the present research assumes that there is an interaction between biological factors and cultural factors which influence many aspects of ADHD, such as diagnostic rates, treatment, and overall prevalence. Indeed, as Singh (2008) has stated, cultural understanding is essential in accurate identification of ADHD. In other words, this research advocates a bio-psycho-social-cultural approach to understanding ADHD.

Although ADHD is believed to occur across all cultures and all socioeconomic groups, there is a correlation between socioeconomic status and ADHD identified by researchers, with those coming from a lower socioeconomic status having higher rates of ADHD. In fact, financial difficulties were identified as the strongest predictor of ADHD in the U.S. (Russel et al., 2015). This, however, does not necessarily mean that ADHD is not an actual disorder and simply the result of a disadvantage upbringing. For example, people from lower socioeconomic status are at greater risk for many disorders (both physical and mental disorders), such as diabetes and schizophrenia (Russel et al., 2015).

What is more likely is that there is an interplay between environment, genetics, as well as psychological and sociological factors which either leads to the development of ADHD symptoms or an exacerbation of the symptoms. Furthermore, those from disadvantaged backgrounds may not have timely access to appropriate treatment which may cause ADHD to worsen, as well as further lead to other complicated problems, such as depression, anxiety, or substance abuse (Russel et al., 2015).

Although ADHD is found across multiple cultures, diagnostic rates vary. For example, rates of ADHD in France are 3.5% to 5.6%; rates in the USA are 7.8% to 11% (Polanczyk, 2007); rates in Korea are 7.6% to 9.5% (Moon, 2008); while in Thailand rates are 8.1% (Visanuyothin, Wachiradilok, & Pavasuthiapaisit, 2013), according to studies which examined the prevalence rates of ADHD. However, another study found that rates of ADHD in Thailand were as low as 2.2% (Sakboonyarat, 2018).

This variability in diagnostic rates may be due to differences in what any particular society regards as normal childhood/adolescent behavior versus abnormal behavior. For example, diagnostic rates in Mexico are believed to be lower, as Mexican culture tends to be more tolerate of behaviors that may be considered symptoms of ADHD, such as hyperactivity

and impulsivity (Brewis, Schmidt, & Casas, 2003). On the other hand, cultures where children are expected to sit quietly and inhibit their impulses, such as in the USA or Japan, diagnostic rates are often higher. Indeed, misdiagnosis is always a possibility (Moffitt, & Melchior, 2007). For example, it is possible that the cultural norms of some countries may result in an under-diagnosis of ADHD (such as in Mexico or Thailand) or an over-diagnosis (such as in the USA or Japan).

Although the United States is often listed as a country in which ADHD is over-diagnosed (inferring this as evidence that ADHD is at least partially a cultural construct), some researchers have argued that the concentration of certain genetics in the American population is responsible for high rates of ADHD in the U.S. For example, people who decided to take a chance on immigrating to the U.S. may be more impulsive, sensation seeking, and less risk adverse—traits that are often found in people with ADHD. It has been well documented that ADHD has a genetic component and often runs in families. Furthermore, according to twin studies, there appears to be a strong genetic link to ADHD. Therefore, it is possible that historical immigration factors have resulted in Americans being more at risk for ADHD (Hallowell & Ratey, 2011).

Although the United States consumes about 80% of the world's Ritalin (a medication commonly used to treat ADHD), the International Narcotics Control Board reported that Iceland consumed slightly more Ritalin per capita than the United States. Furthermore, the consumption of Ritalin has increased a great deal across the globe in multiple nations surveyed. The one exception was Israel, where consumption rates dropped slightly (Singh, 2008). One may deduce that the increase in the consumption of Ritalin across the globe points toward greater awareness of ADHD and pharmacological treatments.

Even within a particular culture diagnostics rates can vary. In the United States, Reid, DuPaul, Anastopoulos, and Riccio (1998) revealed in their study that ADHD rates tend to be higher in certain ethnic groups. For example, ADHD rates in African-Americans and Hispanic-Americans are higher than rates amongst Caucasians (Reid, DuPaul, Anastopoulos, & Riccio, 1998).

Although it is possible that there are certain conditions within these ethnic groups which may result in higher rates, it may also be possible that ADHD assessment instruments are misleading or invalid for certain ethnic groups (Reid, DuPaul, Anastopoulos, & Riccio, 1998). The study points out, however, that socioeconomic status was not controlled for in his study mentioned above. Therefore, it is possible that the differences in ADHD rates between ethnic groups may have been influenced more by socioeconomic status (Reid, DuPaul, Anastopoulos, & Riccio, 1998). According to Russell (2015), ADHD rates are often higher in those from lower socioeconomic status.

Furthermore, Lambert and colleagues (2001) found in their study that African-American parents were more likely to label children with ADHD as “bad” children, rather than applying a medical label, such as ADHD. African-American parents tended to believe that behaviors associated with ADHD were the result of parenting problems, while mental health professional observing the same children were more likely to label the same behaviors as symptoms of a clinical disorder.

In accordance with this belief, African-American parents felt that the problem behaviors were far more likely to improve later in life, while Caucasian parents were less optimistic (Lambert et al., 2001). Furthermore, African-Americans appeared to believe symptoms of ADHD were either normal behaviors, the result of poor parenting, or simply

that the child's temperament was bad. In short, they were less likely to pathologize the behaviors and less likely to apply a medical label, such as ADHD (Lambert et al., 2001).

Sakboonyarat and colleagues (2018) also found similar attitudes regarding ADHD amongst Thais. That is, Thais may regard ADHD symptoms as normal behavior of children or label children with such symptoms as bad or stubborn. Their study concluded that knowledge and awareness of ADHD was inadequate amongst Thai parents, as well (Sakboonyarat et al., 2018). These studies highlight the importance for clinicians to consider cultural perceptions related to ADHD when evaluating a client for ADHD.

Perceptions of ADHD seem to vary between other ethnic groups within the U.S., as well. For example, researchers have found that there are differing perceptions of ADHD between Hispanics and Caucasians within the United States. Firstly, Hispanics were more likely than Caucasians to report having no knowledge of ADHD. Additionally, 23% of Hispanics surveyed versus 14% of Caucasians believed that Hispanics were often misdiagnosed with ADHD, while twice as many Hispanics than Caucasians believe that they were diagnosed with ADHD more often than other ethnic groups (Roth, 2005).

Lastly, Hispanics reported being more concerned about being judged negatively by others if they were to be diagnosed with ADHD (Roth, 2005). Other studies have found that Thais may have similar attitudes in regards to ADHD. For example, one study revealed that Thais tend to stigmatize mental disorders, as well (Burnard, Naiyapatana, & Lloyd, 2006).

ADHD is a disorder in which the public's attitudes and perceptions often plays a significant role in diagnostic rates. Furthermore, cultural attitudes about what is regarded as normal behavior of children further affects diagnostic rates—leading, possibly, to over or under diagnosis of the disorder. Research conducted in South Africa using 130 school teachers to assess knowledge and perceptions of ADHD held by teachers in public and private schools found that their knowledge was limited to stereotypical ADHD symptoms and

behaviors displayed, overtly. For example, these tended to be easily observable problematic behaviors, such as hyperactivity and impulsivity (Kern, Amod, Seabi, & Vorster, 2015). In such a situation, other more subtle symptoms of ADHD may go unnoticed—leading to the under-diagnosis of ADHD for those that do not exhibit hyperactivity and impulsivity.

A study which evaluated the perceptions that Italian teachers have of ADHD found that they had a moderate level of knowledge of ADHD and that their perception of ADHD was ambivalent in regards to it being a legitimate disorder. Furthermore, years of experience teaching did not correlate positively with knowledge of ADHD and that receiving specialized training in ADHD did not necessarily lead to a change of perception of ADHD (Frigerio, Montali, Marco, & Marzocchi, 2014). A similar study which used the Knowledge of Attention Deficit Disorder Scale (KADDS) found that Thai teachers' knowledge of ADHD was lacking (Muanprasart, Traivaree, Arunyanart, & Teeranate, 2014).

Another study found that although perceived knowledge of ADHD was high amongst teachers, actual knowledge of ADHD was low. In other words, the teachers thought they were more knowledgeable than they actually were (Bussing et al., 2013). These findings suggest that perceptions of ADHD is more than a matter of having knowledge of ADHD and cultural values may play a greater role in one's perceptions regarding ADHD (Frigerio, Montali, Marco, & Marzocchi, 2014). Perceptions and cultural attitudes of ADHD in Thailand, as research has shown in other countries, most likely have an influence on diagnostic rates, as well.

ADHD in Thailand

As described above, knowledge of ADHD in Thailand appears to be somewhat lower than in Western cultures; however, studies on ADHD in Thailand are very limited (Muanprasart, Traivaree, Arunyanart, & Teeranate, 2014). Barkley and colleagues (1987)

reported that ADHD rates are lower in Thailand due to cultural factors, which train children to speak quietly in public and encourage obedience to authority figures. Although there is some truth to this, this would not necessarily identify children with ADHD, Inattentive type (since these children are rarely disruptive). In other words, cultural influence in Thailand may result in ADHD taking the form of inattentive type more often than hyperactive/impulsive type.

However, according to Visanuyothin, et al. (2012), rates of ADHD in Thailand are 8.1%. This research used the following methods to assess for ADHD rates in Thailand:

“The first step was done by using a screening test of ADHD with the SNAP-IV, Thai version. The second step was to [conduct] an interview by a child and adolescent psychiatrists using [the] DSM-IV TR criteria [for ADHD]. Thai students graded 1-5 in primary school were recruited for the study. There were 7,188 cases in total (Visanuyothin et. al, 2012).”

According to Visanuyothin and colleagues (2012), rates of ADHD are on par with rates in other parts of the world. In Thailand, rates for ADHD combined type appeared to be highest at 3.8%, while ADHD Hyperactive/Impulsive type were the lowest (Visanuyothin et. al, 2012). Rates for ADHD Hyperactive/Impulsive type being lower would be in line with Barkly and colleagues’ (1987) assertion (mentioned above) that the number of reported cases of ADHD in Thailand are lower due to cultural factors which train children to speak quietly in public and encourage obedience to authority figures. As a result, as mentioned above, ADHD may be more likely to present as Inattentive type, which was also supported by Visanuyothin and colleagues (2012). However, another study found ADHD rates in Thailand to be much lower, overall, at 2.2% (Sakboonyarat, 2018). Further research is needed to establish a more accurate prevalence rate of ADHD in Thailand.

Trangkasombat (2009) conducted a retrospective study in which he reviewed the charts of 425 Thai children who were diagnosed as being ADHD by a mental health clinic in Thailand. The purpose of this study was to examine and identify common characteristics of Thai children with ADHD. The chief complaint or reason for which the families were seeking mental health services in 50% of the cases was academic difficulties, and other issues directly related to ADHD. However, nearly one-fourth of the clients presented with chief complaints that the author states are typically unrelated to ADHD, such as aggression and oppositional behavior. However, such symptoms are common in ODD which often co-occurs with ADHD. The article does not address the reason for seeking services for the remaining 25% (Trangkasombat, 2009).

Out of the 75% mentioned above (with either academic problems or behavioral problems), 46% received a diagnosis of ADHD. The remaining 54% received some other diagnosis. Out of the 425 charts that were reviewed, 202 were diagnosed with ADHD. A diagnosis of ADHD was given according to DSM-IV-TR diagnostic criteria (Trangkasombat, 2009).

The article states that out of the 202 diagnosed with ADHD, 116 were given intelligence tests. Out of these 116, 50% had an IQ below average, as determined by the WISC-III. The research did not identify if the Thai version of the WISC-III was used or if it was normed in Thailand (Trangkasombat, 2009).

Furthermore, Trangkasombat (2009) states that over half of the clients diagnosed with ADHD had comorbid problems, but did not specify what these comorbid problems are, except that 35 clients received medications for problems other than ADHD. It was also specified that 125 clients received stimulant medications, while 77 only received behavioral

management treatment. The study did not address the outcomes of any treatments (Trangkasombat, 2009).

The purpose of this study was to identify characteristics of Thai clients with ADHD, as the author points out that ADHD is still a fairly unfamiliar disorder in Thailand. The research points out that most clients who sought treatment (or whose parents sought treatment for their children) exhibited academic difficulties. This is similar to why most Western clients seek out treatment for ADHD (Trangkasombat, 2009).

Furthermore, nearly half of Thai clients with ADHD had some sort of comorbidity, suggesting other psychological issues. Although a Western IQ test was used, the study points out that 116 out of 425 clients in the study had a below average IQ. However, this may be due to cultural bias on the IQ test used (Trangkasombat, 2009).

Although the article may give one a very general idea of clinical characteristics of Thai clients with ADHD, the author did not address the cultural issues surrounding ADHD. From what the author has pointed out, Thai clients with ADHD appear identical to Western clients with ADHD (Trangkasombat, 2009). However, because Western standards were used to diagnose the clients in the study, it could result in them appearing very similar to Western clients.

Studies have shown that the prevalence of ADHD varies widely across cultures, with a worldwide prevalence estimated to range between 2.2% and 17.8% (Skounti, Philalithis, & Galanakis, 2007). One explanation for the variance in diagnostic rates may be the result of the assessment instruments used to diagnose ADHD. For example, one study found that ADHD rates were higher among Puerto Rican children, when compared to Anglo-American children. However, this study concluded that this may have been the result, because the assessment instrument was based on Anglo American cultural standards which tended to

identify culturally normal behavior amongst Puerto Rican children as pathological (Bauermeister et al., 1990).

In addition, the study reported that the cultural background of the assessors (the people who completed a rating scale while assessing children for ADHD) may have skewed the results, as well. For example, Anglo-Americans were more likely than Puerto Ricans to rate children as having problematic behaviors consistent with ADHD (Bauermeister et al., 1990). Variability in the rates of ADHD could also possibly be explained by the reality that the perception of ADHD can vary across cultures (Bussing et al., 1998). Furthermore, “whether individuals and communities perceive the behaviors associated with ADHD as problematic depends on a given culture’s acceptance of the problem behaviors associated with ADHD and their occurrence in children (Al Azaam, 2011).”

According to one study, Korean culture views symptoms of ADHD in children as a failure of teachers and parents. Therefore, Koreans may fail to recognize symptoms of ADHD as a disorder, but rather blame themselves—viewing themselves as inadequate parents or teachers. Additionally, perceptions of ADHD in the Marshall Islands are very similar to those in South Korea. That is, they view it as bad behavior caused by poor parenting (Heine, 2002). Likewise, a study in Thailand found that people often believed that symptoms of ADHD was caused by poor parenting (Sakboonyarat, 2018).

As such, in these cultures, parents and/or teachers may be reluctant to seek out assistance for dealing with children with ADHD (such as from psychologists and counselors) out of fear of being judged negatively by other family members or colleagues (Hong, 2008). Indeed, Singh states that ADHD is poorly understood in South Korea, combined with a culture which places blame on parents and educators, it is logical that rates of ADHD reported in South Korea would be lower when compared to other countries. However, in fact,

lower rates of ADHD in South Korea may be the result of attitudes towards ADHD rather than actual lower rates (2008).

Likewise, ADHD rates in Thailand may be lower due to multiple reasons. For example, there may be less awareness amongst Thai society of ADHD as a disorder, leading Thai people to regard symptoms of ADHD as either normal child or adolescent behavior or as behavior that is willingly disruptive. Additionally, children and adolescents who display such behaviors may be regarded as “stubborn,” “bad,” or “stupid” (Sakboonyarat, 2018). That is, children with ADHD in Thailand may be mislabeled rather than slotted for treatment, leading only to the appearance of lower rates instead of actual lower rates.

On the other hand, it is possible that there are in fact lower rates of ADHD in Thailand due to certain factors, such as culture and/or family upbringing. Indeed, culture has a strong influence on the expression of various mental disorders. However, it is also possible that perceptions of what constitutes ADHD or awareness of ADHD in Thailand gives the appearance of lower ADHD rates. Culture, perception, and actual pathology interact—leading to what is reported as ADHD rates in any given society.

“Thus, to completely understand how to identify and treat ADHD, it must be studied from within a cultural perspective. Research suggests that culturally-relevant factors, like beliefs and values regarding child behavior, impact the way members of various ethnic and cultural groups view and respond to problematic behavior in children (Al-Azzam, 2011).”

One focus of the present research is to examine attitudes and perceptions of ADHD in Thailand in order to gain a clear picture of ADHD in Thailand. One way to examine how culture may influence attitudes and perceptions of ADHD is to examine specific cultural factors of Thai culture and how they relate to ADHD.

Thai Cultural Factors and ADHD: Religiosity, Stigmatization, Locus of Control, Holistic Thinking, Perceptions of ADHD, and Attitudes towards ADHD

As discussed above, cultural factors have a great influence on perceptions and attitudes towards ADHD. There is little research available (to this researcher's knowledge) on how Thai cultural factors influence perceptions and attitudes towards ADHD. The present research explored how the following aspects of Thai culture influenced attitudes and perceptions of ADHD: Religiosity, Stigmatization, Locus of Control, and Holistic Thinking.

Religiosity

Research has found a strong link between religiosity and perceptions/attitudes towards mental illness. Those who report being more religious often have more negative views towards mental illness. What is more, those who are higher in religiosity tend to be less likely to seek out treatment for mental disorders. Indeed, there is a correlation between religiosity and stigmatization of mental disorders (discussed below under the stigmatization subheading). Although there is a vast amount of research on the influence of religiosity on perceptions/attitudes towards mental illness, there is very little research on the influence of religiosity on perceptions/attitudes towards ADHD (Mathison, 2016).

Furthermore, this researcher is unaware of any research on the influence of religiosity on perceptions/attitudes towards ADHD in Thailand. It is possible that those who score higher on religiosity in Thailand may have more negative views towards ADHD. Research on ADHD and other religions have found a link between religiosity and perceptions/attitudes towards ADHD. For example, Li (2013) found that evangelical Christians were more likely to disregard ADHD as a real medical condition and less likely to believe that medication is a good solution for ADHD.

Thailand is known to be a very religious country. Only five percent of the population report being agnostic or atheist, with the vast majority reporting Buddhism as the main

religion in Thailand (around 94%). Indeed, Buddhism has shaped many aspects of Thai culture (Taylor, 2008). Surely, religiosity in Thailand plays a role in how Thais view mental illness, including ADHD.

The treatment of mental health disorders in Thailand remains a mixture of traditional and modern approaches. Traditional approaches include seeking out counseling from Buddhist monks and consulting with “medicine men” to ward off spirits, which some Thais believe can cause mental illness. Alongside these traditional approaches, mental disorders are also treated by highly-qualified psychologists and psychiatrists in Thailand, which resembles the approach to treating mental disorders in Western countries (Burnard, Naiyapatana, & Lloyd, 2006).

The treatment of mental disorders in Thailand is steadily improving, as there has been an active effort to do so. However, presently, there is approximately only one psychiatric bed for every 7,553 people in Thailand—with the majority of these beds being located in Bangkok and central Thailand. Therefore, Thai people in rural areas may be more likely to rely on traditional methods for the treatment of mental disorders (Burnard, Naiyapatana, & Lloyd, 2006).

The most common “causes” of mental disorders reported in Thailand include chronic hardships, low income, physical health problems, as well as alcohol and drug addiction (which is reported to be increasing in Thailand). Efforts to improve the treatment of mental health disorders in Thailand appear to be focused on severe mental disorders, such as psychotic disorders and addiction. Therefore, disorders, such as ADHD, which may be regarded as less severe, most likely receive less attention by public health officials. Nevertheless, ADHD often has very negative consequences for those and their families affected by it (Burnard, Naiyapatana, & Lloyd, 2006).

Although limited, previous research has identified specific factors of Thai culture which seem to influence perceptions of mental health disorders. Two of the most prominent aspects of Thai culture which affects perceptions of mental health is religiosity—specifically, Buddhism and Animism. Ninety-five percent of Thais report being Buddhist. While Animism is not original to Buddhism, the two belief system have become somewhat intertwined in Thai society—especially in the more rural parts of Thailand (Burnard, Naiyapatana, & Lloyd, 2006).

Animism is a belief system in which ancestral spirits, supernatural beings, and other non-living beings can affect and influence the lives of the living. As such, it is often believed in Thai culture that mental health disorders can be, at least partially, caused by such non-living beings (Wong-Anuchit, 2016). For example, in Northeastern Thailand a spirit known as Phii Pob is believe to possess people, causing symptoms that Westerners would attribute to a mental illness (Suwanlert, 1976).

Prior research which examined the attitudes and perceptions of evangelical Christians on ADHD found that those higher in religiosity had more negative views of ADHD. It is not clear, however, if Thais who are high in religiosity will have more negative views of ADHD. Since over 90% of Thais are Buddhist and because Buddhism may offer protective factors towards stigmatization (described below), the results may be different from the study which examined evangelical Christians' attitudes and perceptions towards ADHD (Li, 2013).

As mentioned above, Thais may seek supportive counseling from Buddhist monks at Buddhist temples. This points towards the role that Buddhism has in shaping perceptions of mental illness in Thailand. A major aspect of Buddhism is the concept of *karma*. *Karma* is the belief that when you do 'good you receive good' or 'do bad and receive bad.' To this end, actions from one's previous life can affect his or her *karma* in their current life (Buddhism

teaches the concept of reincarnation). Some researchers have found that Thai people link bad *karma* to the development of mental illness (Burnard, Naiyapatana, & Lloyd, 2006).

Furthermore, another concept which intertwines the beliefs of Animism and Buddhism in Thai culture is known as *kwan*. This animist concept purports that all living beings have a ‘life force’ (Wong-Anuchit, 2016). When there is illness, the *kwan* is believed to leave the body. It intersects with Buddhism in Thailand, since Thais believe that the *kwan* can be called back through meditation (which is a Buddhist practice) (Burnard, Naiyapatana, & Lloyd, 2006).

Burnard, Naiyapatana, and, Lloyd (2006) point out that the idea of the acceptance of mental illness (a non-stigmatizing perception) is probably higher than the actuality of the acceptance of mental illness in Thailand. “It is notable that within the Buddhist belief system the constant expression of emotion--particularly anger--is viewed as an example of the person ‘acting like an animal ‘or being less than human (Harvey 1990).” Therefore, those with mental illness who are exhibiting emotional instability would most likely be stigmatized, at least somewhat, in Thai culture. As such, there is likely to be considerable overlap between religiosity and stigmatization of mental illness in Thai culture.

Stigmatization

Those with mental disorders are often stigmatized across multiple cultures and societies—albeit to lesser and greater extents depending on the culture in question. People with mental disorders are frequently regarded as dangerous and unpredictable, which creates fear and misunderstanding. Indeed, stigmatization is so pervasive in some cultures, those with mental disorders may even stigmatize themselves (self-stigmatization).

Although efforts have been made in Western cultures to reduce stigmatization of mental illness, since it inhibits those with mental disorders from seeking treatment, stigmatization remains a problem even in the most developed countries. Researchers have

found that stigmatization remains higher in developing countries than in developed countries. This research claims, as a result, that the stigmatization of mental disorder in developing countries in Asia, leads to higher rates of somatization of psychological symptoms (Lauber & Roessler, 2009).

These researchers theorize that it is safer for people to express their psychological symptoms in physical terms due to the stigmatization of psychological symptoms (Lauber & Roessler, 2009). In Thailand, research has reported that little effort has been made to educate the public on mental disorders in hopes of reducing the stigmatization of mental disorders (Kaewprom, Curtis, & Deane, 2011). Indeed, certain aspects of Thai culture may make reducing the stigmatization of mental disorders more complicated.

One unique aspect of Thai culture which is related to stigmatization is the cultural phenomena of spirit possession. Being possessed by a malevolent spirit, in turn, leads to those affected (possibly suffering from a mental disorder) to be stigmatized by Thai society (Kaewprom, Curtis, & Deane, 2011). In other words, it is considered to be undesirable, with those being possessed to have been cursed or having brought it on through bad karma. This, in turn, may leads to those with mental illness in Thailand to have lower levels of self-esteem, poor quality of relationships, and reduced employment opportunities (which has been reported by those with mental illness in a survey conducted in Thailand) (Wong-Anuchit, 2016). According to Wong-Anuchit and colleagues, substance use disorders (addiction) was the most stigmatized disorder in Thailand (2016).

This stigmatization of mental health disorders leads those with mental illness to become socially isolated (Wong-Anuchit, 2016). Social isolation in a collectivistic culture, such as Thai culture, could be more psychological detrimental than in a Western culture (Heine, 2012). Therefore, people may be more resistant to being labeled as having a mental disorder or accepting treatment for the disorder (Wong-Anuchit, 2016).

This has implications for ADHD in Thailand, as parents may be less likely to seek out treatment for their children for fear of their child being stigmatized or themselves being labeled as bad parents (Wong-Anuchit, 2016). Strong family structure is an important aspect of Thai culture. Anything that would disrupt that perception (such as having family being labeled as having a mental disorder) would be actively avoided. As mentioned above, parents in South Korea may resist taking their children to seek a mental health professional, as they fear that they will be labeled as bad parents (Moon, 2008). Thais may fall into this line of thinking, as well.

Although the researcher is unaware of previous research on stigmatization of ADHD in Thailand, as the literature supports that Thai culture may lead Thais to stigmatize mental disorders, it may be deduced that there would be a link between stigmatization of mental disorders and negative attitudes and perceptions of ADHD (since ADHD is also a mental disorder). Therefore, the literature supports the possible connection of this aspect of Thai culture and negative perceptions and attitudes towards ADHD (Wong-Anuchit et al., 2016).

Health Locus of Control

The concept of locus of control refers to what extent individuals feel that they are able to influence their environment. Those who believe that they are able to strongly exert influence over their environment are said to have an internal locus of control, while those who feel that they have limited influence over their environment are said to have external locus of control. Studies have found that locus of control is heavily influenced by culture to the extent that it is regarded as a cultural phenomenon. For example, those who are from collectivistic cultures tend to have an external locus of control, while those from individualistic cultures usually have an internal locus of control. Most often, Asian cultures are collectivistic, while Western cultures are individualistic to varying degrees. Thai culture is considered a collectivistic culture (Heine, 2012).

Psychological wellbeing has been linked to locus of control with those with external locus of control reporting higher rates of depression and stress than those with internal locus of control. An external locus of control may lead people to feel that they are unable to avoid or control unpleasant events, which may lead to learned helplessness, which also positively correlates with depression and stress (Stocks, April, & Lynton, 2012). Although research is limited, some studies have found that ADHD symptoms positively correlate with external locus of control. Some research has found that those with an external locus of control may have more negative opinions towards those with mental illness (Beckman, 1972). However, on the other hand, Yamaoka and Stapleton (2016) reported that external locus of control tendencies tend to be a protective factor against stigmatization.

This research investigated, as part of study 3, how locus of control relates to attitudes and perceptions towards ADHD in Thailand. Since Thailand is more of a collectivistic culture, Thai people are more likely to have a locus-of-control orientation that is more external than internal. The researcher used the internal health locus of control subscale of the MHLC, as this scale also measures external locus of control. A high score on this scale would indicate high internal locus of control (relating to health), while a low score would be indicative of high external locus of control (relating to health). It is likely that this influences their attitudes and perceptions toward ADHD. This researcher assumes that this aspect of Thai culture contributes towards a negative appraisal of ADHD.

One cultural practice in Thailand which may balance out some of the stigma caused by mental illness is known as *thum-jai* (Wong-Anuchit, 2016). This practice encourages acceptance, patience, understanding, and having a sense of obligation regarding things that cannot be changed (Burnard, Naiyapatana, & Lloyd, 2006). Likewise, it is possible that this concept could lead people not to seek out treatment for mental disorders, as they may be overly accepting of their condition. That is, a belief that their condition cannot be changed.

This thinking style seems to be related to the concept of health locus of control. Specifically, this would indicate a more external locus of control thinking style. Research has found that collectivistic cultures, as well as Asian cultures, tend to have external locus of control tendencies (Cheng & Cheung, 2013). Although research on locus of control in Thailand is limited, this researcher deduced that Thai culture would promote external locus of control thinking styles.

Previous research points out that those with lower internal locus of control may be more likely to have negative views of mental health disorders (Beckman, 1972). As mentioned above, ADHD is a mental disorder leading one to extrapolate that those who hold negative views of mental health disorders, would also hold negative views of ADHD. Therefore, the literature finds that a connection may exist between health locus of control and attitude and perceptions towards ADHD; thus, supporting the viability of researching this cultural factor in Thailand.

Holistic Thinking

A holistic thinking style could possibly affect perceptions of mental disorders, including ADHD. Research has found that those from collectivistic cultures often have a more holistic thinking style, while those from individualistic cultures tend to have a more analytical style of thinking. In general, it can be said that those from Asian countries are more likely to have a holistic style of thinking, since Asian cultures are more often collectivistic. Of course, cultures are collectivistic or individualistic to varying degrees. For example, although Italy is considered a Western nation, it rates as more collectivistic than other Western nations, such as Germany or the United States (Nisbett & Miyamoto, 2005). As a strongly collectivistic culture, Thais would tend to have holistic thinking styles.

People with a holistic-thinking style tend to engage in context-dependent perceptual processing, while those with an analytical-thinking style engage in context-independent perceptual processing (Nisbett & Miyamoto, 2005).

“For example, Westerners tend to attribute events to causes internal to the object or person whereas Asians are more likely than Westerners to attribute causality to the context or situation. Westerners are more likely to use categorization and rules in reasoning about everyday life events whereas...Asians are more likely to emphasize relationships and similarities (Nisbett & Miyamoto, 2005).”

In other words, people from Asian cultures are more likely to take into account the context of the situation when evaluating causation, while Westerners are more likely to focus on the individual in attributing causation (Nisbett & Miyamoto, 2005).

According to researchers, these thinking styles are present in all aspects of the culture and influence our day-to-day social interactions—culturally engrained in us from infancy. For example, American mothers tend to emphasize “labeling objects [which] might lead infants to focus on the objects and their appropriate categorization whereas Japanese mothers’ [tend to emphasize] social practices [which] might direct infants’ attention to the relationship or to the context in which the object is located (Nisbett & Miyamoto, 2005).”

This tendency for cultures with a predominately holistic thinking style to focus on the context and social aspects of any particular situation could have an effect on how Thais perceive behaviors associated with ADHD. For example, as Westerners who think analytically and tend to categorize behaviors as in normal or pathological, which leads to labels such as ADHD, Thais may be more likely to think contextually; thus, avoiding viewing ADHD-like behaviors in categorical terms. This may cause Thais to be less likely to identify ADHD behaviors—be it accurately or inaccurately. That is, they may be more likely to focus on the situation or see the behaviors as a normal aspect of childhood, rather than blaming the

individual or seeing the individual as having some sort of behavioral or mental health problem. However, research in Singapore linked to holistic thinking to collective culpability theory and found that Singaporeans were more likely to attribute blame to perceived wrongdoers due to circumstances, rather than view unassociated events or circumstances as distinctly separate from the perceived wrongdoer (Kwan & Chiu, 2014). Therefore, similarly this link between holistic and tendency to inaccurately associate blame on others may result in negative attitudes and perceptions of ADHD in Thailand.

An instrument used to measure holistic thinking styles versus analytic thinking styles, call the Analysis-Holism Scale (AHS) will be used in the present study. It was developed by Choi, Koo, and Choi in Korea. Studies using this instrument have found that Asians demonstrate much more holistic thinking than do Americans. Furthermore, studies using the AHS found that Westerns and Asians differ in how they attribute causality. That is, Asians are more likely to attribute causality within a context, while Westerners were more likely to attribute causality to internal properties. The present study utilized the AHS to measure thinking styles as they relate to attitudes and perceptions of ADHD (Choi, Koo, & Choi, 2007).

Study 2 examined the psychometric properties of the scales described above, while study 3 examined factors within Thai culture that may affect Thais attitudes and perceptions of ADHD. The research focused as on cultural aspects which differentiate Thai culture from Western culture. The research examined the influence of religiosity, locus of control, holistic versus analytical thinking, and stigmatization of mental illness (cultural factors) on the perceptions and attitudes towards ADHD in Thailand. It was also explored if knowledge of ADHD has a moderating effect on attitudes and perceptions toward ADHD. The conceptual framework for study appears below (Figure 1).

Exposure to ADHD

Although there is ample research pointing towards ADHD being a legitimate disorder, knowledge of ADHD is often lacking. Having had previous exposure to ADHD would likely result in more knowledge of the disorder. It is well established that knowledge of ADHD varies across countries, cultures, and even sub-cultures within a particular country.

Furthermore, previous exposure to ADHD (having a friend/family member with the disorder) may reduce negative attitudes and perceptions of the disorder. This exposure to ADHD may result in more knowledge of the disorder or less judgmental mindset about the ADHD. For example, research in the Netherlands reported that having exposure to ADHD reduced research participants' stigma towards the disorder (Fuermaier, 2012). Previous exposure to ADHD may have ameliorating effects on negative attitudes and perceptions of ADHD, despite the influence of Thai cultural factors.

Figure 1
Path Mode for study 3 tested via SEM

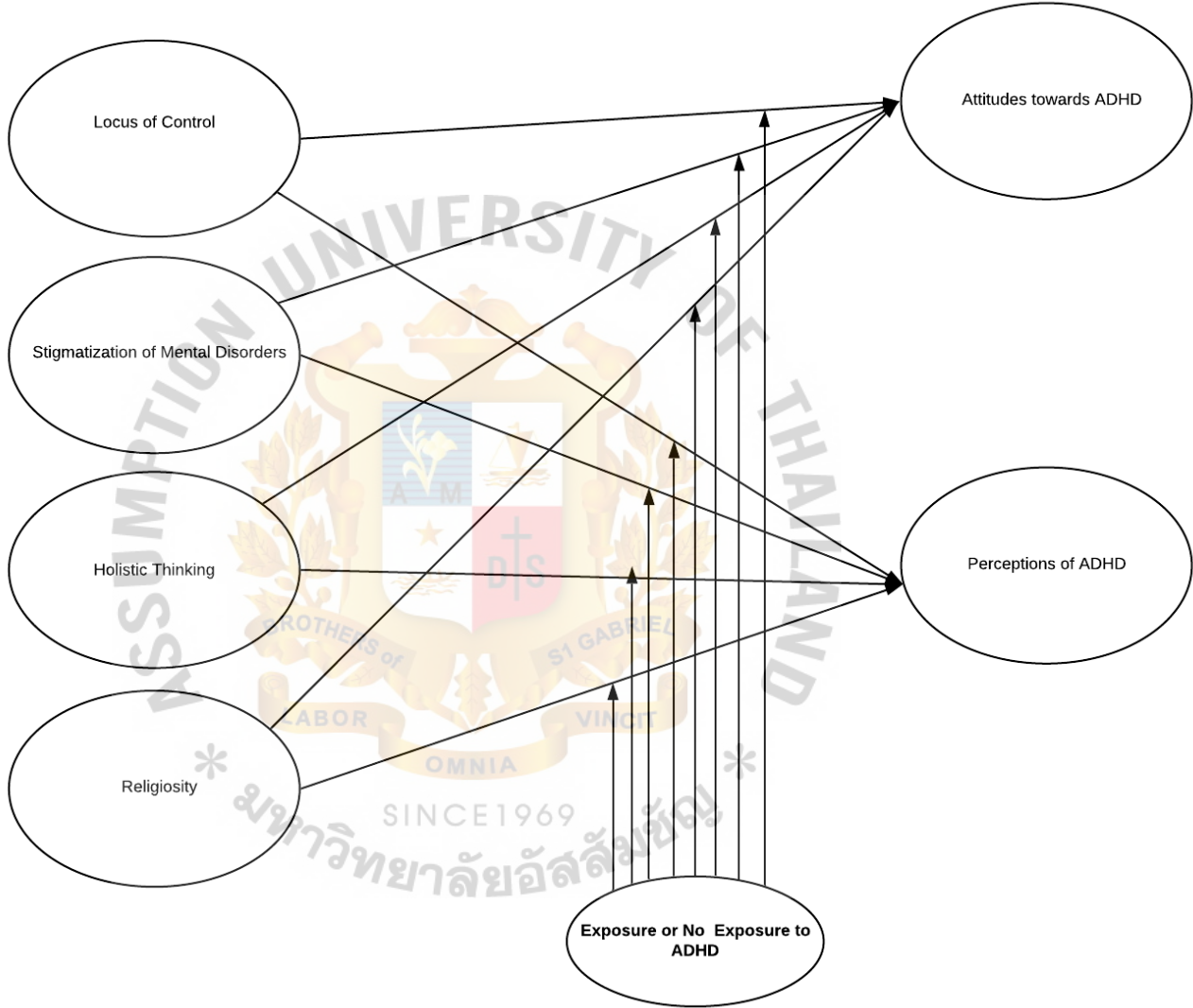


Figure 1. Ovals on the left represent the constructs that may influences perceptions and attitudes towards ADHD (represented by the ovals on the right). Oval at the bottom represent the moderating variable, exposure or no exposure to ADHD.

Hypothesis

This researcher hypothesized that there would be a link between the cultural factors described above and attitudes towards ADHD and perceptions of ADHD. Specifically, this researcher proposed that the relationships between the cultural factors and attitudes towards ADHD and perceptions of ADHD are as follows:

H1 Religiosity has an influence on attitudes towards ADHD. The higher in religiosity Thai people are, the more negative are their attitudes.

H2 Religiosity has an influence on perceptions of ADHD. The higher in religiosity Thai people are, the more negative are their perceptions.

H3 Stigmatization has an influence on attitudes towards ADHD. The higher in stigmatization towards mental illness Thai people are, the more negative are their attitudes towards ADHD.

H4 Stigmatization has an influence on perceptions of ADHD. The higher in stigmatization towards mental illness Thai people are, the more negative are their perceptions of ADHD.

H5 Holistic thinking has an influence on attitudes towards ADHD. The higher in holistic thinking Thai people are, the more negative were their attitudes towards ADHD.

H6 Holistic thinking has an influence on perceptions of ADHD. The higher in holistic thinking Thai people are, the more negative are their perceptions of ADHD.

H7 Health locus of control has an influence on attitudes towards ADHD. The lower in internal locus of control, the more negative are attitudes towards ADHD.

H7 Health locus of control has an influence on perceptions of ADHD. The lower in internal locus of control, the more negative are perceptions of ADHD.

H8 Previous exposure to ADHD moderates the relationship of religiosity, stigmatization, holistic thinking and locus of control on attitudes and perception towards ADHD. Previous exposure to ADHD reduces negative attitudes and perceptions towards ADHD.



CHAPTER III

METHODOLOGY

The present research aim was to (1) determine the level of knowledge of ADHD amongst a sample of Thai parents; (2) to analyze the psychometric properties of scales to be used in study 3; (3) to analyze the influence of religiosity, locus of control, stigmatization of mental disorders, and holistic thinking on perceptions of ADHD and attitudes towards ADHD moderated by previous exposure to ADHD amongst adults in Thailand.

Overview of Study 1, Study 2, and Study 3

Study 1

Objective

The primary purpose of study 1 was to determine the level of knowledge and awareness of ADHD amongst a sample of parents ages 18 to 75 who are Thai-speaking with Thai nationality and living in Thailand. The research instrument used for this study, the KADDS, measures the following factors: misconceptions regarding the treatment of ADHD, misconceptions regarding symptoms and diagnosis of ADHD, as well as knowledge of associated features (general information about the causes, overall nature of ADHD, and prognosis of the disorder) (Sciutto & Feldhamer, 2005). Therefore, study 1 identified the level of knowledge of ADHD amongst a sample of Thai adults in the three different areas of knowledge of ADHD described above.

Hypothesis

The researcher hypothesized that level of knowledge of ADHD of a sample of Thais was lower than the level of knowledge of Westerners. The hypothesis is based on prior

research which indicates that levels of awareness of ADHD is lower in non-Western countries--especially in developing countries. Previous research found that the range of correct responses on the KADDS (on knowledge of ADHD) in Western countries ranged from 47% to 62%, while the percentage of incorrect responses on misconceptions (note: regarding misconceptions, a lower number indicates a better score) ranged from 16% to 30%. Along the same factors, non-Western countries range from 15% to 45% and 15% to 33%, respectively (Sciutto & Feldhammer, 2005). However, this researcher believed that level of knowledge of ADHD of Thais may be higher amongst Thais living in urban areas, as well as those with higher levels of education.

Research Design

Study 1 determined the level of knowledge of ADHD in a sample of Thais living in Thailand. The study analyzed the percentage of correct responses on the KADDS.

Research Instrumentation

Study 1 comprised of two parts. Part 1 consisted of demographic details developed by the researcher. The questions focused on participants' age, gender, education level, and their region of origin in Thailand. However, convenience sampling was utilized, so ultimately participants' demographic information was neither used to include or exclude them from the study. Part 2 comprised of Knowledge of Attention Deficit Disorder Scale (KADDS) (Sciutto & Feldhammer, 2005).

The KADDS is a 39 items scale designed to measure one's knowledge of ADHD in three areas--treatment of ADHD, symptoms and diagnosis of ADHD, and associated features (general information about the causes, overall nature of ADHD, and prognosis of the disorder). These subscales were developed by 40 upper-level clinical psychology doctoral students. Content of the subscales required at least 75% agreement amongst the doctoral

students in order to be accepted. Each item may be answered true, false, or don't know. Selecting "don't know" helps differentiate lack of knowledge from misconceptions or inaccurate knowledge. In other words, incorrectly selecting "true" or "false" indicates inaccurate knowledge, while selecting "don't know" indicates lack of knowledge. In developing the items for the KADDS, an effort was made to include only items that were well-documented and empirically supported. The KADDS was found to have high internal consistency ($.80 < \alpha < .90$) and good validity. Validity was established by examining the correlation between amount of ADHD-related training and score on the KADDS. It was found that this correlation was highly significant, meaning the more training one had on ADHD, the higher his or her score on the KADDS (Sciutto & Feldhammer, 2005).

The KADDS was normed on both teachers and non-teachers, so it is appropriate for use for both teachers and non-teachers. Prior research has found that those with prior exposure to ADHD, regardless of being a teacher or non-teacher, scored higher on the KADDS (Sciutto & Feldhammer, 2000). While prior research has found that teachers in Thailand scored low on the KADDS, the current research will investigate knowledge of ADHD amongst Thai parents (non-teachers) (Muanprasart et al., 2014). The KADDS was translated from English into Thai for the current study.

Questionnaire Translation

In employing measurement scales developed overseas for research in a host country, it is necessary that these scales be appropriately translated into the host country's language in order to have both contextual and conceptual equivalence. The method of choice was the 'forward and backward' translation technique as recommended by a number of researchers (e.g., McDermott & Palchanes, 1992; John, Hirsch, Reiber, & Dworkin, 2006; John, Lee, Philips, Zhang, & Jaceldo, 2001).

Study 1 employed this technique in the translation of the KADDS. (a) the instrument was translated into Thai by a bilingual translator; (b) a second bilingual translator independently back-translated the instrument to its original English version from Thai; (c) the two versions (the original English and the English back-translated instrument) were compared by the researcher; and (d) a meeting between the researcher and the translators was held to resolve any disparities identified between the original and the back-translated English version. This was achieved by offering possible alternatives in translation from English to Thai of the disputed items in order to ensure conceptual equivalence of the English and Thai versions. The process ended when the panel of translators (see Appendix C) agreed that both the forward-translated and back-translated versions were the same in meaning and context.

Research Participants

For study 1, a total of at least 500 participants were needed. Usually, researchers regard 100 participants as the minimum sample size when the population is large (Kline, 2015). However, the sample size was increased to 500 to improve external validity. The sample consisted of Thai parents (with children in school or university) with a desired age range between 18 to 75 years old. The participants were required to be Thai citizens and able to read and write in Thai. An effort was made to recruit participants from various backgrounds (such as different educational levels and socioeconomic statuses) and from different regions of Thailand. These participants were required to determine knowledge of ADHD in a sample of Thai adults. The participants were selected using convenience sampling. Ultimately, 614 research participants were recruited.

Data Collection Procedure

The research aimed to collect surveys from 250 people electronically via surveymonkey.com and 250 in person in hardcopy, paper form. Regarding the surveys that were collected electronically, an email list was compiled by the researcher and those assisting the researcher. An email containing a link to the KADDS was sent to the research participants on the email list. Regarding the 250 surveys completed in person, the researcher and those assisting the researcher approached potential research participants in public areas to request that they complete the survey. Public areas will include shopping malls, markets, and university campuses. The purpose of the study was explained to the participants in the email or in person, in which it was requested for their voluntary participation in completing the KADDS. In addition, it was explained that all responses were anonymous. For participants who completed the KADDS online, it was done so via survey monkey (www.surveymonkey.com). The author of the KADDS gave permission to use the KADDS for this research.

Data Analysis

Once the data was collected, the frequency and percentages of correct responses were compared with the Western population. The existing range from published research were used for comparison. The researcher compared the existing range from previous research on knowledge of ADHD amongst teachers in Western countries, although the sample of the current study consisted of Thai parents (non-teachers). The researcher is unaware of previous research in Western countries which utilized the KADDS to measure knowledge of ADHD amongst parents. Although it may be argued that teachers would have higher knowledge of ADHD, previous research has found that knowledge of ADHD can be low amongst teachers, as well. Further, perceived knowledge of ADHD is often higher amongst teachers than actual

knowledge. In addition, research has found that one in five teachers feel fairly or very uninformed about ADHD (Youssef, Hutchinson, & Youssef, 2015). In light of research that indicates that knowledge of ADHD amongst teachers may not necessarily be high, as well as unavailability of research using the KADDS to measure knowledge of ADHD amongst Western parents, the research has chosen compare the current study's sample (Thai parents) to Western teachers.

Study 2

Objective

The objective of study 2 was to examine the psychometric properties of instruments that were used in study 3. The measurement instruments were used to measure how aspects of Thai culture influence attitudes and perceptions of ADHD. The measurement instruments were as follows: Multidimensional Health Locus of Control Scales (MHLC), the SBI, the Community Attitudes towards the Mentally Ill scale, the ADHD Stigma questionnaire (ASQ), Choi's Analysis-Holism Scale, and the ADHD Beliefs Scale-revised. The instruments measure the following aspects of Thai culture: religiosity, stigmatization (tendency to stigmatize mental disorders), locus of control, and holistic thinking. These aspects of Thai culture were chosen, as research has identified that these aspects differ significantly from Western culture. For example, Thai people tend to score high in religiosity, high in their tendency to stigmatize mental disorders, high in external locus of control, and high in holistic thinking. Although Western cultures vary to the extent to which they exhibit the cultural aspects mentioned above, in general, people from Western cultures score lower on these cultural aspects than Thais (Nisbett & Miyamoto, 2005).

As part of study 2, exploratory factor analysis (EFA), and reliability analysis was conducted on the following instruments: Multidimensional Health Locus of Control Scales

(MHLC), the SBI (Religious Beliefs/Practices), the Community Attitudes towards the Mentally Ill scale, the ADHD Stigma questionnaire (ASQ) (attitudes towards ADHD), Choi's Analysis-Holism Scale, and the ADHD Beliefs Scale-revised (perceptions of ADHD).

Research Design

Study 2 employed EFA and reliability analysis to determine the psychometric properties of the following instrument to be used in a Thai context: Multidimensional Health Locus of Control Scales (MHLC), the SBI (Religious Beliefs/Practices), the Community Attitudes towards the Mentally Ill scale, the ADHD Stigma questionnaire (ASQ), Choi's Analysis-Holism Scale, and the ADHD Beliefs Scale-revised.

Research Instrumentation

Study 2 utilized a questionnaire form designed to evaluate aspects of Thai culture that influence attitudes and perceptions towards ADHD. This questionnaire was designed to tap into cultural factors which may influence attitudes and perceptions of ADHD. The questionnaire was adapted from the following questionnaires: the Multidimensional Health Locus of Control Scales (MHLC), the ADHD Stigma questionnaire (ASQ), the SBI (Religious Beliefs/Practices), the Community Attitudes towards the Mentally Ill scale (stigmatization), Choi's Analysis-Holism Scale, and the ADHD Beliefs Scale. These instruments were found to have good psychometric properties in their original context.

The adaption and composite of the aforementioned scales comprised of 147 items. In addition, the questionnaire included three questions to determine previous exposure to ADHD. The complete MHLC was used for this research. There are 18 items on the MHLC. Each item requires a response from 1 to 6 on a likert scale—1 being strongly disagree, 2 moderately disagree, 3 slightly disagree, 4 slightly agree, 5 moderately disagree, 6 strongly disagree. There are five subscales of the MHLC related to locus of control regarding health.

The subscales evaluate the extent to which one feels in control of one's own health. They are as follows: Internal, Chance, Powerful Others, Doctors, Other People. Studies have found the MHLC to have good construct validity (all items exhibit highly significant inter-item correlations, in that items positively correlate significantly with their item subscale scales) and have high reliability (Cronbach's alpha coefficients >0.78) (Wallston, 2005).

The complete SBI was used for this research. The construct validity was high for the SBI (Cronbach's alpha = 0.946). Regarding test-retest reliability, Lin's concordance correlation for the SBI was 0.969. The SBI consists of ten items. The SBI is a subscale of the Systems of Belief Inventory (SBI-15R), but can be used as a stand-alone instrument. As a subscale, it is designed to measure religious beliefs and practices. The SBI was used in this study to measure religiosity in a sample of Thai participants. Participants were required to answer each item on a likert scale from 1 to 4. According to this scale 4 equals strongly agree, 3 agree, 2 disagree, and 1 strongly disagree. In a cross-cultural study, the SBI was found to be a valid and reliable instrument (Ripamonti, 2010).

The complete ASQ was used in the present study to measure attitudes towards ADHD held by a sample of Thai research participants. The ASQ consist of 25 items which the participants are required to answer as follows: SD (strongly disagree), D (disagree), A (agree), and SA (strongly agree). The items selected from the ASQ are items that measure social rejection of those with ADHD. As such, this instrument was chosen for this study to measure attitudes towards ADHD. The ASQ was found to have good test-retest reliability and construct validity (Kellison, Bussing, Bell, & Garvan 2008).

The Community Attitudes towards the Mentally Ill Scale consists of 40 items which measures attitudes towards those with mental illness in five areas—authoritarianism, benevolence, social restrictiveness, and community mental health ideology. Respondents

must answer as follows: SA (strongly agree), A (agree), N (neutral), D (disagree), and SD (strongly disagree). The complete version of the Community Attitudes Towards the Mentally Ill Scale will be used. Regarding the Community Attitudes towards the Mentally Ill scale,

“data from 1,090 households surveyed concerning neighborhood mental health facilities in Toronto were used to test the internal and external validity of the scales. Results support the validity of the scales and demonstrate their usefulness as explanatory and predictive variables for studying community response to mental health [treatment] facilities (Taylor & Dear, 1981).”

The complete Choi's Analysis-Holism Scale was used in the present study. This instrument was designed to measure analytical versus holistic thinking tendencies. This instrument has 24 items which must be answered on a likert scale from 1 to 7. On this scale, 1 equals strongly disagree and 7 equals strongly agree, while 2 to 6 indicate levels of disagreement progressively from disagree to agree. The scale was found to have good reliability and high convergent and discriminate validity. Additionally, Choi's Analysis-Holism Scale was able to differentiate Asian research participants from Western participants, as Asian participants scored higher on holistic thinking, while Westerners scored higher on analytical thinking (which would be consistent with research on cognitive styles); thus, indicating good construct validity (Choi, Koo, & Choi, 2007).

The ADHD Beliefs Scale-Revised, which consists of 27 items, will be used in this study in its entirety. The items must be answered on a likert scale from 1 to 7. On this scale, 7 equals strongly disagree and 1 equals strongly agree, while 2 to 6 indicate levels of disagreement progressively from agree to disagree. This scale is designed to measure beliefs about ADHD and for the purposes of this study it was used to measure perceptions of ADHD.

The ADHD Beliefs Scale-Revised was found to have adequate test-retest reliability and adequate construct validity (Gudmundsdottir, 2014).

Regarding the knowledge and previous exposure to ADHD (the moderating variable), three questions were included in the questionnaire to measure the respondents' exposure to ADHD.

Research Participants

Considering five to six parameters for each of the variables, the sample size required was 200 - 400 to conduct EFA on the research instrumentations used in study 2 (Bentler and Chou, 1987). According to Kline (2015), a general rule for the size of minimum sample should be a minimum of 200. Therefore, the sample size was determined to be 200.

Data Collection Procedure

Participants in this study volunteered to complete a questionnaire which measures cultural factors that influence attitudes and perceptions towards ADHD. As in study 1, the participants were selected using convenience sampling. In study 2, the goal was to collect approximately 50% of surveys electronically and 50% of surveys in person for 50% both EFA and reliability analysis. In the end, 86 were collected electronically and 114 in person for EFA and reliability analysis.

Regarding the surveys that are completed electronically, surveys were distributed electronically via an email list compiled by the researcher and those assisting the researcher. A link was emailed to participants which directed the research participants to the website www.surveymonkey.com where the survey can be completed via computer, smart phone, or tablet. For the surveys completed in person, the researcher and those assisting the researcher approached potential research participants in public areas and requested that they complete

the survey in person. Public areas included shopping malls, markets, and university campuses.

Data Analysis

Study 2 comprised of the following steps:

Step 1: *Exploratory Factors Analysis (EFA)* was employed to the Multidimensional Health Locus of Control Scales (MHLC), the ADHD Stigma questionnaire (ASQ), the SBI (Religious Beliefs/Practices), the Community Attitudes towards the Mentally Ill scale, Choi's Analysis-Holism Scale, the ADHD Beliefs Scale.

Step 2: *Reliability Analysis* was conducted to evaluate the internal consistency of the extracted factors. Corrected item total correlation was checked to see if the items that are loaded on the extracted factors are consistent.

Questionnaire Translation

In employing measurement scales developed overseas for research in a host country, it is necessary that these scales be appropriately translated into the host country's language in order to have both contextual and conceptual equivalence. The method of choice was the 'forward and backward' translation technique as recommended by a number of researchers (e.g., McDermott & Palchanes, 1994; John, Hirsch, Reiber, & Dworkin, 2006).

Study 2 employed this technique in the translation of the study's measurement scales, which were as follows: the Multidimensional Health Locus of Control Scale (MHLC), the SBI (religious beliefs/practices), the Community Attitudes Towards the Mentally Ill Scale, Choi's Analysis-Holism Scale, the ADHD Stigma Questionnaire (ASQ), and the ADHD Beliefs Scale-revised via the following procedural steps: (a) the instruments were translated into Thai by a bilingual translator; (b) a second bilingual

translator independently back-translated the instruments to their original English version from Thai; (c) the two versions (the original English and the English back-translated instruments) were compared by the researcher; and (d) a meeting between the researcher and the translators was held to resolve any disparities identified between the original and the back-translated English versions. This was achieved by offering possible alternatives in translation from English to Thai of the disputed items in order to ensure conceptual equivalence of the English and Thai versions. The process ended when the panel of translators (see Appendix C) agreed that both the forward-translated and back-translated versions were the same in meaning and context.

Study 3

Objective

Study 3 investigated the relationship between Thai cultural factors and attitudes/perceptions of ADHD in Thailand. The following Thai cultural factors were examined: religiosity, stigmatization (tendency to stigmatize mental disorders), locus of control, and holistic thinking. The relationship between these cultural factors and attitudes/perceptions towards ADHD, moderated by previous exposure or no previous exposure to ADHD, were investigated.

These aspects of Thai culture were chosen as research has identified that these aspects differ significantly from Western culture. Although there is limited research on this topic in Thailand, some research in other countries indicates that there may be a relationship between these cultural factors and attitudes/perceptions towards ADHD. In addition, previous exposure to ADHD may reduce negative attitudes and perceptions towards ADHD.

Research Instrumentation

The above cultural factors were assessed using the following measurement instruments/questionnaires: Multidimensional Health Locus of Control Scales (MHLC) (locus of control), the SBI (religious beliefs and practices), the Community Attitudes towards the Mentally Ill scale (stigmatization), the ADHD Stigma questionnaire (ASQ) (attitudes towards ADHD), Choi's Analysis-Holism Scale (holistic thinking), and the ADHD Beliefs Scale-revised (perceptions of ADHD). The following questions were used to determine previous exposure to ADHD: Do you have ADHD? Do any of your friends or family have ADHD? Do you know anyone with ADHD?

Research Participants

Three hundred and twenty-three participants utilized for CFA and SEM in study 3. The proposed path model was tested via SEM. To determine the sample size to execute a path model in SEM, a minimum of five times or most proper is over ten times the number of measurement items and the number of measurement were be estimated. It was estimated that 200 – 400 participants were required for SEM. According to Kline (2015), a general rule for the size of minimum sample should be over 200. However, in order to enhance the external validity of the obtained findings, a decision was made to increase the sample size to approximately 300 respondents. Participants must be Thai citizens who are at least 18 years old. Ultimately, 323 participants were recruited for CFA and SEM.

Research Design

Step 1: Confirmatory factor Analysis (CFA) was conducted to access the adequacy of the factor structure identified via EFA. Unlike EFA, CFA allowed the researcher to posit explicitly one or more a priori models.

Step 2: The path model (figure 1) was tested via SEM.

Step 3: The moderating effect of previous exposure to ADHD or no exposure was investigated.

Data Collection Procedure

Participants in this study volunteered to complete a questionnaire which rated cultural factors that influence attitudes and perceptions towards ADHD. The participants were selected using convenience sampling. In study 3, the goal was to have 50% complete the questionnaires electronically and 50% in person for SEM.

Ultimately, all data was collected from participants in person in paper form. For the surveys completed in person, the researcher and those assisting the researcher approached potential research participants in public areas and requested that they complete the survey in person. Public areas included shopping malls, markets, and university campuses. Although the researcher attempted to gather data via [surveymonkey.com](https://www.surveymonkey.com), participants did not appear motivated to complete the questionnaires online; therefore, having participants complete the forms in person was more time efficient.

Data Analysis

Study 3 comprised of the following:

After completing CFA, in order to see the direct and indirect influence of religiosity, stigmatization (tendency to stigmatize mental disorders), locus of control, and holistic thinking on attitudes and perceptions of ADHD, the path analysis utilized with SEM. The goodness of fit of the two posited path models were tested using multi group path analysis.

Translations

The translated questionnaires utilized in study 2 were also used in study 3.

CHAPTER IV

Results

As stated previously, the main purposes of the current research consisted of the following:

1. To determine the level of knowledge of ADHD amongst a sample of Thai adults who are the parents of school-aged children.
2. To examine the psychometric properties of the measurement instruments/questionnaires (used in study 3) for use in a Thai context.
3. To determine how certain Thai cultural factors influence Thais' perception and attitudes towards ADHD.

Study 1

Overview of Study

The primary purpose of study 1 was to determine the level of knowledge of ADHD amongst a sample Thai adults with school-aged children. The process included the following steps.

Research Participants

Thai nationals were asked to complete a Thai version of the KADDS. All participants were required to be at least 18 years old and have at least one school-aged child. Participants were approached in public areas, such as malls, to complete the KADDS via paper form or sent the KADDS via email to complete via surveymonkey.com. One hundred forty-nine completed it via surveymonkey.com, while 465 completed it via paper form. The average

length of time to complete the survey online was ten minutes. Although it cannot be definitively proven, it would appear that research participants did not attempt to search for answers that they did not know, such as by “googling” the correct answers for the KADDS. Two hundred sixty (42.4%) of participants were male and 354 (57.6%) were female. Two hundred sixty-eight (43.6%) of participants were between 18 and 28 years old; 169 (27.6%) were 29 to 39 years old; 114 (18.5%) were 40 to 50 years old; 63 (10.3%) were 51 to 75 years old.

Regarding highest educational levels completed by participants, 300 (48.8%) completed high school; 214 (34.8%) completed a bachelor’s degree; 77 (12.5%) completed middle school; 14 (2.3%) completed a graduate degree (Master’s Degree or PhD); 10 (1.6%) completed elementary school. Therefore, 527 (85.9%) of participants had at least a high school education. Participants were recruited primarily in Bangkok, Udon Thani, and Nong Khai. Bangkok is located in central Thailand, while Udon Thani and Nong Khai are in North-East Thailand. Regarding province of origin, 321 participants were from Bangkok and 293 were from outside of Bangkok.

Table 1
Study 1 Demographics Summary

Demographics	n	Educational Level	n
Total Participants	614	Graduate Degree	14
Male	260	BA/BS	214
Female	354	High School	300
Bangkok	321	Middle School	77
Non-Bangkok	293	Elementary School	10

Step 1: *Questionnaire Translation*

In employing measurement scales developed overseas for research in a host country, it is necessary that these scales be appropriately translated into the host country's language in order to have both contextual and conceptual equivalence. The method of choice was the 'forward and backward' translation technique as recommended by a number of researchers (e.g., McDermott & Palchanes, 1992; John, Hirsch, Reiber, & Dworkin, 2006; John, Lee, Philips, Zhang, & Jaceldo, 2001).

Study 1 employed this technique in the translation of the KADDS. (a) the instrument was translated into Thai by a bilingual translator; (b) a second bilingual translator independently back-translated the instrument to its original English version from Thai; (c) the two versions (the original English and the English back-translated instrument) were compared by the researcher; and (d) a meeting between the researcher and the translators was held to resolve any disparities identified between the original and the back-translated English version. This was achieved by offering possible alternatives in translation from English to Thai of the disputed items in order to ensure conceptual equivalence of the English and Thai versions. The process ended when the panel of translators (see Appendix C) agreed that both the forward-translated and back-translated versions were the same in meaning and context.

Pretest

A pretest of the KADDS was conducted prior to the actual study in order to check for errors and for readability. The researcher distributed the questionnaire to the research participants. According to Julious (2005), a good rule of thumb for sample sizes of pretests is approximately 12 participants. Ultimately, 13 participants completed the pretest. After the 13 research participants completed the questionnaires, each participant was interviewed to determine if there were any misunderstandings or confusion regarding each item. Upon

verifying that the translated version of the KADDS was free from errors and comprehension problems, the researcher proceeded to conduct the actual study.

Step 2: Data Collection

A total of 800 questionnaires were distributed, of which 643 were returned. After examining the questionnaires, 614 were determined useable in that items were not missing and were legible. Therefore, 614 Thai participants were recruited to complete the KADDS. All participants were at least 18 years old and had at least one school-aged child. Out of the 614 research participants, 149 participants completed the KADDS via surveymonkey.com, while 465 completed it in paper form.

Step 3: Data Analysis

The frequencies of participants' responses on the KADDS were analyzed to determine the percentage of correct responses. The percentage of correct responses were compared to the percentage of correct responses on the KADDS in other research in different countries that appeared in prior research. Percentages of correct responses, incorrect responses, and "don't know" responses were analyzed. In addition, the three factors measured by the KADDS, which includes associated features of ADHD, treatment of ADHD, and symptoms/diagnosis of ADHD were analyzed to determine correct responses of on each factor.

Results

43.59% of the questions on the KADDS were answered correctly by the 614 Thai participants in the present research. 35.90% were answered incorrectly, while 20.51% of the questions were answered as "don't know." There are three possible answers to each of the 39 questions on the KADDS—true, false, and don't know.

Three factors are measured on the KADDS in regards to ADHD. These are as follows: Associated Feature of ADHD (15 items), Treatment for ADHD (12 items), and

Symptoms/Diagnosis of ADHD (9 items). Three items on the KADDS have not yet been classified in any of the factors above. 33.3% of questions concerning treatment were answered correctly, 40% were answered correctly on associated features of ADHD, and 77.78% were answered correctly on symptoms/diagnosis.

The present research indicates that this sample of Thais scored lower on the KADDS when compared to nationalities of Western countries. For example, previous research using the KADDS found that a sample in the Czech Republic answered 57% correctly; Germany, 54% correctly; Greece, 47% correctly; South Africa, 52% correctly; United States, 62% correctly (Sciutto et al., 2016). However, using the chi square test to determine if the difference were significant, it was revealed that the difference in scores were not statistically significant.

However, the present research found that Thai parents scored higher on the KADDS when compared to previous research in other Asian countries and some Middle Eastern countries. For example, a sample of teachers in Vietnam answered 33% of the KADDS correctly; South Korea, 39% correctly; Saudi Arabia, 15% correctly. Although a sample in Iraq scored higher at 45%, it was nearly identical to the Thai sample on the present research which scored 43.59%. Using the chi square to test the differences in scores between Thailand and other countries, it was revealed that only the differences in scores between the Saudi Arabia and Vietnam were significant compared to the Thai sample. Table 2 presents the results of the chi square analysis. Additionally, other research found that a sample in India scored higher than the Thai sample with the Indian sample at 49% correctly. However, the samples are not easily comparable, as the Indian sample used a different instrument besides the KADDS to determine knowledge of ADHD (Sciutto et al., 2016).

Table 2

Chi Square Analysis Results for Study 1

Nation	N	%		p	Thai p	Z	p
Thai	614	44	270	0.44			
Czech	485	57	276	0.57	0.44	4.280	1.000
Germany	350	54	189	0.54	0.44	2.989	0.999
Greece	198	47	93	0.47	0.44	0.738	0.770
Iraq	200	45	90	0.45	0.44	0.247	0.598
Korea	146	39	57	0.39	0.44	-1.097	0.136
South Africa	212	52	110	0.52	0.44	2.015	0.978
Saudi	429	15	64	0.15	0.44	-9.874	0.000
USA	159	62	99	0.62	0.44	4.050	1.000
Vietnam	131	33	43	0.33	0.44	-2.315	0.010

Common misconceptions about ADHD found in the Thai sample (as indicated by 50% or more of the sample answering incorrectly on the KADDS) included the following: Misconceptions about the prevalence of ADHD in adolescents; misconceptions about youth with ADHD performing better in novel situations (which was a common misconception in other countries as indicated by over 50% of participants in previous research in the Czech Republic, Germany, Greece, Iraq, South Korea, South Africa, and the U.S. responding incorrectly); misconceptions about differing rates of ADHD across males and females; misconceptions of symptoms of ADHD in children under 4 years old; misconceptions about the effectiveness of behavioral and psychological treatments for ADHD (over 50% in Greece and Iraq responded incorrectly); misconceptions about the use of medications for ADHD. Furthermore, a common misconception in Greece and Iraq that medications for ADHD lead to addiction to drugs and alcohol was not found to be a common misconception in Thailand (Sciutto et al., 2016).

The following were areas in which there were common misconceptions and/or lack of knowledge (combined) in the Thai sample as indicated by a combined percentage of 50% or

more of responses being incorrect or responded to as “don’t know” on the KADDS: Lack of knowledge and misconceptions that ADHD medications lead to addiction; lack of knowledge and misconceptions that sugar leads to symptoms of ADHD; lack of knowledge and misconceptions that doctors can readily identify physical features that lead to a ADHD diagnosis; lack of knowledge and misconceptions about side effects of medications used to treat ADHD; lack of knowledge and misconceptions that children with ADHD are inflexible and adhere to rigid routines. Seemingly, the misunderstanding that children with ADHD are inflexible and adhere to rigid routines may point towards a lack of understanding of the differences between ADHD and autistic spectrum disorder. The researcher is unaware of prior research in other countries that reported combined percentages on misconceptions and lack of knowledge; therefore, the present research is unable to compare the current study’s results to prior research.

The current research found common misconceptions in the Thai sample that were similar to Western countries and some that were not similar to Western countries. For example, misconceptions about youth with ADHD performing better in novel situations were common in several Western countries and Thailand. Likewise, misconceptions about the effectiveness of behavioral and psychological treatments for ADHD was a common misconception in Thailand and one Western country. Misconceptions that were not similar to the Western included the following: Misconceptions about the prevalence of ADHD in adolescents; misconceptions about differing rates of ADHD across males and females; misconceptions of symptoms of ADHD in children under 4 years old; misconceptions about the use of medications for ADHD.

Summary

Study 1 indicates that although Thais scored lower on the KADDS, the difference was not statistically significant; thus, it cannot be determined that the level of knowledge of

ADHD in Thailand is lower when compared to the level of knowledge of ADHD in Western countries revealed in earlier studies. In addition, Thais scored higher on the KADDS when compared to South Korea, Vietnam, and Saudi Arabia; however, the difference in scores were only significant regarding Vietnam and Saudi Arabia. Therefore, it cannot be determined that the level of knowledge of ADHD was statistically different from South Korea, but it can be determined that the level of knowledge of ADHD amongst Thais is greater when compared to Vietnam and Saudi Arabia.

Nevertheless, given that only 44% of the KADDS was answered correctly in amongst the Thai sample, the current study concludes that an effort should be made to improve the level of knowledge of ADHD amongst Thais. Furthermore, certain cultural factors may result in less knowledge of ADHD and misunderstandings. Likewise, limited knowledge may lead to negative perceptions due to ignorance of the disorder. Study 2 and study 3 further investigated cultural factors and how they are related to attitudes and perceptions of ADHD.

Study 2

Overview of the Study

As stated in Chapter III, the objective of study 2 is to establish the psychometric properties of the following instruments to be used in study 3 in a Thai context:

Multidimensional Health Locus of Control Scales (MHLC), the SBI (Religious Beliefs/Practices), the Community Attitudes Towards the Mentally Ill scale, the ADHD Stigma questionnaire (ASQ) (attitudes towards ADHD), Choi's Analysis-Holism Scale, the ADHD Beliefs Scale-revised (perceptions of ADHD). As such, study 2 will employ EFA and reliability analysis on these measurement instruments/questionnaires.

It is essential to establish the psychometric properties of these measurement instruments/questionnaires, so that they may be used in study to examine how aspects of Thai culture influence attitudes and perceptions of ADHD. The aspects of Thai culture to be explored are as follows: religiosity, stigmatization (tendency to stigmatize mental disorders), locus of control, and holistic thinking. These aspects of Thai culture are chosen as research has identified that these aspects differ significantly from Western culture.

Questionnaire Translation

In employing measurement scales developed overseas for research in a host country, it is necessary that these scales be appropriately translated into the host country's language in order to have both contextual and conceptual equivalence. The method of choice was the 'forward and backward' translation technique as recommended by a number of researchers (e.g., McDermott & Palchanes, 1994; John, Hirsch, Reiber, & Dworkin, 2006).

Study 2 employed this technique in the translation of the study's measurement scales, which were as follows: the Multidimensional Health Locus of Control Scale (MHLC), the SBI (religious beliefs/practices), the Community Attitudes Towards the Mentally Ill Scale, Choi's Analysis-Holism Scale, the ADHD Stigma Questionnaire (ASQ), and the ADHD Beliefs Scale-revised via the following procedural steps: (a) the instruments were translated into Thai by a bilingual translator; (b) a second bilingual translator independently back-translated the instruments to their original English version from Thai; (c) the two versions (the original English and the English back-translated instruments) were compared by the researcher; and (d) a meeting between the researcher and the translators was held to resolve any disparities identified between the original and the back-translated English versions. This was achieved by offering possible alternatives in translation from English to Thai of the disputed items in order to ensure conceptual

equivalence of the English and Thai versions. The process ended when the panel of translators (see Appendix C) agreed that both the forward-translated and back-translated versions were the same in meaning and context.

Pretest

A pretest of the study's questionnaires was conducted prior to the actual study in order to check for errors and for readability. The researcher distributed the questionnaires to research participants. According to Julious (2005), a good rule of thumb for sample sizes of pretests is approximately 12 participants. The researcher attempted to have as many pretests as possible completed; however, ten participants completed the pretest and due to time constraints and the absences of errors found in the pretest, it was determined by the research that a sample size of ten would be sufficient. After the ten research participants completed the questionnaires, each participant was interviewed to determine if there were any misunderstandings or confusion regarding each item. Upon verifying that the study's questionnaire was free from errors and comprehension problems, the researcher proceeded to conduct the actual study.

Research Participants

Thai nationals were asked to complete a Thai language version of the questionnaire. A total of 523 participants were recruited. All participants were required to be at least 18 years old. Participants were approached in public areas, such as malls, to complete the questionnaire via paper form or sent the questionnaire via email to complete via surveymonkey.com. Regarding EFA, 86 research participants completed it via surveymonkey.com, while the remaining 114 completed it via paper form. Two hundred participants were utilized in study 2 for EFA.

Regarding the 200 participants utilized for EFA and reliability analysis, 72 (36%) of participants were male and 128 (64%) were female. One hundred twenty (60%) of

participants were between 18 and 28 years old; 52 (26%) were 29 to 39 years old; 14 (7%) were 40 to 50 years old; 14 (7%) were 51 to 75 years old. Regarding highest educational levels completed by participants, 92 (46.4%) completed high school; 91 (45.6%) completed a bachelor's degree; 16 (8%) completed less than high school; Zero completed a graduate degree (Master's Degree or PhD). Therefore, 184 (92%) of participants had at least a high school education. Participants were recruited primarily in Bangkok, Udon Thani, and Nong Khai. Bangkok is located in central Thailand, while Udon Thani and Nong Khai are in North-East Thailand.

Data Collection Procedure

The sampling technique employed was convenience sampling. A total of 800 questionnaires were distributed which resulted in the return of 593 completed questionnaires. After verification of the completed questionnaires, 523 were deemed free of errors and retained for data analysis. Out of all of the accepted questionnaires, 86 were completed via survey monkey.com, while the rest were completed via paper form. 200 questionnaires were utilized for EFA and reliability analysis. The researcher did not examine, if the response patterns differed between the questionnaires answered online or those answered in paper form.

Results

Study 2 aimed to determine the psychometric properties of the Thai-translated versions of Multidimensional Health Locus of Control Scales (MHLC), the SBI (Religious Beliefs/Practices), the Community Attitudes Towards the Mentally Ill scale, the ADHD Stigma questionnaire (ASQ) (attitudes towards ADHD), Choi's Analysis-Holism Scale, the ADHD Beliefs Scale-revised (perceptions of ADHD). As the foregoing six scales were translated into the Thai language for use with Thai populations, it was necessary to

investigate their psychometric properties in order to ensure both their cross-cultural reliability and construct validity prior to their use in the path model. This involved the following steps:

Step 1: *Exploratory Factor Analysis*

Exploratory factor analysis was conducted to identify the factor structure of the aforementioned Thai-translated scales.

Scale 1: Multidimensional Health Locus of Control Scales (MHLC) comprises 18 items that tap tothree dimensions of internal locus of control, external control by powerful others and external locus control by chance. But as the three factors are not unidirectional may not be representing the construct of locus of control by stating higher the value as higher locus of control, the researcher decided to use the construct internal locus of control instead of external control by powerful other or external locus of control by change, as the researcher’s primary interest was in internal locus of control. A higher score on internal locus of control represents a person who displays more internal locus of control, while a lower score on internal locus of control would represent someone who tends towards more external locus of control. Hence the items relating to the internality alone were used from the MHLC scales. They are 1, 6, 8, 4, 13, and 17.

Factor analysis, via principal component analysis with Varimax (orthogonal) rotation yielded one factor explaining a total of 40.89% of the scale’s variance. Table 3 presents the factor loadings of the six items representing internal locus of control. It can be seen that all factor loadings are positive and relatively high (.456 to .799).

Table 3

Exploratory Factor Analysis Output for Internality dimension of Multidimensional Health Locus of Control Scales (MHLC)

Items	Factor Loadings
-------	-----------------

(13)If I take care of myself, I can avoid illness.	.799
(6)I am in control of my health.	.798
(17)If I take the right actions, I can stay healthy.	.722
(8)When I get sick, I am to blame.	.643
(1)If I get sick, it is my own behavior which determine how soon I get well again.	.456
(4)Most things that affect my health happen to me by accident.	.724

Scale 2: The SBI (religious beliefs and practices) comprises 10 items written to tap the two dimensions of religious beliefs and practice. The researcher's aim was to tap into religiosity which comprised of religious beliefs and practices. The 10 items were subjected to principal component analysis with Varimax (orthogonal) rotation. The analysis yielded one factor explaining a total of 43.87 % of the scale's variance. The 10 items loaded perfectly into one factor of religiosity. Table 4 presents the factor loadings of the 10 items representing the SBI scale. It can be seen that all factor loadings are positive and relatively high (.474 to .772). All ten items were used.

Table 4

Exploratory Factor Analysis Output for Religiosity Scale (SBI)

Items	Factor Loadings
(4)I feel certain that God and/or karma in some form exists.	.772
(3)I believe God, Buddha, or my religion protects me from harm.	.766
(5)I pray for help during bad times.	.751
(10)I have experienced a sense of hope as a result of my religious or spiritual beliefs.	.707
(7)One's life and death follows a predetermined plan from God and/or is	

determined my karma from previously lives.	.664
(1)Religion is important to my day-to-day life.	.654
(9)I have experienced peace of mind through my prayers and meditation.	.649
(2)Prayer or meditation has helped me cope during times of serious illness.	.647
(8)During times of illness, my religious or spiritual beliefs have been strengthened.	.635
(6)I believe that God and/or karma will not give me a burden I cannot carry.	.474

Scale 3: The Community Attitudes towards the Mentally Ill Scale comprises of 40 items written to tap the four dimensions of authoritarianism, benevolence, social restrictiveness and community health ideology. The analysis yielded four factors explaining a total of 38.83 % of the scale's variance. Table 5 presents the factor loadings of the 40 items representing stigmatization. 40 items were subjected to principal component analysis with Varimax (orthogonal) rotation. It can be seen that all factor loadings are positive and relatively fine (.339 to .687). There are some items with cross loadings and low loading. The researcher decided to remove some items based on the item loading and the item total correlations in reliability analysis

Table 5

Exploratory Factor Analysis Output for the Community Attitudes Towards the Mentally Ill Scale

Items	Factor Loadings			
	Component 1	Component 2	Component 3	Component 4
(15)The mentally ill do not deserve our sympathy.	.687			
(33)The best way to handle the mentally ill is to keep them behind locked doors.	.674			

(7)Increased spending on mental health services is a waste of tax dollars.	.605	
(26)A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	.596	
(11)There are sufficient existing services for the mentally ill.*	.592	
(40)Most women who were once patients in a mental hospital can be trusted as babysitters.*	.545	.333
(3)The mentally ill are a burden to society.	.543	
(30)I would not want to live next door to someone who has been mentally ill.	.530	
(22)The mentally ill should be isolated from the rest of the community.	.519	.413
(19)It is best to avoid anyone who has a mental illness.	.474	.457
(5)The mentally ill have for too long been the subject of ridicule.*	.431	
(24)The mentally ill are far less of a danger than most people suppose.*	.429	.421

(25)There is something about the mentally ill that makes it easy to tell them from normal people. .391 .358

(37)One of the main causes of mental illness is a lack of self-discipline and will power. .379

(18)Residents have nothing to fear from people coming into their neighborhood to obtain mental health treatment services.* .678

(6)As far as possible mental health services should be provided through community-based facilities.* .661

(10)Residents should accept the location of mental health facilities in their neighborhood to serve the local community.* .606

(14)Locating mental health services in residential neighborhoods does not endanger local residents.* .588

(17)We have the responsibility to provide the best possible care for the mentally ill.* .581

(2)The best therapy for many mental health patients is to be part of a normal community.* .578

(32)Mental patients should be encouraged to assume the responsibilities of normal life.*	.497	.455
(9)We need to adopt a far more tolerant attitude toward the mentally ill in our society.*	.471	.385
(1)More tax money should be spent on the care and treatment of the mentally ill.*	.417	
(36)The mentally ill should not be denied their individual rights.*	.399	.359
(29)Mental patients need the same kind of control and discipline as a young child.	.361	
(20)It is frightening to think of the mentally ill living in residential neighborhoods.	.428	.595
(8)Having mental patients living within residential neighborhoods might be good therapy, but risks to residents are too great.		.531
(4)Locating mental health facilities in a residential area downgrades the neighborhood.		.480

(21)As soon as a person shows signs of mental disturbance, he should be hospitalized.	.477	
(12)Local residents have good reason to resist the location of mental health services in their neighborhood.	.464	.386
(38)The mentally should not be given any responsibility.	.452	
(31)The mentally ill should not be treated as outcasts of society.*	.430	
(13)Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	.402	
(34)Anyone with a history of mental problems should be excluded from taking public office.	.339	
(23)Mental illness is an illness like any other.*		.615
(28)No one has the right to exclude the mentally ill from their neighborhood.*		.604
(27)Less emphasis should be placed on protecting the public from the mentally ill.*	.435	.493

(35)Mental hospitals are an outdated means of treating the mentally ill.*		.440
(39)Virtually anyone can become mentally ill.*		.435
(16)Mental health facilities should be kept out of residential neighborhoods.	.386	.424

Note: Asterisks denotes reversed scored items*

Scale 4: Choi's Analysis-Holism Scale comprises of 24 items written to tap into two dimensions—holistic thinking and analytical thinking. The 24 items were subjected to principal component analysis with Varimax (orthogonal) rotation. The analysis yielded two factors, explaining a total of 42.29 % of the scale's variance. Table 6 presents the factor loadings of the 24 items representing the Choi's Analysis-Holism Scale. It can be seen that all factor loadings are positive and acceptable (.330 to .812). There are some items with cross loadings and low loading. The researcher decided to remove two items based on the item loading and the item total correlations in reliability analysis.

Table 6

Exploratory Factor Analysis Output for the Choi's Analysis-Holism Scale

Items	Factor Loadings	
	<u>Component 1</u>	<u>Component 2</u>
(23)It is desirable to be in harmony, rather than in discord, with others of different opinions than one's own.	.812	
(21)Even a small change in any element of the universe can lead to significant alterations in other elements.	.760	

- (14)Current situations can change at any time. .726
- (20)It is not possible to understand the parts .722
without considering the whole picture.
- (19)When disagreement exists among people,
they should search for ways to compromise and .720
embrace everyone's opinions.
- (12)We should consider the situation a person
is faced with, as well as his/her personality, in .696
order to understand one's behavior.
- (22)The whole, rather than its parts, should be
considered in order to understand a .655
phenomenon.
- (24)Everything in the universe is somehow .626
related to each other.
- (10)It is more important to find a point of .582
compromise than to debate who is right or .339
wrong, when one's opinions conflict with
other's opinions.
- (13)It is more desirable to take the middle .579
ground than go to extremes.
- (5)Everything in the world is intertwined in a .556
causal relationship.
- (8)Any phenomenon entails a numerous .444
number of consequences, although some of
them may not be known.
- (4)The whole is greater than the sum of its .678
parts.
- (16)If an event is moving toward a certain
direction, it will continue to move toward that .627
direction.*

(18)Every phenomenon in the world moves in predictable directions.*		.612
(3)Future events are predictable based on present situations.*		.610
(17)Any phenomenon has numerous numbers of causes, although some of the causes are not known.		.602
(2)It is more important to pay attention to the whole context rather than the details.		.563
(11)Nothing is unrelated.	.398	.517
(6)An individual who is currently honest will stay honest in the future.		.513
(9)A person who is currently living a successful life will continue to stay successful.	.330	.513
(2)It is more important to pay attention to the whole than its parts.	.337	.484
(7)Choosing a middle ground in an argument should be avoided.*		.457
(1)We should avoid going to extremes.		.352

Note: Asterisks denotes reversed scored items*

Scale 5: ADHD Beliefs Scale-revised (perceptions of ADHD) comprises of 27 items written to tap into two dimensions—beliefs and knowledge of ADHD. The 27 items were subjected to principal component analysis with Varimax (orthogonal) rotation. The analysis yielded two factors, explaining a total of 37.89 % of the scale's variance. Table 7 presents the factor loadings of the 27 items representing the ADHD Beliefs Scale-revised. It can be seen that all factor loadings are positive and acceptable (.369 to .738). There are some items

with cross loadings and low loading. The researcher decided to remove some items based on the item loading and the item-total correlations in reliability analysis.

Table 7

Exploratory Factor Analysis Output for the ADHD Beliefs Scale-revised

Items	Factor Loadings	
	<u>Component 1</u>	<u>Component 2</u>
(25)Social skills training can be helpful for children with ADHD.	.716	
(3)ADHD is related to neurological functioning in the brain.	.714	
(4)Special teaching techniques are helpful in managing ADHD.	.693	
(17)Improving the parenting skills of parents of children with ADHD would benefit their child.	.675	
(10)The amount of structure in the child's environment (e.g., routines) can affect ADHD symptoms.	.655	
(8)Training teachers in behaviour management is a useful treatment for ADHD.	.641	
(7)A combination of medication and behaviour management is best for treating ADHD.	.633	
(12)Symptoms of ADHD often are evident early in the child's life.	.619	
(26)Clear, consistent rules and consequences are helpful in treating children with ADHD.	.596	
(23)I would not hesitate to medicate a child with ADHD if a doctor recommended it.	.587	
(6)Behaviour management is an effective treatment for ADHD.	.580	
(9)It is likely that medications used to treat ADHD are effective because they alter the neurotransmitters in the child's brain.	.442	.373

(21)ADHD can be the result of the child not trying hard enough to control his/her behaviour.*	.429	.400
(27)ADHD is related to parents' use of poor discipline strategies.*	.428	.378
(1)Medication is a safe treatment for ADHD.		
(15)ADHD often is an allergic reaction or sensitivity to food preservatives.*		.738
(22)Limiting a child's sugar intake can be an effective treatment for ADHD.*		.698
(14)ADHD is caused by exposure to environmental substances such as lead.*		.676
(20)Family problems such as alcoholism or marital disorder often contribute to a child's ADHD.		.625
(18)Media reports make me uneasy about giving children medication for ADHD.		.606
(16)Some children develop ADHD because they want attention.*		.588
(11)Medication is almost always an effective treatment for ADHD.		.531
(13)ADHD results from parents being inconsistent with rules and consequences.*		.504
(5)ADHD is likely to be inherited.		.466
(2)Special diets are often helpful for treating ADHD.		.455
(24)I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.*		.418
(19)Vitamin therapy is useful in treating ADHD.*	.369	.408

Note: Asterisks denotes reversed scored items*

Scale 6: ADHD Stigma Questionnaire (ASQ) (attitudes towards ADHD) comprises of 25 items written to tap into one dimension—stigma towards ADHD. The 25 items were subjected to principal component analysis with Varimax (orthogonal) rotation. The analysis yielded one factor, explaining a total of 41.44 % of the scale's variance. Table 8

presents the factor loadings of the 25 items representing the ADHD Beliefs Scale-revised. It can be seen that all factor loadings are positive and relatively high (.460 to .729). The researcher decided to remove some items based the item-total correlations in reliability analysis.

Table 8

Exploratory Factor Analysis Output for the ADHD Stigma Questionnaire

Items	Factor Loadings Component 1
(9)After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	.729
(11)A person with ADHD feels that he or she is bad because of it.	.727
(18)People with ADHD regret having told some people that they have ADHD.	.721
(10)Most people think that people with ADHD are damaged.	.714
(1)People with ADHD feel guilty about it.	.712
(14)Some people who learn of another person having ADHD grow distant from the person with ADHD.	.701
(13)People with ADHD are very careful about who they tell.	.691
(4)People with ADHD lose their jobs when their employers find out.	.691
(12)Most people with ADHD are rejected when others find out.	.688
(1)People seem afraid of a person with ADHD once they learn they have ADHD.	.681

(21)Some people act as though it's the person's fault that they have ADHD.	.677
(17)People with ADHD worry that others may judge them when they learn that they have a mental illness.	.661
(15)After learning they have ADHD, people worry about others discriminating against them.	.639
(22)People with ADHD have lost friends by telling them they have ADHD.	.639
(8)People with ADHD feel damaged because of it.	.638
(20)People don't want someone with ADHD around their children.	.635
(19)As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	.625
(6)Some people with ADHD feel they aren't as good a person as others because they have ADHD.	.618
(16)Most people are uncomfortable around someone with ADHD.	.617
(3)Someone who has ADHD would think it's risky to tell others about it.	.598
(7)People with ADHD are treated like outcasts.	.577
(23)People with ADHD have told others close to them to keep the fact that they have ADHD a secret.	.568
(5)People with ADHD work hard to keep it a secret.	.513

(2)People’s attitudes about ADHD may make people with ADHD feel worse about themselves.	.466
(24)The good points of people with ADHD tend to be ignored.	.460

Step 2: Reliability Analysis

In order to investigate the internal consistency of the Thai-translated versions of the aforementioned four scales, reliability analysis was conducted. Two criteria were used to eliminate items from these factors. First, an item was eliminated if the inclusion of that item resulted in a substantial lowering of Cronbach’s alpha (Walsh & Betz, 1985). Second, an item was considered to have an acceptable level of internal consistency if its corrected item-total (I-T) correlation was equal to or greater than 0.33 (Hair, Anderson, Tatham, Black, 1997). Table 8 to Table 13 present the items for all scales, together with their I-T coefficients and Cronbach’s alphas.

Table 9
Reliability Statistics MHLC Scale(Locus of Control)

Cronbach's Alpha	N of Items
.814	18

Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
If I get sick, it is my own behavior which determine how soon I get well again.	.318	.809

No matter what I do, if I am going to get sick, I will get sick.	.340	.809
Having regular contact with my physician is the best way for me to avoid illness	.476	.800
Most things that affect my health happen to me by accident.	.379	.806
Whenever I don't feel well, I should consult a medically trained professional.	.475	.800
I am in control of my health.	.487	.799
My family has a lot to do with my becoming sick or staying healthy.	.413	.804
When I get sick, I am to blame.	.468	.801
Luck plays a big part in determining how soon I will recover from an illness.	.285	.811
Health professionals control my health.	.375	.806
My good health is largely a matter of good fortune.	.370	.807
The main thing which affects my health is what I myself do.	.436	.803
If I take care of myself, I can avoid illness.	.422	.803

Whenever I recover from an illness, it's usually because other people have been taking good care of me.	.467	.801
No matter what I do, I 'm likely to get sick.	.131	.819
If it's meant to be, I will stay healthy.	.433	.803
If I take the right actions, I can stay healthy.	.450	.802
Regarding my health, I can only do what my doctor tells me to do.	.408	.804

Table 10

Reliability Statistics SBI Scale (Religiosity)

Cronbach's Alpha	N of Items		
.864	10		
	Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
	Religion is important to my day-to-day life.	.552	.853
	Prayer or meditation has helped me cope during times of serious illness.	.545	.854
	I believe God, Buddha, or my religion protects me from harm	.681	.842
	I feel certain that God and/or karma in some form exists.	.685	.842
	I pray for help during bad times.	.668	.844
	I believe that God and/or karma will not give me a burden I cannot carry.	.385	.868

One's life and death follows a predetermined plan from God and/or is determined my karma from previously lives.	.567	.852
During times of illness, my religious or spiritual beliefs have been strengthened.	.546	.853
I have experienced peace of mind through my prayers and meditation.	.537	.854
I have experienced a sense of hope as a result of my religious or spiritual beliefs.	.618	.848

Table 11

Reliability Statistics Community Attitude Towards the Mentally Ill Scale (Stigmatization)

Cronbach's Alpha	N of Items		
.887	40		
Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	
*More tax money should be spent on the care and treatment of the mentally ill.	.434	.883	
*The best therapy for many mental health patients is to be part of a normal community.	.325	.885	
The mentally ill are a burden to society	.432	.883	
Locating mental health facilities in a residential area downgrades the neighbourhood.	.374	.884	
The mentally ill have for too long been the subject of ridicule.	.426	.883	
As far as possible mental health services should be provided through community-based facilities.	.244	.886	
Increased spending on mental health services is a waste of tax dollars.	.419	.883	
Having mental patients living within residential neighbourhoods might be good therapy, but risks to residents are too great.	.398	.884	

*We need to adopt a far more tolerant attitude toward the mentally ill in our society.	.353	.885
*Residents should accept the location of mental health facilities in their neighbourhood to serve the local community	.263	.886
*There are sufficient existing services for the mentally ill.	.399	.884
Local residents have good reason to resist the location of mental health services in their neighbourhood.	.447	.883
*Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	.302	.885
*Locating mental health services in residential neighbourhoods does not endanger local residents.	.313	.885
The mentally ill do not deserve our sympathy.	.334	.885
Mental health facilities should be kept out of residential neighbourhoods.	.414	.884
We have the responsibility to provide the best possible care for the mentally ill.	.253	.886
*Residents have nothing to fear from people coming into their neighbourhood to obtain mental health treatment services.	.323	.885
It is best to avoid anyone who has a mental illness.	.463	.883
It is frightening to think of the mentally ill living in residential neighbourhoods.	.502	.882
As soon as a person shows signs of mental disturbance, he should be hospitalized.	.486	.882
The mentally ill should be isolated from the rest of the community.	.475	.883
Mental illness is an illness like any other.	.300	.885
*The mentally ill are far less of a danger than most people suppose.	.415	.884
There is something about the mentally ill that makes it easy to tell them from normal people.	.508	.882

A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	.445	.883
Less emphasis should be placed on protecting the public from the mentally ill.	.543	.881
*No one has the right to exclude the mentally ill from their neighbourhood.	.295	.886
Mental patients need the same kind of control and discipline as a young child.	.466	.883
I would not want to live next door to someone who has been mentally ill.	.528	.882
The mentally ill should not be treated as outcasts of society.	.368	.884
*Mental patients should be encouraged to assume the responsibilities of normal life.	.285	.886
The best way to handle the mentally ill is to keep them behind locked doors.	.424	.883
Anyone with a history of mental problems should be excluded from taking public office.	.351	.885
*Mental hospitals are an outdated means of treating the mentally ill.	.407	.884
*The mentally ill should not be denied their individual rights.	.214	.887
One of the main causes of mental illness is a lack of self-discipline and will power.	.370	.884
The mentally should not be given any responsibility.	.334	.885
Virtually anyone can become mentally ill.	.208	.887
*Most women who were once patients in a mental hospital can be trusted as babysitters.	.419	.883

Notes: * Asterisks denote reversed scored items.

Table 12

Reliability Statistics Choi's Analysis-Holism Scale

Cronbach's Alpha N of Items			
.909 24			
Items		Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
We should avoid going to extremes.		.391	.908
It is more important to pay attention to the whole context rather than the details.		.365	.909
*Future events are predictable based on present situations.		.455	.907
The whole is greater than the sum of its parts.		.517	.906
Everything in the world is intertwined in a causal relationship.		.519	.905
*An individual who is currently honest will stay honest in the future.		.456	.907
*Choosing a middle ground in an argument should be avoided.		.440	.907
Any phenomenon entails a numerous number of consequences, although some of them may not be known.		.402	.908
*A person who is currently living a successful life will continue to stay successful.		.533	.905
It is more important to find a point of compromise than to debate who is right or wrong, when one's opinions conflict with other's opinions.		.612	.903
Nothing is unrelated.		.580	.904
We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior.		.681	.902
It is more desirable to take the middle ground than go to extremes.		.595	.904
Current situations can change at any time.		.644	.903

It is more important to pay attention to the whole than its parts.	.520	.905
*If an event is moving toward a certain direction, it will continue to move toward that direction.	.321	.909
Any phenomenon has numerous numbers of causes, although some of the causes are not known.	.501	.906
*Every phenomenon in the world moves in predictable directions.	.385	.908
When disagreement exists among people, they should search for ways to compromise and embrace everyone's opinions.	.541	.905
It is not possible to understand the parts without considering the whole picture.	.600	.904
Even a small change in any element of the universe can lead to significant alterations in other elements.	.594	.904
The whole, rather than its parts, should be considered in order to understand a phenomenon.	.579	.904
It is desirable to be in harmony, rather than in discord, with others of different opinions than one's own.	.626	.903
Everything in the universe is somehow related to each other.	.539	.905

Notes: * Asterisks denote reversed scored items.

Table 13

Reliability Statistics ADHD Beliefs Scale-revised (perceptions of ADHD)

Cronbach's Alpha	N of Items		
.888	27		
Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	
Medication is a safe treatment for ADHD.	.270	.889	
*Special diets are often helpful for treating ADHD.	.474	.884	
ADHD is related to neurological functioning in the brain.	.481	.884	

Special teaching techniques are helpful in managing ADHD.	.496	.884
ADHD is likely to be inherited.	.302	.888
Behaviour management is an effective treatment for ADHD.	.552	.882
A combination of medication and behaviour management is best for treating ADHD.	.524	.883
Training teachers in behaviour management is a useful treatment for ADHD.	.468	.884
It is likely that medications used to treat ADHD are effective because they alter the neurotransmitters in the child's brain.	.522	.883
The amount of structure in the child's environment (e.g., routines) can affect ADHD symptoms.	.557	.882
Medication is almost always an effective treatment for ADHD.	.405	.886
Symptoms of ADHD often are evident early in the child's life.	.394	.886
*ADHD results from parents being inconsistent with rules and consequences.	.352	.887
*ADHD is caused by exposure to environmental substances such as lead.	.360	.887
*ADHD often is an allergic reaction or sensitivity to food preservatives.	.453	.885
*Some children develop ADHD because they want attention.	.474	.884
Improving the parenting skills of parents of children with ADHD would benefit their child.	.546	.882
*Media reports make me uneasy about giving children medication for ADHD.	.448	.885
*Vitamin therapy is useful in treating ADHD.	.487	.884
*Family problems such as alcoholism or marital disorder often contribute to a child's ADHD.	.514	.883
*ADHD can be the result of the child not trying hard enough to control his/her behaviour.	.525	.883

*Limiting a child's sugar intake can be an effective treatment for ADHD.	.433	.885
I would not hesitate to medicate a child with ADHD if a doctor recommended it.	.474	.884
*I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.	.237	.890
Social skills training can be helpful for children with ADHD.	.415	.885
Clear, consistent rules and consequences are helpful in treating children with ADHD.	.536	.883
*ADHD is related to parents' use of poor discipline strategies.	.514	.883

Notes: * Asterisks denote reversed scored items.

Table 14

Reliability Statistics ADHD Stigma Questionnaire (attitude towards ADHD)

Cronbach's Alpha	N of Items		
.940	25		
	Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
	People's attitudes about ADHD may make people with ADHD feel worse about themselves.	.431	.940
	Someone who has ADHD would think it's risky to tell others about it	.555	.938
	People with ADHD work hard to keep it a secret.	.474	.939
	Most people think that people with ADHD are damaged.	.676	.937
	Most people with ADHD are rejected when others find out.	.645	.937
	After learning they have ADHD, people worry about others discriminating against them.	.595	.938
	People with ADHD worry that others may judge them when they learn that they have a mental illness.	.621	.937

People with ADHD regret having told some people that they have ADHD.	.685	.936
Some people act as though it's the person's fault that they have ADHD.	.633	.937
People seem afraid of a person with ADHD once they learn they have ADHD.	.638	.937
People with ADHD fell guilty about it.	.669	.937
People with ADHD lose their jobs when their employers find out.	.648	.937
Some people with ADHD feel they aren't as good a person as others because they have ADHD.	.584	.938
People with ADHD are treated like outcasts.	.538	.938
People with ADHD feel damaged because of it.	.602	.937
After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	.687	.936
A person with ADHD feels that he or she is bad because of it.	.684	.936
People with ADHD are very careful about who they tell.	.650	.937
Some people who learn of another person having ADHD grow distant from the person with ADHD.	.664	.937
Most people are uncomfortable around someone with ADHD.	.583	.938
As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	.589	.938
People don't want someone with ADHD around their children.	.601	.937
People with ADHD have lost friends by telling them they have ADHD.	.607	.937
The good points of people with ADHD tend to be ignored.	.430	.940
People with ADHD have told others close to them to keep the fact that they have ADHD a secret.	.535	.938

Selection of Measurement Items

Selection of measurement items to represent the latent constructs of internal locus of control, religiosity, stigmatization towards mental illness, holistic thinking, attitudes and perceptions of ADHD was conducted. While it can be argued that a greater number of indicators per latent construct will represent that latent construct to a higher degree than fewer indicators, in practice, however, too many indicators make it difficult, if not impossible, to fit a model to data (Bentler, 1980). Hence, it was decided to limit the number of items (with the highest corrected item-total correlations) to represent each latent construct.

First, the researcher looked at the floor and ceiling effect, if the item is positively or negatively or skewed. If 80% of the responses are skewed positively or negatively, then the item is deleted. If an item had cross loaded in more than one factor, the researcher considered the item. If the item-total correlation was less than 0.33, and by removing the item, it considerably increased the reliability, then the item was deleted.

Thus, for the seven-factor measurement model, the internal locus of control is represented by four items (two parcels), holistic thinking by 22 items (four parcels), stigmatization by 16 items (four parcels), attitudes towards ADHD by 10 items (3 parcels), perceptions of ADHD by 10 items (3 parcels), and religiosity by all 10 items (3 parcels), exposure to ADHD by 3 items (3 parcels).

Item parcels

Regarding the formation on parcels, this technique involved summing responses to individual items and then using scores on these summed parcels in the latent variable analysis. For example, on the basis of reliability analysis and the exploratory factor analysis the six item Internality scale of Locus of control scale measuring the factor 'Locus of

control,' the items were divided into two parcels and two items were removed. The same process was done for all the scales.

Adapting the procedure described by Russell, Kahn, Spoth, and Altmaier (1998), the development of these item parcels involved the following steps:

- A reliability analysis on scale was conducted.
- The items were rank-ordered on the basis of their corrected item-total (I-T) correlation coefficients.
- Individual items were evaluated by the researcher and the judgment of the researcher was used in retaining the items or deleting them.
- Items were assigned to parcels in a way that equated the average I-T coefficient of each parcel of items with the factor.

Locus of Control: Two Parcels

Parcel 1

- Item 6: I am in control of my health.
- Item 13: If I take care of myself, I can avoid illness.

Parcel 2

- Item 7: My family has a lot to do with my becoming sick or staying healthy.
- Item 17: If I take the right actions, I can stay healthy.

Religiosity: Three Parcels

Parcel 1

- Item 4: I feel certain that God or Karma exist in some form.
- Item 7: One's life and death follows a plan from God or Karma.
- Item 9: I have experienced peace of mind through my prayers and

meditation.

Parcel 2

- Item 1: Religion is important to my day-to-day life.
- Item 3: I believe God or Buddha protects me from harm.
- Item 5: I pray for help during bad times.
- Item 10: I have experienced a sense of hope as a result of my religious or spiritual beliefs.

Parcel 3

- Item 2: Prayer or meditation has helped me cope during times of serious illness.
- Item 6: I believe God or Buddha will not give me a burden I cannot carry.
- Item 8: During times of illness, my religious or spiritual beliefs have been strengthened.

Stigmatization: Four Parcels

Stigmatization scale comprises of 40 items that taps into 4 dimensions of authoritarianism, benevolence, social restrictiveness and community health ideology. After EFA, 40 items have loaded into 4 dimensions. Individual items were carefully evaluated based on factor loadings, cross loading and item-total correlations. Some items that were not corresponding to the dimensions were removed. Only 16 items were selected and from those 16 they were randomly chosen for 4 parcels.

Parcel 1

- Item 29: Mental patients need the same kind of control and discipline as a young child.

- Item 33: The best way to handle the mentally ill is to keep them behind locked doors.
- Item 35: Mental hospitals are an outdated means of treating the mentally ill.
- Item 37: One of the main causes of mental illness is a lack of self-discipline and will power.

Parcel 2

- Item 3: The mentally ill are a burden to society.
- Item 7: Increased spending on mental health services is a waste of tax dollars.
- Item 15: The mentally ill do not deserve our sympathy.
- Item 19: It is best to avoid anyone who has a mental illness.

Parcel 3

- Item 22: The mentally ill should be isolated from the rest of the community.
- Item 26: A woman would be foolish to marry a man who has suffered from mental illness even though he seems fully recovered.
- Item 30: I would not want to live next door to someone who has been mentally ill.
- Item 40: Most women who were once patients in a mental hospital can be trusted as babysitters.

Parcel 4

- Item 2: The best therapy for many mental health patients is to be part of a normal community.
- Item 4: Locating mental health facilities in a residential area downgrades the neighborhood.
- Item 16: Mental health facilities should be kept out of residential

neighborhoods.

- Item 20: It is frightening to think of the mentally ill living in residential neighborhoods.

Holistic Thinking: Four Parcels

Parcel 1

- Item 5: Everything in the world is intertwined in a causal relationship.
- Item 8: Any phenomenon entails a numerous number of consequences, although some of them may not be known.
- Item 11: Nothing is unrelated.
- Item 17: Any phenomenon has numerous numbers of causes, although some of the causes are not known.
- Item 21: Even a small change in any element of the universe can lead to significant alterations in other elements.
- Item 24: Everything in the universe is somehow related to each other.

Parcel 2

- Item 1: We should avoid going to extremes.
- Item 10: It is important to find a point of compromise than to debate who is right or wrong when one's opinions conflict with other's opinions.
- Item 13: It is more desirable to take the middle ground than go to extremes.
- Item 19: When disagreement exists among people, they should search for ways to compromise and embrace everyone's opinions.
- Item 23: It is desirable to be in harmony, rather than in discord, with others of different opinions than one's own.

Parcel 3

- Item 3: Future events are predictable based on present situations.
- Item 6: An individual who is currently honest will stay honest in the future.
- Item 9: A person who is currently living a successful life will continue to stay successful.
- Item 14: Current situations can change at any time.
- Item 16: If an event is moving towards a certain direction, it will continue to move towards that direction.
- Item 18: Every phenomenon in the world moves in predictable directions.

Parcel 4

- Item 4: The whole is greater than the sum of its parts.
- Item 12: We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior.
- Item 15: It is more important to pay attention to the whole than its parts.
- Item 20: It is not possible to understand the parts without considering the whole picture.
- Item 22: The whole, rather than its parts, should be considered in order to understand a phenomenon.

Attitudes towards ADHD: Three Parcels

Parcel 1

- Item 10: Most people think that a person with ADHD is damaged.
- Item 11: A person with ADHD feels that they are bad because of it.
- Item 16: Most people are uncomfortable around someone with ADHD.

Parcel 2

- Item 5: People with ADHD work hard to keep it a secret.
- Item 17: People with ADHD worry that others may judge them when they learn that they have ADHD.
- Item 19: As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.

Parcel 3

- Item 4: People with ADHD lose their jobs when their employers find out.
- Item 8: People with ADHD feel damaged because of it.
- Item 12: Most people with ADHD are rejected when others find out.
- Item 18: People with ADHD regret having told some people that they have ADHD.

Perceptions of ADHD: Three Parcels

Parcel 1

- Item 7: A combination of medication and behavior management is best for treating ADHD.
- Item 23: I would not hesitate to medicate a child with ADHD if a doctor recommended it.
- Item 24: I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.

Parcel 2

- Item 4: Special teaching techniques are helpful in managing ADHD.
- Item 6: Behavior management is an effective treatment for ADHD.
- Item 14: ADHD is caused by exposure to environmental substances such as lead.

- Item 21: ADHD can be the result of the child not trying hard enough to control his or her behavior.

Parcel 3

- Item 3: ADHD is related to neurological functioning in the brain.
- Item 19: Vitamin therapy is useful in treating ADHD.
- Item 22: Limiting a child's sugar intake can be an effective treatment for ADHD.

Summary

Study 2 employed EFA and reliability analysis to evaluate the psychometric properties of the questionnaires used in study 3. Study 2 found that the psychometric properties of the questionnaires were sound for use in Thai context. Further, study 2 revealed that the measurement model for the samples are equal, so only the structural model will be discussed.

Study 3

Overview of the Study

Study 3 consisted of confirmatory factor analysis (CFA) and SEM. As stated in Chapter III, the objective of study 3 was to examine how aspects of Thai culture influence attitudes and perceptions of ADHD. The aspects of Thai culture to be explored are as follows: religiosity, stigmatization (tendency to stigmatize mental disorders), locus of control, and holistic thinking. These aspects of Thai culture are chosen as research has identified that these aspects differ significantly from Western culture. In addition, Study 3 will also examine how previous exposure to ADHD moderate perceptions and attitudes towards ADHD.

Data Collection Procedure

The sampling technique employed was convenience sampling. A total of 800 questionnaires were distributed which resulted in the return of 593 completed questionnaires. After verification of the completed questionnaires, 522 were deemed free of errors and retained for data analysis. Out of all of the accepted questionnaires, 86 were completed via surveymonkey.com, while the rest were completed via paper form. 200 questionnaires were utilized for EFA and reliability analysis (study 2). The remaining 323 questionnaires were utilized for CFA and SEM. All 323 participants for this stage of the study completed the questionnaires in paper form. As mentioned above, the researcher found collecting data in person in paper form was more time efficient than using surveymonkey.com, as the participants did not appear motivated to complete the questionnaires online.

Research Participants

The total sample of 323 participants participated in this stage of the study. 140 (43%) of participants were male and 182 (57%) were female. 149 (46%) of participants were between 18 and 28 years old; 89 (27.6%) were 29 to 39 years old; 48 (15.1%) were 40 to 50 years old; 35 (11%) were 51 to 75 years old. Regarding highest educational levels completed by participants, 145 (45%) completed high school; 126 (39%) completed a bachelor's degree; 45 (14%) completed less than high school; 5 (1.5%) completed a graduate degree (Master's Degree or PhD). Therefore, 277 (86%) of participants had at least a high school education. Participants were recruited primarily in Bangkok, Udon Thani, and Nong Khai. Bangkok is located in central Thailand, while Udon Thani and Nong Khai are in North-East Thailand.

Materials

The same questionnaire which was used for EFA was used for this part of the study. Participants responded to the questionnaire (in paper form) described earlier in Chapter III. The questionnaire comprised of items from the following six questionnaires: the Multidimensional Health Locus of Control Scale (locus of control) (internality dimension only), the SBI (religiosity), the Community Attitude Towards the Mentally Ill Scale (stigmatization), Choi's Analysis-Holism Scale (holistic thinking), ADHD Stigma Questionnaire (attitudes towards ADHD), and ADHD Beliefs Scale (perceptions of ADHD).

Hypothesis

This researcher hypothesized that there would be a link between the cultural factors described above and attitudes towards and perceptions of ADHD. Specifically, this researcher proposed that the relationships between the cultural factors and attitudes towards and perceptions of ADHD would be as follows:

H1 Religiosity has an influence on attitudes towards ADHD. The higher in religiosity Thai people are, the more negative are their attitudes.

H2 Religiosity has an influence on perceptions of ADHD. The higher in religiosity Thai people are, the more negative are their perceptions.

H3 Stigmatization has an influence on attitudes towards ADHD. The higher in stigmatization towards mental illness Thai people are, the more negative are their attitudes towards ADHD.

H4 Stigmatization has an influence on perceptions of ADHD. The higher in stigmatization towards mental illness Thai people are, the more negative are their perceptions of ADHD.

H5 Holistic thinking has an influence on attitudes towards ADHD. The higher in holistic thinking Thai people are, the more negative were their attitudes towards ADHD.

H6 Holistic thinking has an influence on perceptions of ADHD. The higher in holistic thinking Thai people are, the more negative are their perceptions of ADHD.

H7 Health locus of control has an influence on attitudes towards ADHD. The lower in internal locus of control, the more negative are attitudes towards ADHD.

H7 Health locus of control has an influence on perceptions of ADHD. The lower in internal locus of control, the more negative are perceptions of ADHD.

H8 Previous exposure to ADHD moderates the relationship of religiosity, stigmatization, holistic thinking and locus of control on attitudes and perception towards ADHD. Previous exposure to ADHD reduces negative attitudes and perceptions towards ADHD.

Results

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) ($n = 323$) was carried out to evaluate the identified factor structures of the Thai-translated scales of the Multidimensional Health Locus of Control Scale (locus of control) (internality dimension only), the SBI (religiosity), the Community Attitude Towards the Mentally Ill Scale (stigmatization), Choi's Analysis-Holism Scale (holistic thinking), ADHD Stigma Questionnaire (attitudes towards ADHD), and ADHD Beliefs Scale (perceptions of ADHD). CFA, unlike exploratory factor analysis, allows the researcher to explicitly posit an *a priori* model (e.g., on the basis of the factors

identified in the Western-based original scale) and to assess the fit of this model to the observed data.

As indicated by table 14 and figure 2, each of the latent constructs had highly significant relationships ($p<.001$) with each of their respective parcels—indicating that each instrument measures what it proposes to measure (high convergent validity). The standardized regression coefficients (factor loadings) ranged from .591 to .970. The percentage of unexplained variance ranged for the 19 indicator variables ranged from 22% (78% explained) (attitudes towards ADHD) to 59% (41% explained) (stigmatization).

Figure 2
Six-factor measurement model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD.

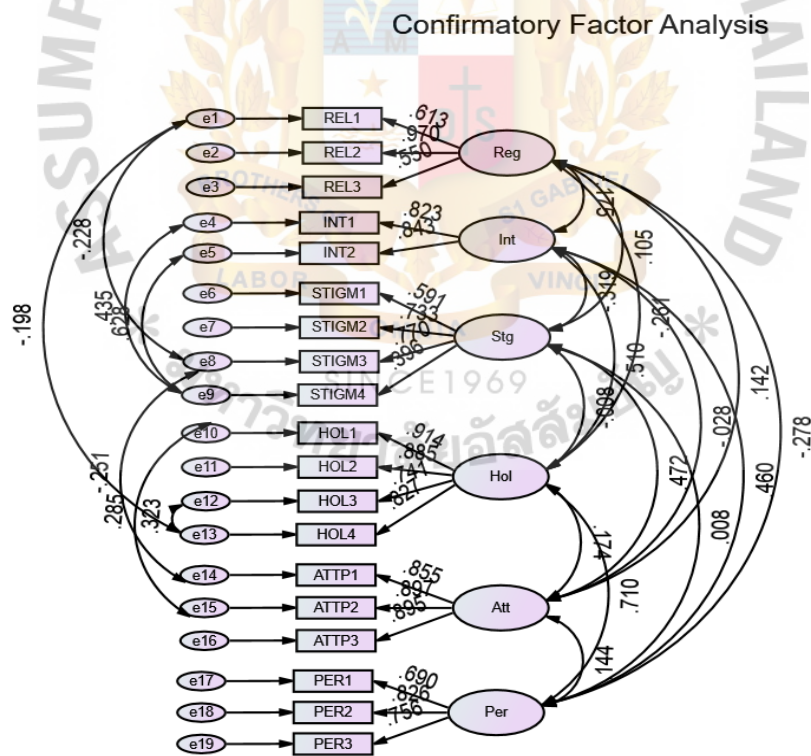


Table 15

CFA: Standard Regress Weights, p value, and critical ratio

Parameters	Standard Regress. Weights	<i>p</i>	Critical Ratio
REL1 <---Religiosity (REL)	0.613		
REL2 <---Religiosity (REL)	0.970	***	8.749
REL3 <--- Religiosity (REL)	0.550	***	8.839
INT1 <---Internal Locus (INT)	0.823		
INT2 <--- Internal Locus (INT)	0.843	***	11.132
HOL1 <---Holistic (HOL)	0.914		
HOL2 <---Holistic (HOL)	0.855	***	23.349
HOL3 <---Holistic (HOL)	0.741	***	16.570
HOL4 <---Holistic (HOL)	0.827	***	20.526
STIGM1 <---Stigmatization (STG)	0.591		
STIGM2 <---Stigmatization (STG)	0.733	***	9.214
STIGM3 <---Stigmatization (STG)	0.770	***	9.358
STIGM4 <---Stigmatization (STG)	0.396	***	5.864
ATTP1 <---Attitude ADHD (ATT)	0.855		
ATTP2 <---Attitude ADHD (ATT)	0.897	***	21.041
ATTP3 <---Attitude ADHD (ATT)	0.895	***	20.853
PER1 <---Perception ADHD (PER)	0.690		
PER2 <---Perception ADHD (PER)	0.826	***	12.072
PER3 <---Perception ADHD (PER)	0.756	***	11.489

Test of Convergent Validity

Convergent validity of each of the instruments can be determined by the CFA model by examining if each indicator variable's standardized loading/coefficient with its underlying latent construct is significant (greater than twice its standard error) (Anderson & Gerbing,

1988). A standardized coefficient is significant if its associated critical ratio is $\geq \pm 1.96$.

The critical ration test revealed that the standardized loadings for all 22 indicator variables are statistically significant, which indicates convergent validity for all the instruments.

Test of Discriminant Validity

Discriminant validity was assessed by how strongly each factor correlated with itself as compared to how well each factor correlated with other factors. This indicates that each instrument is able to distinguish the latent construct it measures from the other latent constructs. Table 15 shows that when correlation coefficients for a factor are ranked from highest to lowest it results the highest correlations coefficients lining up on the diagonal, which is representative of discriminate validity across all factors.

Table 16
Discriminant Validity (CFA, figure 3)

	REL	INT	HOL	STG	ATT	PER
REL	0.540	0.031	0.068	0.011	0.020	0.077
INT		0.694	0.260	0.102	0.001	0.212
HOL			0.713	0.000	0.030	0.504
STG				0.409	0.223	0.000
ATT					0.779	0.021
PER						0.577

SEM Results: Path analysis to investigate the relationship of religiosity, locus of control, stigmatization, and holistic thinking on perceptions and attitudes towards ADHD

The hypothesized model was tested to see how well it explained the relationships of religiosity, locus of control, stigmatization, and holistic thinking on participants’ perceptions

and attitudes towards ADHD. Multi group analysis was later done to see how these constructs were being moderated by prior exposure to ADHD.

Base Model: Structural model between the four independent variables of religiosity, locus of control, stigmatization, holistic thinking and the two dependent variables of attitudes towards ADHD and perceptions of ADHD

SEM was used to test the path model in Chapter III (Figure 1) ($n = 323$). According to the direct model, the four independent variables directly have an association with the two dependent variables. The cultural constructs denoted by the independent variables represent Thai cultural concepts that differ from Western culture. The fit of the path model posited to represent the structural relationships between the independent variables and the dependent variables was evaluated via SEM. This method analyzed the covariance matrix missed generated from the model's measurement variables.

The overall chi-square goodness-of-fit value was significant, $\chi^2(df = 2) = 259.917$, $p < .001$, and the incremental fit indices (IFI, TLI, CFI) are above .90. This indicates that model is a good fit when compared to a null or independence model in that the posited model represented over a 90% improvement in fit over the null or independence model; therefore, supporting the structure of the posited direct path model. The RMSEA value of 0.057 is also with the acceptable range; thus, indicating that the model fits the population covariance matrix well. In addition, the PNFI value was 0.690 which is used for comparing the goodness-of-fit for competing values. The base model with standardized regressions coefficients can be found in Figure 3.

Figure 3
Six-factor structural model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD.

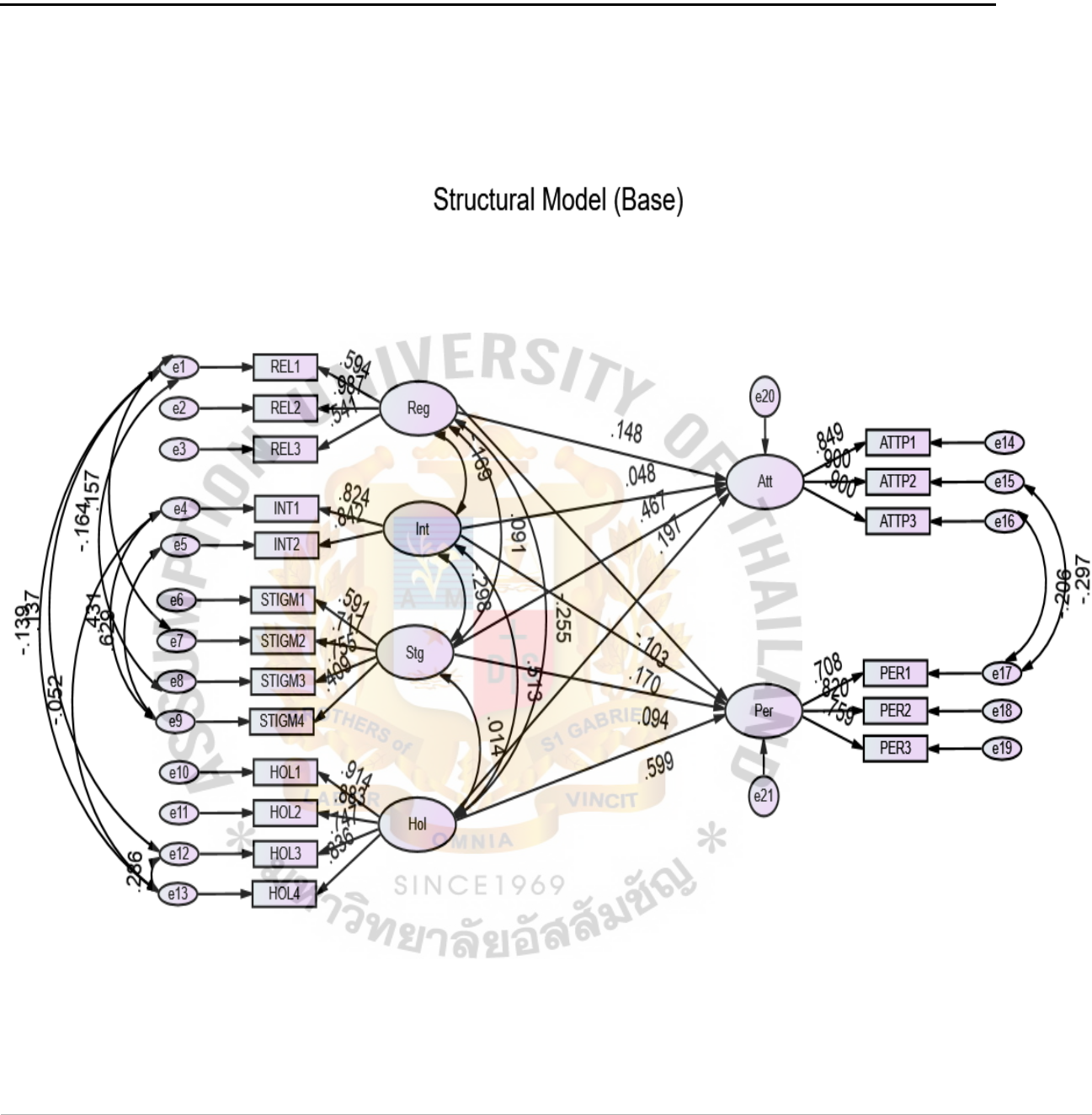


Table 17

Standardized regression weights, p value, and critical ratio of the structural model

Parameters	Standard. Regress. Weights	<i>p</i>	Critical Ratio
Attitude ADHD<---Religiosity	0.148	0.009	2.616
Attitude ADHD<---Internal Locus	0.048	0.522	0.640
Attitude ADHD<---Stigmatization	0.467	***	5.823
Attitude ADHD <---Holistic	0.197	0.006	2.769
Perception ADHD <---Internal Locus	0.170	0.014	2.470
Perception ADHD <---Stigmatization	0.094	0.127	1.527
Perception ADHD<---Holistic	0.599	***	8.162
Perception ADHD<---Religiosity	-0.103	0.044	-2.016

Table 18

Factor covariances for the structural model

Parameters	Standard Regress. Weights	<i>p</i>	Critical Ratio
Religiosity <--> Stigmatization	0.091	0.173	1.364
Religiosity <--> Internal Locus	-0.169	0.008	-2.641
Internal Locus <--> Holistic	0.513	***	6.988
Stigmatization <--> Holistic	0.014	0.835	0.208
Internal Locus <--> Stigmatization	-0.298	***	-3.792
Religiosity <--> Holistic	-0.255	***	-3.770

Structural Model (Base Model): Standardized Regression Coefficients

As can be seen in Table 16, religiosity, stigmatization, holistic thinking, and internal locus of control were significantly directly associated with the criterion variables of attitudes towards ADHD and perceptions of ADHD.

1. *Attitudes towards ADHD*: The higher the religiosity (Beta = 0.148), stigmatization (Beta = 0.467), and holistic thinking (Beta = 0.197), the more negative the attitudes towards ADHD. Internal locus of control was not significantly associated with attitudes towards ADHD.
2. *Perceptions of ADHD*: While high religiosity was associated with more accurate/favorable perceptions of ADHD (Beta = -0.103), internal locus of control (Beta = 0.170), and holistic thinking (Beta = 0.599) were associated with more inaccurate/unfavorable perceptions of ADHD. Stigmatization was not significantly associated with perceptions of ADHD.

Unlike the other cultural factors in which higher scores resulted in more negative perceptions towards ADHD, the inverse was true for religiosity. The researcher hypothesized that higher religiosity would result in more inaccurate/unfavorable perceptions towards ADHD. However, in this instance those higher in religiosity had more favorable perceptions towards ADHD. Nevertheless, higher religiosity was associated with negative attitudes towards ADHD, which was in line with what the researcher hypothesized.

The researcher believed that high religiosity would be associated with both negative perceptions and negative attitudes towards ADHD; however, the results were mixed. Perhaps, these results indicate that those high in religiosity may perceive ADHD accurately, while still having the tendency to stigmatize ADHD. Based on the operationalized definition of perceptions of ADHD and attitudes towards ADHD for the purposes of this study, it may be possible to have both accurate/favorable perceptions of ADHD, while still having negative

attitudes towards the ADHD.

Moderator Effect

In order to determine if previous exposure to ADHD had a moderating effect, the moderator effect of exposure to ADHD (not exposed vs. exposed) was tested by multi-group invariance method. Two models were tested. In model 1 (unconstrained) no parameters are constrained equal across these two groups. In model 2 (constrained), structural path coefficients were constrained as equal across two groups. To test the null hypothesis that models 1 and 2 do not differ, significance of the difference (Δ) in chi-square values were computed. If the p value is greater 0.05, then two models do not differ and we can conclude that groups do not differ (groups Invariant or equal, moderator effect absent). On the other hand, if p value is less than 0.05, then models differ and we can conclude that groups differ (moderator effect present). As can be seen in table 25, when this method is applied it is apparent that exposure to ADHD has a moderating effect.

Model 1: All parameters across groups 1 and 2 (previous exposure or no previous exposure to ADHD) (moderator variable) assumed unequal

The chi-square goodness-of-fit value was significant $\chi^2(df = 258) = 497.764, p < .001$ and the incremental fit indices (GFI, CFI, TLI) were near .90 or above (ranging from .87 - .92). The RMSEA value was within range at 0.054, while the PNFI was 0.650.

Model 2: All parameters across groups 1 and 2 (previous exposure or no previous exposure to ADHD) (moderator variable) assumed equal

The chi-square goodness-of-fit value was significant $\chi^2(df = 266) = 522.505, p < .001$ and the incremental fit indices (GFI, CFI, TLI) were near .90 or above (ranging from .87 - .92). The RMSEA value was within range at 0.055, while the PNFI was 0.665.

Table 19

Model Fit, exposure or no exposure to ADHD

	unequal	equal	Δ
Model χ^2	497.764	522.505	24.741
df =	258	266	8
p =	0.000	0.000	0.002
χ^2/df =	1.929	1.964	0.035
GFI =	0.871	0.866	-0.005
CFI =	0.927	0.921	-0.006
TLI =	0.903	0.899	-0.004
PNFI =	0.650	0.665	0.015
RMSEA	0.054	0.055	0.001
90%CI =	(0.047 - 0.061)	(0.048 - 0.062)	
pClose =	0.180	0.122	

Structural Path Coefficients (Moderator variable: No previous exposure to ADHD)

Structural equation modeling was employed to test the proposed path model (n = 171). According to the proposed direct model, religiosity, internal locus of control, stigmatization, and holistic thinking are directly associated with attitudes towards ADHD and perceptions of ADHD.

1. *Attitudes towards ADHD*: The higher the stigmatization (Beta = 0.520), and holistic thinking (Beta = 0.225), the more negative the attitudes towards ADHD.
Internal locus of control and religiosity was not found to be significantly associated attitudes towards ADHD.
2. *Perceptions of ADHD*: While high religiosity was associated with more accurate/favorable perceptions of ADHD (Beta = -0.161), higher stigmatization (Beta = 0.210), internal locus of control (Beta = 0.353), and holistic thinking

(Beta = 0.492) were associated with more inaccurate/negative perceptions of ADHD.

Unlike the other cultural factors in which higher scores resulted in more negative perceptions towards ADHD, the inverse was true for religiosity. The researcher hypothesized that higher religiosity would result in more inaccurate/unfavorable perceptions towards ADHD. However, in this instance those higher in religiosity had more favorable perceptions towards ADHD.

Figure 4

Six-factor structural model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD (no exposure to ADHD).

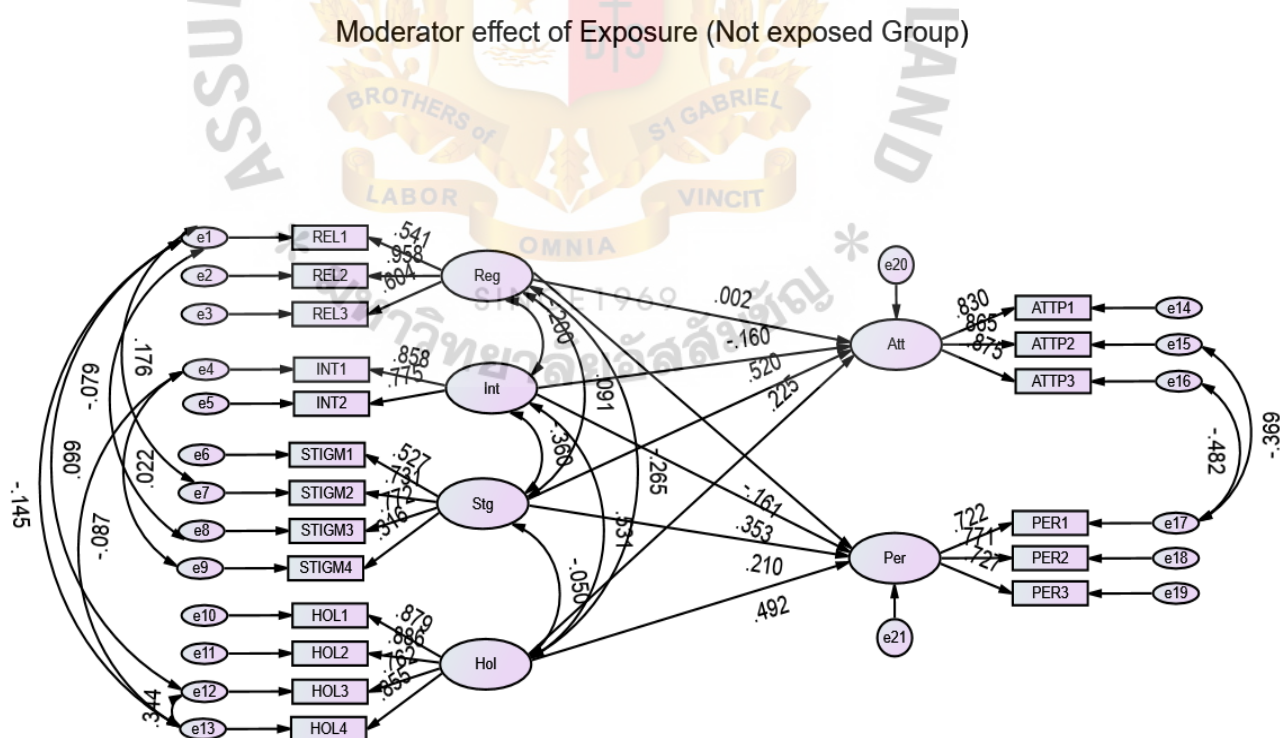


Table 20

Standardized regression coefficients of the structural model (no previous exposure to ADHD)

			Not Exposed Group				
Structural Paths			Unstd. Estimates	Std. Error	Critical Ratio	<i>p</i>	Std. Estimates
Attitude ADHD	<---	Religiosity	0.055	0.219	0.022	0.982	0.002
Attitude ADHD	<---	Internal Locus	-0.211	0.146	-1.441	0.150	-0.160
Attitude ADHD	<---	Stigmatization	0.842	0.193	4.360	***	0.520
Attitude ADHD	<---	Holistic Thinking	0.134	0.059	2.278	0.023	0.225
Perception ADHD	<---	Internal Locus	0.453	0.141	3.205	0.001	0.353
Perception ADHD	<---	Stigmatization	0.331	0.143	2.313	0.021	0.210
Perception ADHD	<---	Holistic Thinking	0.285	0.057	4.996	***	0.492
Perception ADHD	<---	Religiosity	-0.448	0.206	-2.169	0.030	-0.161

Structural Path Coefficients (Moderator variable: Previous exposure to ADHD)

Structural equation modeling was employed to test the proposed path model ($n = 152$). According to the proposed direct model, religiosity, internal locus of control, stigmatization, and holistic thinking are directly associated with attitudes towards ADHD and perceptions of ADHD. This model proposes that previous exposure to ADHD will have a moderating effect.

1. *Attitudes towards ADHD*: The higher the religiosity ($\text{Beta} = 0.260$) and stigmatization ($\text{Beta} = 0.344$), the more negative the attitudes towards ADHD. Internal locus of control and holistic thinking was not found to be significantly associated attitudes towards ADHD.
2. *Perceptions of ADHD*: The higher the holistic thinking ($\text{Beta} = 0.654$) the more inaccurate/negative perceptions of ADHD. Internal locus of control, religiosity, and stigmatization were not found to be significantly associated attitudes towards ADHD when there was previous exposure to ADHD.

Figure 5

Six-factor structural model representing the latent constructs of Religiosity, internality, stigmatization, holistic thinking, attitude towards ADHD, and perception of ADHD (exposure to ADHD).

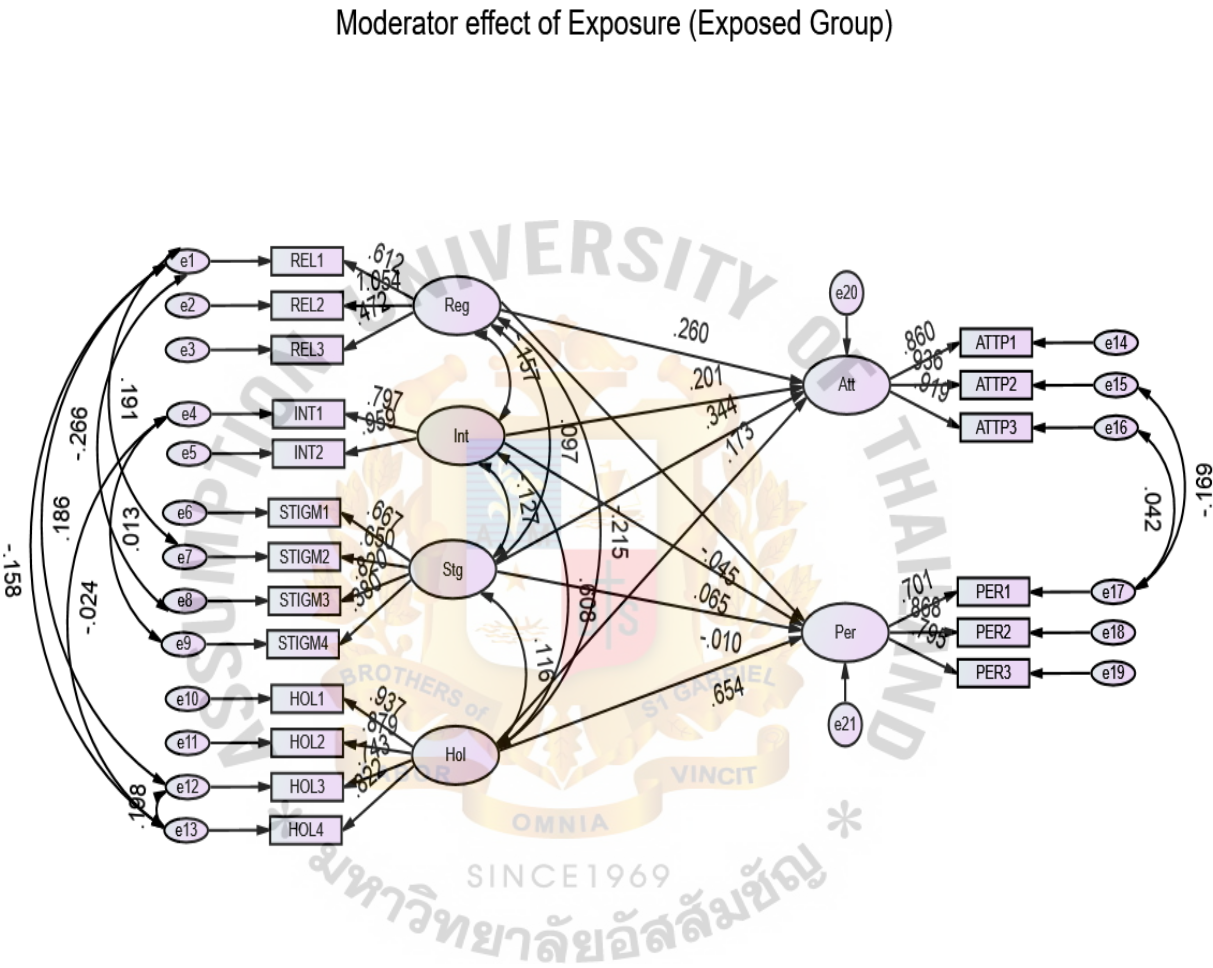


Table 21

Standardized regression coefficients of the structural model (previous exposure to ADHD)

			<u>Exposed Group</u>		Critical Ratio	<i>p</i>	Std. Estimates
Structural Paths			Unstd. Estimates	Std. Error			
Attitude ADHD	<---	Religiosity	0.622	0.183	3.396	***	0.260
Attitude ADHD	<---	Internal Locus	0.295	0.156	1.888	0.059	0.201
Attitude ADHD	<---	Stigmatization	0.477	0.134	3.565	***	0.344
Attitude ADHD	<---	Holistic Thinking	0.097	0.061	1.597	0.110	0.173
Perception ADHD	<---	Internal Locus	0.079	0.119	0.661	0.509	0.065
Perception ADHD	<---	Stigmatization	-0.012	0.094	-0.126	0.899	-0.010
Perception ADHD	<---	Holistic Thinking	0.303	0.054	5.656	***	0.654
Perception ADHD	<---	Religiosity	-0.088	0.133	-0.665	0.506	-0.045

Summary

Study 3 was designed to evaluate how aspects of Thai culture influences attitudes towards and perceptions of ADHD. The models that were posited were evaluated and compared as to their efficacy in explaining the influences of religiosity, stigmatization, internal locus of control, and holistic thinking on attitudes towards ADHD and perceptions of ADHD as moderated by pervious exposure to ADHD. In addition, two models were tested that revealed a moderating effect of the moderating variable—exposure to ADHD.

Study 3 clearly revealed relationships between cultural factors (that are prevalent in Thailand), such as holistic thinking and stigmatization of mental health disorders, and attitudes/perceptions of ADHD, which tended to result in more negativity or misunderstanding about ADHD. Perhaps less clearly, existed a link between religiosity and attitudes/perceptions of ADHD. In addition, prior exposure to ADHD appeared to have an ameliorating effect on this negativity—indicating prior experience with ADHD or more knowledge of ADHD resulted in less negativity between cultural factors and ADHD. This will be discussed further in Chapter V.

CHAPTER V

Discussion

The primary purposes of the present study were (1) to investigate the level of knowledge and awareness of ADHD amongst a sample of Thai parents living in Thailand and (2) to explore aspects of Thai culture that may influence perceptions of ADHD and attitudes towards ADHD—namely, religiosity, tendency to stigmatize mental health disorder, thinking style (analysis versus holistic), and locus of control (internal/external locus of control). The investigation comprised of three studies.

- Study 1 used a Thai translation (English to Thai) of the Knowledge of Attention Deficit Disorders Scale (KADDS) to assess the level of knowledge of ADHD amongst a sample of Thai citizens. Percentage of correct answers were determined.
- Study 2 established the psychometric properties of questionnaires to be used in a Thai context for study 3.
- Study 3 utilized six different established questionnaires to determine the relationships between religiosity, stigmatization, holistic thinking, internal locus of control and attitudes/perceptions of ADHD. Study 3 investigated the efficacy of models in evaluating and explaining the direct influences of religiosity, stigmatization, holistic thinking, and internal locus of control on attitudes towards ADHD and perceptions of ADHD. In addition, previous exposure was investigated as a moderating variable.

This chapter is divided into the following five sections: discussion of findings, limitations of the study, implications of the findings, avenues for future research, conclusion.

Discussion of Findings

Study 1

The primary purpose of study 1 was to determine the level of knowledge and awareness of ADHD amongst a sample of Thai-speaking Thai parents with school-aged children. There is limited research on the level of knowledge of ADHD in Thailand, although a previous study, which focused on public school teachers in Thailand, found that their knowledge of ADHD was insufficient in that only 19% of teachers scored 70% or higher correct on the KADDS (Muanprasart, 2014). Although one may expect teacher to have a higher knowledge of ADHD than the general public, other research has found that only one in five teachers feel that they are fairly well or very well informed about ADHD (Youssef, Hitchinson, & Yousseff, 2015). In addition, research has found that knowledge of ADHD is often low in people one would expect to have good knowledge of the disorder. For example, one study found that only 17% of medical students recognized all associated feature of ADHD (Qashqari, Alsaulami, Kama, & Mohammed, 2017). As this research points out, profession or educational level does not necessarily equate to higher level knowledge of ADHD. To this researcher's knowledge, there had been no prior research on the knowledge of ADHD amongst Thai parents or parents in Western countries. In light of prior research on knowledge of ADHD, the researcher determined that it was acceptable to compare knowledge of ADHD amongst Thai parents to knowledge of ADHD amongst Thai teachers in the Western population. Six hundred fourteen Thais were recruited mostly from Bangkok and North-Eastern Thailand. The demographics of the research participants were discussed in Chapter IV.

The research instrument used for this study, the KADDS, measures the following factors: misconceptions regarding the treatment of ADHD, misconceptions regarding

symptoms and diagnosis of ADHD, as well as knowledge of associated features (general information about the causes, overall nature of ADHD, and prognosis of the disorder) (Sciutto & Feldhamer, 2005). Therefore, study 1 identified the level of knowledge of ADHD amongst a sample of Thai parents in three different areas of knowledge of ADHD.

Knowledge of ADHD in Thailand was not lower when compared to previous research on knowledge of ADHD in Western countries. The differences in scores between the Thailand and Western countries was not significant. However, Thais had more knowledge when compared to samples from Vietnam and Saudi Arabia, as indicated by scores that were higher on the KADDS and statistically significant. 43.59% of the questions on the KADDS were answered correctly by the 614 Thai participants in the present research. 35.90% were answered incorrectly, while 20.51% of the questions were answered as “don’t know.”

Three factors are measured on the KADDS in regards to ADHD. These are as follows: Associated Feature of ADHD (15 items), Treatment for ADHD (12 items), and Symptoms/Diagnosis of ADHD (9 items). Three items on the KADDS have not yet been classified in any of the factors above.

Amongst the sample of Thais in the present study, 33.3% of questions concerning treatment were answered correctly, 40% were answered correctly on associated features of ADHD, and 77.78% were answered correctly on symptoms/diagnosis. The results of this study do not confirm research findings in other developing countries, in that knowledge of ADHD is usually lower in developing countries than in developed countries. This is also not in line with prior research that points out that people in Thailand have less accurate knowledge of mental disorders compared to Western countries (Kaewprom, Curtis, & Deane, 2011). Nevertheless, only approximately 44% of the KADDS was answered correctly which still indicates a need to knowledge of ADHD in Thailand.

It is important to increase the knowledge of ADHD in Thailand, in order to ensure that those affected by ADHD receive appropriate support and treatment for it. As discussed in Chapter II, untreated ADHD can lead to many negative consequences, such as school failure, substance abuse, criminality, unemployment, and familial conflict, which can be detrimental to individuals and families, as well as costly to society in general. At the very least, untreated ADHD leads to underachievement and unfulfilled potential.

Although rates of ADHD in Thailand are reportedly low, a lack of knowledge of ADHD most likely contributes to these low rates. In addition to low levels of knowledge of ADHD, cultural factors in Thailand may lead to low diagnostic rates and treatment-seeking behavior. For example, in cultures in which there are negative attitudes and perceptions of ADHD, there are reportedly lower diagnostic and less treatment-seeking behaviors, as well (Mueller, Fuermaier, Koerts, & Tucha, 2012). Further to this point, study 3 examined Thai cultural factors that may affect perceptions and attitudes towards ADHD (discussed under the study 3 subheading).

Study 2

The main purpose of the study 2 was to establish the psychometric properties of the questionnaires that will be used in study 3. Study 2 found that the psychometrics of the questionnaires were sound for use in a Thai context. Based on EFA and reliability analysis items and item parcels for each questionnaire were selected. The internal consistency of the instruments used in the current study are as follows: The Cronbach's Alpha of the SBI (religiosity) was .864 in the Thai sample; Community Attitudes towards the Mentally Ill Scale (stigmatization) Cronbach's Alpha was .887 in the Thai sample; Choi's Analysis-Holism Scale (holistic thinking) Cronbach's Alpha was .909 in the Thai sample; ADHD Beliefs Scale-revised Cronbach's Alpha was .888 in the Thai sample; ADHD Stigma Questionnaire Cronbach's Alpha was .940 in the Thai sample. The reliability statistics were

comparable when compared to previous research utilizing a Western sample (Choi, Koo, & Choi, 2007) (Gudmundsdottir, 2014) (Kellison, Bussing, Bell, & Garvan, 2008) (Ripamonti, 2010) (Taylor & Dear, 1981) (Wallston, 2005). As such, the researcher was able to utilize the questionnaires and proceed to study 3.

Study 3

The main purpose of study 3 was to investigate cultural factors that may influence perceptions and attitudes towards ADHD. Study 3 utilized CFA and SEM. CFA found that the item parcels established from EFA and reliability analysis (study 2) represented each of their respective constructs well. For study 3, four cultural factors were chosen—religiosity, stigmatization, health locus of control, and holistic thinking. These cultural factors were chosen, since previous research has identified these factors represent aspects of Thai culture that differ from Western culture. For example, Thais tend to be higher in religiosity, more stigmatizing of mental health disorders, operate from less of an internal health locus of control, and tend to engage in a holistic thinking style (Heine, 2012) (Nisbett & Miyamoto, 2005) (Taylor, 2008) (Wong-Anuchit, 2016). In addition, previous research has indicated a potential link to these cultural factors and negative opinions of ADHD and/or mental health disorders. For example, Li (2008) found a link between religiosity and negative opinions of ADHD, Wong-Anuchit, et al. (2016) reported on Thai cultural tendencies to stigmatize mental disorders, Kwan and Chiu (2014) found a connection between holistic thinking and the potential tendency to inaccurately attribute blame, and Beckman (1972) proposed that those with low internal locus of control may be more likely to stigmatize mental disorders.

In order to investigate the relationship between these cultural factors and perceptions/attitudes towards ADHD, path models were examined. These path models were evaluated and compared for their fit as to their efficacy in explaining the direct influences of religiosity, stigmatization, health locus of control, and holistic thinking on attitudes and

perceptions of ADHD. The effects of a moderator variable, previous exposure or no previous exposure to ADHD, were investigated, as well. Prior exposure to ADHD was considered an important moderator variable, since previous research has found that having awareness of ADHD through personal contact with a person with ADHD reduces the tendency to stigmatize the disorder (Fuermair et al., 2014).

Study 3: Model Moderated by Previous Exposure to ADHD

Analysis of the model moderated by previous exposure to ADHD revealed that two cultural factors, stigmatization and religiosity, had significant relationships towards attitudes towards ADHD. Health locus of control (internal health locus of control) and holistic thinking did not have significant relationships towards attitudes towards ADHD. Only the cultural factor of holistic thinking had a significant relationship towards perceptions of ADHD. Stigmatization, religiosity, and locus of control did not have significant relationships towards perceptions of ADHD.

Attitudes towards ADHD

Stigmatization

The tendency to stigmatize mental health disorders, was associated with negative attitudes towards ADHD when moderated by previous exposure to ADHD. Although there is limited research on stigmatization of mental disorders in Thailand, previous research shows that Thai culture may be more likely to stigmatize mental disorders. The current research indicates that Thais who tend to stigmatize mental disorders, would be more likely to hold negative attitudes towards ADHD when moderated by previous exposure to ADHD. The current research hypothesized that people who would hold negative views towards mental health disorders would also hold negative attitudes towards ADHD. Since research indicates that Thais may be more likely to stigmatize mental disorders, it is likely that negative attitudes towards ADHD would be widespread in Thailand. Furthermore, previous exposure

to ADHD (knowing another person with ADHD) did not reduce negative attitudes towards ADHD for those who tended to stigmatize mental health disorders.

Religiosity

The current study revealed that the relationship between religiosity and attitudes towards ADHD was significant when moderated by previous exposure to ADHD. Thais who scored higher on religiosity held more negative attitudes towards ADHD when moderated by previous exposure to ADHD. Thailand is highly religious society, as most Thais identify themselves as adhering to one of the world's main religions, such Buddhism, Islam, Christianity, or Hinduism. Therefore, religiosity is an important cultural factor in Thai culture. Previous research in the United States showed that those who identify as highly Christian tended to have negative attitudes towards ADHD (Li, 2013). Perhaps religiosity in general lends itself to negative opinions of ADHD or mental health disorder, in general. Although the vast majority of Thais are religious with the majority identifying as Buddhists (Taylor, 2008), results were similar to Li's (2008) study using Christians. The current research points out a relationship between religiosity and that negative attitudes towards ADHD in Thailand. Prior exposure to ADHD did not reduce negative attitudes towards ADHD for those who scored high on religiosity.

Holistic thinking and internal health locus of control did not have significant relationships towards negative attitudes towards ADHD when moderated by previous exposure to ADHD. Having previous exposure to ADHD appeared to moderate the relationship between holistic thinking and negative attitudes towards ADHD, resulting in less negative attitudes towards ADHD. As described below, when there was no previous exposure to ADHD, there existed a relationship between ADHD and holistic thinking. Perhaps having been exposed to ADHD (knowing someone who is diagnosed with ADHD) serves to reduce negative attitudes towards ADHD.

Regarding internal locus of control in the condition with previous exposure to ADHD, there also did not exist a significant relationship between attitudes towards ADHD and internal locus of control. As described below, in the condition with no previous exposure to ADHD, there did not exist a relationship between internal locus of control and attitudes towards ADHD, as well. Therefore, the moderating effect of previous exposure to ADHD may be less significant for internal locus of control, since there was not a relationship between internal locus of control and attitudes towards ADHD in both conditions.

The researcher did not hypothesize that there would be a significant relationship between internal locus of control and negative attitudes towards ADHD, but rather external locus of control and negative attitudes. This was hypothesized, because external locus of control is more likely to be found in Thai culture than internal locus of control.

Perceptions of ADHD

Holistic thinking

Only holistic thinking was significantly associated with perceptions of ADHD when moderated by previous exposure to ADHD. In the current study, Thais who scored higher on holistic thinking also scored higher on inaccurate/unfavorable perceptions of ADHD. Having previous exposure to ADHD did not appear to reduce negative perceptions of ADHD. Previous research has indicated that Thais tend to score higher on holistic thinking compared to analytical thinking, while Westerners tended to score higher on analytical thinking. Therefore, this cultural factor was included as an aspect of Thai culture which is more predominate in Thai culture than in Western culture. Since holistic thinking is widespread in Thailand, this may contribute to misperceptions of ADHD.

Religiosity, stigmatization, and internal health locus of control were not associated with inaccurate/unfavorable perceptions of ADHD when moderated by previous exposure to ADHD. Previous exposure to ADHD (knowing someone with ADHD) may reduce

misperceptions of ADHD. This is significant as this demonstrates the importance of knowledge or awareness of ADHD in reducing negative opinions towards ADHD. Having awareness of ADHD appears to “override” the influence of cultural factors in that it results in less unfavorable opinions.

Study 3: Model Moderated by No Previous Exposure ADHD

Analysis of the model moderated by no previous exposure to ADHD revealed that holistic thinking and stigmatization had significant relationships towards negative attitudes towards ADHD. Religiosity and locus of control did not have a significant relationship towards attitudes towards ADHD. All four cultural factors, religiosity, stigmatization, locus of control, and holistic thinking had significant relationships towards perceptions of ADHD. Unlike the other cultural factors, religiosity had a negative correlation with perceptions of ADHD.

Attitudes towards ADHD

Stigmatization

The tendency to stigmatize mental health disorders was significantly associated with negative attitudes towards ADHD when moderated by no previous exposure to ADHD. It would be expected that people who hold negative views towards mental health disorders would also have unfavorable attitudes towards ADHD. As described above, Thais may be more likely to stigmatize mental health disorders. Thais who stigmatize mental health disorders may be more likely to hold negative views towards ADHD.

Holistic Thinking

In the present study, holistic thinking was significantly associated with negative attitudes towards ADHD when moderated by no previous exposure towards ADHD. Participants who scored high on holistic thinking (versus analytical thinking) tended to have negative attitudes towards ADHD when moderated by no previous exposure to ADHD.

Internal locus of control did not have significant relationships towards attitudes towards ADHD when there was no previous exposure to ADHD. As described above, this is line with the researcher's hypothesis, as internal locus of control was not expected to have a significant relationship towards negative attitudes towards ADHD regardless of the moderating variable.

Religiosity did not have a significant relationship towards attitudes towards ADHD when there was no previous exposure to ADHD. This result was unexpected, as the researcher believed there would be a relationship between religiosity and negative attitudes towards ADHD, especially when there was no previous exposure to ADHD. The present research may support that religiosity in Thailand is not a significant cultural factor related to attitudes towards ADHD.

Perceptions of ADHD

Stigmatization

Stigmatization was significantly associated with inaccurate/unfavorable perceptions of ADHD when moderated by no previous exposure to ADHD. Participants who scored higher on their tendency to stigmatize mental disorders tended to have more inaccurate/unfavorable perceptions of ADHD.

Holistic thinking

Holistic thinking was significantly associated with inaccurate/unfavorable perceptions of ADHD when moderated by no previous exposure to ADHD. Participants who scored higher on holistic thinking over analytical thinking were more likely to have more inaccurate/unfavorable perceptions of ADHD.

Internal Locus of Control

Internal locus of control was significantly associated with inaccurate/unfavorable perceptions of ADHD when moderated by no previous exposure to ADHD. Participants who

scored higher on internal locus of control were more likely to have more inaccurate/unfavorable perceptions of ADHD.

Religiosity

Religiosity had a significant relationship towards perceptions of ADHD when moderated by no exposure to ADHD. However, the association between religiosity and perceptions of ADHD was negatively correlated. In other words, those who scored higher on religiosity had more accurate/favorable perceptions of ADHD.

Study 3: Comparison of Models

The presence of the moderator variable (exposure to ADHD or no exposure to ADHD) was significant. Overall, previous exposure to ADHD seemed to reduce unfavorably opinions of ADHD. Specifically, three out of four cultural factors investigated were associated with more inaccurate/unfavorable perception of ADHD when there was no previous exposure to ADHD.

Previous exposure to ADHD or no exposure to ADHD had the least effect on stigmatization and holistic thinking. Stigmatization was associated with negative attitudes of ADHD regardless of exposure or no exposure to ADHD. Stigmatization was also associated with inaccurate/unfavorable perceptions of ADHD when there was no previous exposure to ADHD. In addition, holistic thinking was associated with inaccurate/unfavorable perceptions of ADHD regardless of exposure or no exposure to ADHD. Holistic thinking was also associated with negative attitudes towards ADHD when there was no exposure to ADHD.

Religiosity appeared to be the most inconsistent cultural factor. It was associated with negative attitudes towards ADHD when there was previous exposure to ADHD, but was not associated with negative attitudes towards ADHD when there was no previous exposure to ADHD. In addition, religiosity correlated negatively with perceptions of ADHD in that high

scores on religiosity were associated with positive perceptions of ADHD when there was no previous exposure to ADHD.

Since high religiosity was associated with negative attitudes towards ADHD, it would be expected that it would also be associated with unfavorable perceptions; however, the inverse resulted with high religiosity being associated with favorable perceptions of ADHD (when there was no previous exposure to ADHD). Religiosity was not associated with perceptions of ADHD when there was previous exposure to ADHD. Perhaps, no firm conclusions may be drawn regarding religiosity due to the mixed results. On the other hand, it is possible that those high in religiosity may have less inaccurate/unfavorable opinions of ADHD, while still having the tendency the stigmatize the individuals with the disorder. In addition, a variable connected to religiosity for which was unaccounted could lead to these seemingly confounding results.

Internal health locus of control was, perhaps, the least relevant cultural factor investigated. It was only associated with inaccurate/unfavorable perceptions of ADHD (when there was no previous exposure to ADHD). Internal locus of control is not typically associated with Thai culture, as previous research has identified Thais to be more oriented towards external locus of control. Table 21 summarizes the cultural factors that were associated with negative attitudes and perceptions.

Table 22

Cultural factors significantly associated with negative attitudes and perceptions towards ADHD.

Previous Expo. to ADHD		No Previous Expo. to ADHD
Neg. Attitudes:	Stigmatization	Stigmatization
	Religiosity	Holistic

Neg. Perceptions:	Holistic	Stigmatization
		Holistic
		Internality

Overall, all cultural factors investigated in the current study were associated with negative attitudes towards ADHD or inaccurate/unfavorable perceptions of ADHD in at least one condition of the study (exposure to ADHD or no exposure to ADHD). This is significant, as research indicates that these cultural factors are more prevalent in Thai culture than in Western culture, which may contribute to less favorable opinions on ADHD. This would also contribute to lower diagnostic rates and less treatment-seeking behaviors.

In addition, previous exposure to ADHD appeared to reduce negativity towards ADHD, indicating that those with more knowledge of the disorder had less unfavorable opinions. This is in line with previous research in the Netherlands that previous exposure to ADHD reduced people’s tendency to stigmatize ADHD (Mueller, Fuermaier, Koerts, Tuch, 2012). High scores on stigmatization, religiosity, and holistic thinking were associated with unfavorable opinions of ADHD, despite previous exposure to the disorder. This suggests that these cultural factors may be associated with negative attitudes that are more deeply engrained; however, on the other hand, high religiosity was also associated with positive perceptions of ADHD when there was no previous exposure to ADHD, which makes it difficult to interpret the results for religiosity . As stated above, perhaps aspects of religiosity in Thailand serves to increase positive perceptions of ADHD. This could be investigated further in future research.

Health internal locus of control was only associated with ADHD in only one occurrence. Health internal locus of control may be less prevalent in Thailand, as previous research indicates that Thais may have more of an external locus of control (Heine, 2012).

Therefore, this would be consistent with the other results of the study and the researcher's hypothesis, as all other cultural factors that were investigated were more prevalent in Thai culture and associated with negative attitudes and unfavorable perceptions towards ADHD (the mixed results on religiosity, notwithstanding).

Limitations of the Study

The primary aim of this research was to investigate the level of knowledge of ADHD in Thailand, as well as how Thai cultural factors influence attitudes towards ADHD and perceptions of ADHD. Specifically, the current study investigated how religiosity, stigmatization, locus of control, and holistic thinking (moderated by either previous exposure to ADHD or no previous exposure to ADHD) influenced attitudes towards ADHD and perceptions of ADHD. Although the present study attempts to explain the relationship between the aforementioned variables, there are certain limitations which should be noted and taken into account for further research on related topics.

The study should be interpreted cautiously before generalizing the results. Firstly, all the questionnaires were translated from their original language (English) to Thai. Although it was determined that the translation was accurate, it is always possible that some subtleties of language are lost in translation. For example, the Thai term used for ADHD essentially means short attention. In English, the acronym ADHD may be viewed as more of a medical term and more likely to conjure up pathology in one's mind; however, in Thai short attention may also be used in a nonmedical way.

Secondly, for studies 1 and 2, the sample size was found to be sufficient, but still may not be large enough to generalize to the entire population. Regarding study 3, a larger sample size would be more desirable for future studies, especially regarding samples involved in examine the moderating effect variable, since the sample size of 323 participants was required to be divided into two groups. Furthermore, convenience sampling was employed,

with most of the sample coming from Bangkok or Northeastern Thailand. Regarding the sample of research participants for all studies, the sample size was mostly well educated (most having a high school or university degree); thus, they may be more likely to have knowledge of ADHD and regard ADHD with more positive attitudes and perceptions. A sample that reflected the true educational levels of the Thai population may have resulted in lower levels of knowledge of ADHD and less positive attitudes/perceptions than yielded by the current study.

Thirdly, the results of study 3 only represent relationships between variables. Therefore, regarding the results, causality cannot be attributed between independent and dependent variables. The observed significant path coefficients only signify these relationships.

Fourthly, the questionnaire for study 2 and study 3 was quite lengthy. The average time to complete the questionnaire was approximately 20 minutes. This could have possibly resulted in participants not reading items carefully or losing interest in the questionnaire all together. Future research on this topic may choose to employ shorter surveys when possible.

Lastly, although the current research determined the psychometric properties of the questionnaires to be sound for use with the study's sample, the questionnaires were not developed or normed for use within Thailand. Some cultural aspects of the questionnaires that are not easily translated across cultures may result in less reliability and validity.

Implications of the Findings

Although there are certain limitations, as described above, there are nevertheless important implications borne from the present research. There is very limited research on ADHD in Thailand. The present study sought to contribute to developing a better understanding of ADHD in Thailand. The following describes the implications of the present research.

Firstly, the current research finds that there may be a need to educate the public on ADHD. Regarding knowledge of ADHD, the present research found that Thais scored highest on recognizing symptoms of ADHD, but lowest on knowledge of treatment of ADHD. Therefore, Thais, in general, may have enough knowledge of ADHD to recognize when there is a problem, but they may be unaware of treatment options or how to pursue treatment. Previous research has found that educational interventions are effective in improving knowledge of ADHD (Moldavsky & Sayal, 2013).

This is significant since, as pointed out in the literature review, ADHD affects children more than adults. Therefore, lack of knowledge of treatment for ADHD would affect children in Thailand more than adults, resulting in Thai children being needlessly disadvantaged from under treatment for ADHD. Furthermore, it is not uncommon for people to spend an entire lifetime without proper treatment for ADHD. As discussed in Chapter II, untreated ADHD can result in many negative consequences, such as school failure, substance abuse/addiction, unemployment, familial conflict, etc. The current research highlights the need to improve knowledge of ADHD in Thailand as means of improving access to treatment.

Secondly, the current study revealed that cultural factors prominent in Thailand were associated with negative attitudes and unfavorable/inaccurate perceptions of ADHD. Particularly, stigmatization of mental illness and holistic thinking were consistently associated with negative opinions towards ADHD, while locus of control and religiosity were somewhat less consistently associated with negative opinions towards ADHD.

Furthermore, previous exposure to ADHD (knowing someone with ADHD) lessened the association between these cultural factors and negative opinions towards ADHD, which shows that familiarity with the disorder reduces negative opinions towards ADHD. This further highlights the importance of educating Thais about ADHD, since building familiarity

with ADHD may even override cultural influences—serving to mitigate negative opinions towards ADHD. Moreover, building familiarity with ADHD is important, since the stigmatization of ADHD can leave people with ADHD (and their families) feeling shameful; thus, further reducing the likelihood to seek treatment.

Avenues for Future Research

Besides expanding the general knowledge of ADHD in Thailand, the current research opens up avenues for further research on the subject. Below are recommendations for future research:

1. There is limited research on the attitudes and perception of other mental health disorders in Thailand, although some research has found that Thais tend to stigmatize mental health disorders in general (Wong-Anuchit et al., 2016). Based on the current research, which finds that lack of knowledge of ADHD and negative opinions of ADHD are linked to Thai cultural factors, future research could explore knowledge and awareness of specific mental disorders (e.g., major depression, bipolar disorder, or PTSD), as well as what cultural factors that influence attitudes and perceptions towards these mental health disorders. Further, testing instruments specific to Thailand should be researched and develop to measure the factors described above.
2. Teaching tools/methods should be researched and developed to increase the level of knowledge/awareness of ADHD in Thailand. Teaching programs should be employed with educators, parents, medical doctors, etc. to assist them with being able to recognize symptoms of ADHD and how to seek appropriate treatment for ADHD. Educating parents on all treatment options, such as medication, behavioral modification, and parental training, is essential to ensure that some form of treatment may be accessed. For example, in rural parts of Thailand there may be limited access to psychologists and doctors; therefore, the only plausible treatment for ADHD may be parental training. Prior

research has found that teachers in Thailand had limited knowledge of ADHD, while the current study revealed that parents of school-aged children also had limited knowledge of the disorder (Muanprasart et al., 2014). Previous research has found that educational interventions can significantly improve level of knowledge of ADHD (Moldavsky & Sayal, 2013)

3. Teaching tools/methods should be researched and developed to reduce stigmatization of ADHD and other mental health disorders. Such educational tools/methods could be implemented in schools with students and teachers, as well as with parents to reduce the stigma and shame associated with mental health disorders. This would decrease resistance towards an ADHD diagnosis and increase treatment-seeking behaviors.
4. Future research could investigate in more detail the results of this study that linked religiosity with both positive perceptions of ADHD and negative attitudes towards ADHD, simultaneously.
5. Future studies should investigate in more detail the link between religiosity, cultural tendency to stigmatize mental disorders, holistic thinking, internal health locus of control and stigmatization of mental disorders in general. A more thorough understanding of how these cultural factors relate to stigmatization of mental disorders would allow researchers to develop interventions or public educational programs to reduce negative attitudes and perceptions towards mental health disorders. This would lead to less shame for individuals with symptoms of mental health disorders and, in turn, greater treatment-seeking behavior.

Conclusion

Given that there is limited research on ADHD in Thailand, the present study was designed to investigate areas which have not previously been well researched. Although previous research investigated knowledge of ADHD amongst school teachers in Thailand, the

present study investigated knowledge of ADHD amongst Thai parents in the general public. In addition, the present study investigated the relationship between religiosity, stigmatization, internal health locus of control, holistic thinking and attitudes/perceptions of ADHD in Thailand. This researcher is unaware of any previous research on this topic in Thailand. Therefore, the present study contributed to expanding the knowledge of ADHD in Thailand.

The hypotheses that this researcher proposed were both not confirmed and confirmed by the current research. For example, the current research did not confirm that knowledge of ADHD was lower in Thailand when compared to Western countries. However, the current research confirmed that there was a relationship between Thai cultural factors and negative opinions towards ADHD and that previous exposure to ADHD reduced such negative opinions.

The current study identified a need to increase knowledge of ADHD in Thailand in that knowledge of ADHD was low (only 44% of KADDS answered correctly). In addition, it found that cultural factors prevalent in Thailand were associated with negative attitudes and perceptions of ADHD. However, Thais who had previous exposure to ADHD had less negative attitudes and perceptions of ADHD, indicating that knowledge of the disorder would mitigate the stigma associated with it. This further highlights the need to increase knowledge of ADHD in Thailand.

Lastly, the current study opens up opportunities for future research. Future research should focus on improving awareness of ADHD in Thailand and reducing stigma towards the disorder. In so doing, the current research along with future research broadens the base of knowledge of ADHD in Thailand in hopes of improving access for treatment of ADHD; thus, improving the lives of children, teens, and adults with ADHD.

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Appendix A

Questionnaires

Knowledge of ADHD Scale (KADDS) (Thai version used in the current study)

กรุณาตอบคำถามเกี่ยวกับโรคสมาธิสั้นต่อไปนี้โดยวงกลมคำตอบที่คุณเลือก หาก你不มั่นใจในคำตอบ กรุณาอย่าเดา
คุณสามารถวงกลมตัวเลือก 'ไม่ทราบ' กรุณาตอบคำถามให้ครบทุกข้อ

ถูก, ผิด, หรือ ไม่ทราบ (เลือกตอบเพียงข้อเดียว)

1. การประเมินส่วนใหญ่ว่า 15% ของโรคสมาธิสั้นเกิดขึ้นในเด็กวัยเรียน	ถูก	ผิด	ไม่ ทราบ
2. งานวิจัยในปัจจุบันระบุว่า ส่วนใหญ่แล้วโรคสมาธิสั้นเป็นผลมาจากทักษะการ เลี้ยงดูที่บกพร่องของพ่อ-แม่	ถูก	ผิด	ไม่ ทราบ
3. เด็กที่เป็นโรคสมาธิสั้นมักจะถูกเบียดเบียนความสนใจโดยสิ่งรบกวนนอก	ถูก	ผิด	ไม่ ทราบ
4. เด็กที่เป็นโรคสมาธิสั้นจะแสดงความไม่พอใจกับพ่อมากกว่าแม่	ถูก	ผิด	ไม่ ทราบ
5. ในการที่จะวินิจฉัยว่าเป็นโรคสมาธิสั้น จะต้องแสดงอาการก่อนที่เด็กจะมีอายุ 7 ปี	ถูก	ผิด	ไม่ ทราบ
6. โรคสมาธิสั้นจะพบได้ทั่วไปในญาติสายตรง (เช่น พ่อ, แม่) ของเด็กที่เป็นโรค สมาธิสั้นได้มากกว่าประชากรทั่วไป	ถูก	ผิด	ไม่ ทราบ
7. อาการหนึ่งของเด็กที่เป็นโรคสมาธิสั้นคือการทำร้ายร่างกายผู้อื่น	ถูก	ผิด	ไม่ ทราบ
8. ยาต้านอาการซึมเศร้ามีประสิทธิภาพในการลดอาการของโรคสมาธิสั้นในเด็ก หลายคน	ถูก	ผิด	ไม่ ทราบ
9. เด็กที่เป็นโรคสมาธิสั้นเวลานั่งจะกระสับกระส่ายหรือขยับตัวไปมาบ่อย	ถูก	ผิด	ไม่ ทราบ
10. การฝึกพ่อแม่และครูในการรับมือเด็กที่เป็นโรคสมาธิสั้นโดยทั่วไปจะมี ประสิทธิภาพเมื่อทำควบคู่กับการรักษาด้วยยา	ถูก	ผิด	ไม่ ทราบ
11. เป็นเรื่องปกติที่เด็กที่เป็นโรคสมาธิสั้นจะมีความภาคภูมิใจในตนเองสูงผิดปกติ หรือมีบุคลิกชอบโอ้อวด	ถูก	ผิด	ไม่ ทราบ
12. เมื่อสิ้นสุดการรักษาในเด็กที่เป็นโรคสมาธิสั้นแล้ว เป็นเรื่องยากที่อาการจะ กลับมาอีก	ถูก	ผิด	ไม่ ทราบ
13. เป็นไปได้ที่ผู้ใหญ่จะได้รับการวินิจฉัยว่าเป็นโรคสมาธิสั้น	ถูก	ผิด	ไม่ ทราบ
14. เด็กที่เป็นโรคสมาธิสั้นมักจะมีประวัติการลักขโมยหรือทำลายข้าวของผู้อื่น	ถูก	ผิด	ไม่ ทราบ

15. ผลข้างเคียงของยากระตุ้นที่ใช้ในการรักษาโรคสมาธิสั้นอาจทำให้นอนไม่หลับและความอยากอาหารลดลง	ถูก	ผิด	ไม่ทราบ
16. ความรู้เกี่ยวกับโรคสมาธิสั้นที่มีในปัจจุบันระบุการเป็น 2 ส่วนใหญ่ ๆ คือ การขาดสมาธิและอยู่ไม่นิ่ง/ควบคุมการกระทำของตนเองไม่ได้	ถูก	ผิด	ไม่ทราบ
17. พบอาการของโรคซึมเศร้าในเด็กที่เป็นโรคสมาธิสั้นมากกว่าเด็กที่ไม่เป็นโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
18. โดยปกติการทำจิตบำบัดรายบุคคลก็เพียงพอแล้วสำหรับการรักษาเด็กที่เป็นโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
19. อาการของเด็กที่เป็นโรคสมาธิสั้นส่วนใหญ่มักจะหายไปในช่วงเริ่มเข้าสู่วัยรุ่นและหลังจากนั้นก็จะใช้ชีวิตด้วยผู้ใหญ่ได้ตามปกติ	ถูก	ผิด	ไม่ทราบ
20. ในกรณีของโรคสมาธิสั้นรุนแรง มักจะมีการใช้ยาก่อนที่จะเริ่มใช้เทคนิคการปรับพฤติกรรมอื่น ๆ	ถูก	ผิด	ไม่ทราบ
21. ในการวินิจฉัยว่าเป็นโรคสมาธิสั้นนั้น เด็กจะต้องแสดงอาการของโรคในสถานการณ์ต่าง ๆ อย่างน้อย 2 สถานการณ์ (เช่น บ้าน, โรงเรียน)	ถูก	ผิด	ไม่ทราบ
22. ถ้าเด็กที่เป็นโรคสมาธิสั้นสามารถแสดงออกว่าสามารถจดจ่ออย่างต่อเนื่องอยู่กับวิดีโอเกมส์หรือโทรศัพท์ได้มากกว่า 1 ชั่วโมง เด็กคนนั้นก็จะสามารถจดจ่ออย่างต่อเนื่องกับการเรียนหนังสือหรือทำการบ้านอย่างน้อย 1 ชั่วโมงเช่นกัน	ถูก	ผิด	ไม่ทราบ
23. การลดการบริโภคน้ำตาลหรือวัตถุเจือปนอาหารโดยทั่วไปจะมีประสิทธิภาพในการลดอาการของโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
24. การวินิจฉัยว่าเป็นโรคสมาธิสั้นเพียงอย่างเดียวก็เพียงพอแล้วที่เด็กจะสามารถได้รับการศึกษาพิเศษ	ถูก	ผิด	ไม่ทราบ
25. ยากระตุ้นเป็นชนิดของยาที่ใช้มากที่สุดในการรักษาโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
26. เด็กที่เป็นโรคสมาธิสั้นมักจะจัดการงานหรือกิจกรรมต่าง ๆ ได้อย่างยากลำบาก	ถูก	ผิด	ไม่ทราบ
27. เด็กที่เป็นโรคสมาธิสั้นโดยทั่วไปจะประสบปัญหาเมื่อพบกับสถานการณ์ใหม่ ๆ มากกว่าสถานการณ์ที่คุ้นชิน	ถูก	ผิด	ไม่ทราบ
28. มีลักษณะทางร่างกายบางอย่างที่แพทย์ (เช่น กุมารแพทย์) สามารถใช้ระบุในการวินิจฉัยว่าเป็นโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
29. ในเด็กวัยเรียน ความชุกของโรคสมาธิสั้นในเด็กผู้ชายและเด็กผู้หญิงนั้นไม่ต่างกัน	ถูก	ผิด	ไม่ทราบ
30. ในเด็กที่อายุน้อยมาก ๆ (อายุน้อยกว่า 4 ปี) ปัญหาพฤติกรรมของเด็กที่เป็นโรคสมาธิสั้น (เช่น อยู่ไม่นิ่ง, ขาดสมาธิ) จะแตกต่างอย่างชัดเจนจากพฤติกรรมที่เหมาะสมตามช่วงวัยของเด็กที่ไม่เป็นโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
31. เมื่ออยู่ในห้องเรียนเราสามารถแยกความแตกต่างของเด็กที่เป็นโรคสมาธิสั้นกับ	ถูก	ผิด	ไม่ทราบ

เด็กที่ไม่เป็นโรคสมาธิสั้นได้ง่ายกว่าเวลาที่ปล่อยให้เด็กเล่น			ทราบ
32. มีหลักฐานแสดงว่าเด็กที่เป็นโรคสมาธิสั้นส่วนใหญ่มีผลการเรียนที่แย่ในช่วงประถมวัย	ถูก	ผิด	ไม่ทราบ
33. บ่อยครั้งที่อาการของโรคสมาธิสั้นจะพบได้ในเด็กที่ไม่ได้เป็นโรคสมาธิสั้นแต่มาจากสภาพแวดล้อมทางบ้านที่ขาดแคลนและยุ่งเหยิง	ถูก	ผิด	ไม่ทราบ
34. การรักษาทางพฤติกรรม/ทางจิตวิทยาสำหรับเด็กที่เป็นโรคสมาธิสั้นมุ่งเน้นปัญหาการขาดสมาธิของเด็กเป็นหลัก	ถูก	ผิด	ไม่ทราบ
35. มีการพบว่าการใช้ไฟฟ้า (การรักษาด้วยการช็อตไฟฟ้า) เป็นการรักษาโรคสมาธิสั้นในรายที่รุนแรงที่มีประสิทธิภาพ	ถูก	ผิด	ไม่ทราบ
36. การรักษาโรคสมาธิสั้นที่เน้นการลงโทษเป็นหลักนั้นพบว่าเป็นวิธีที่มีประสิทธิภาพที่สุดในการลดอาการของโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
37. งานวิจัยพบว่าการใช้ยาระงับประสาทอย่างต่อเนื่องจะนำไปสู่การเสพติด (ได้แก่ ยาเสพติด แอลกอฮอล์) ที่เพิ่มขึ้นในวัยผู้ใหญ่	ถูก	ผิด	ไม่ทราบ
38. หากเด็กตอบสนองต่อยากระตุ้น (เช่น Ritalin) นั้นอาจแปลว่าเด็กอาจจะเป็นโรคสมาธิสั้น	ถูก	ผิด	ไม่ทราบ
39. เด็กที่เป็นโรคสมาธิสั้นโดยทั่วไปจะยึดถือกิจวัตรหรือแบบแผนปฏิบัติบางอย่างโดยไม่ยืดหยุ่น	ถูก	ผิด	ไม่ทราบ

อายุ _____ ปี

ระดับการศึกษา _____

ภูมิลำเนาเดิม _____

(ถ้าเป็นคนไทยให้กรอกจังหวัด ถ้าเป็นชาวต่างชาติให้กรอกประเทศ)

เบอร์โทร:

อีเมล:

Survey Consent From

You are invited to participate in a research study. The following information is provided to help you make an informed decision whether or not to participate.

The purpose of this study is to measure knowledge of ADHD and cultural factors that may influence opinions of ADHD. You are asked to respond to the questions on this questionnaire. Your participation is voluntary. In addition, all of your information will remain confidential and your identity will be anonymous. The data collected will be used only for research in this study. **By voluntarily filling out this survey, it is assumed that you have consented to participate in the current research.** If you have any question, please email me at ericmason2009@gmail.com.

If you would like to see the results of this study, please provide your email address or mailing address. Tear off this bottom slip and provide it to the researcher.

Email: _____

Mailing Address: _____

Knowledge of ADHD Scale (KADDS) (English version)

Please answer the following questions regarding Attention-Deficit/Hyperactivity Disorders (ADHD). If you are unsure of an answer, respond Don't Know (DK), DO NOT GUESS.

True (T), False (F), or Don't Know (DK)

1. Most estimates suggest that ADHD occurs in approximately 15% of school age children.
2. Current research suggests that ADHD is largely the result of ineffective parenting skills.
3. ADHD children are frequently distracted by extraneous stimuli.
4. ADHD children are typically more compliant with their fathers than with their mothers.
5. In order to be diagnosed with ADHD, the child's symptoms must have been present before age 10.
6. ADHD is more common in the 1st degree biological relatives (i.e. mother, father) of children with ADHD than in the general population.
7. One symptom of ADHD children is that they have been physically cruel to other people.
8. Antidepressant drugs have been effective in reducing symptoms for many ADHD children.
9. ADHD children often fidget or squirm in their seats.
10. Parent and teacher training in managing an ADHD child are generally effective when combined with medication treatment.
11. It is common for ADHD children to have an inflated sense of self-esteem or grandiosity.
12. When treatment of an ADHD child is terminated, it is rare for the child's symptoms to return.
13. It is possible for an adult to be diagnosed with ADHD.

14. ADHD children often have a history of stealing or destroying other people's things.
15. Side effects of stimulant drugs used for treatment of ADHD may include mild insomnia and appetite reduction.
16. Current wisdom about ADHD suggests two clusters of symptoms: One of inattention and another consisting of hyperactivity/impulsivity.
17. Symptoms of depression are found more frequently in ADHD children than in non-ADHD children.
18. Individual psychotherapy is usually sufficient for the treatment of most ADHD children.
19. Most ADHD children "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood.
20. In severe cases of ADHD, medication is often used before other behavior modification techniques are attempted.
21. In order to be diagnosed as ADHD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school).
22. If an ADHD child is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework.
23. Reducing dietary intake of sugar or food additives is generally effective in reducing the symptoms of ADHD.
24. A diagnosis of ADHD by itself makes a child eligible for placement in special education.
25. Stimulant drugs are the most common type of drug used to treat children with ADHD
26. ADHD children often have difficulties organizing tasks and activities.

27. ADHD children generally experience more problems in novel situations than in familiar situations.
28. There are specific physical features which can be identified by medical doctors (e.g., pediatrician) in making a definitive diagnosis of ADHD.
29. In school age children, the prevalence of ADHD in males and females is equivalent.
30. In very young children (less than 4 years old), the problem behaviors of ADHD children (e.g. hyperactivity, inattention) are distinctly different from age-appropriate behaviors of non-ADHD children.
31. Children with ADHD are more distinguishable from normal children in a classroom setting than in a free play situation.
32. The majority of ADHD children evidence some degree of poor school performance in the elementary school years.
33. Symptoms of ADHD are often seen in non-ADHD children who come from inadequate and chaotic home environments.
34. Behavioral/Psychological interventions for children with ADHD focus primarily on the child's problems with inattention.
35. Electroconvulsive Therapy (i.e. shock treatment) has been found to be an effective treatment for severe cases of ADHD.
36. Treatments for ADHD which focus primarily on punishment have been found to be the most effective in reducing the symptoms of ADHD.
37. Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood.

38. If a child responds to stimulant medications (e.g., Ritalin), then they probably have ADHD.

39. Children with ADHD generally display an inflexible adherence to specific routines or rituals

Please provide the following details:

Age: _____

Highest level of education completed: _____

Gender: _____

Province of origin: _____

Scoring the KADDS (this section was not included for participants to view):

Correct answer is false;

Items: 1, 2, 7, 11, 12, 14, 18, 19, 22, 23, 24, 27, 28, 29, 30, 34, 35, 36, 37, 38, 39

Correct answer is true:

Items: 3, 4, 5, 6, 8, 9, 10, 13, 15, 16, 17, 20, 21, 25, 26, 31, 32, 33

KADDS Subscales:

Associated Features (i.e., General Knowledge): 1, 4, 6, 13, 17, 19, 22, 24, 27, 28, 29, 30, 31, 32, 33

Symptoms/Diagnosis: 3, 5, 7, 9, 11, 14, 16, 21, 26

Treatment: 2, 8, 10, 12, 15, 18, 20, 23, 25, 34, 35, 36

Questionnaire for Study 2 and Study 3 (Thai version used in the present study)

อายุ_____ปี เพศ: ชาย หรือ หญิง

ระดับการศึกษา_____

เบอร์โทร:.....

อีเมล:.....

กรุณาดตอบคำถามข้อ 1-10 โดยใช้ตัวเลือกดังต่อไปนี้

4 = เห็นด้วยอย่างยิ่ง

3 = เห็นด้วย

2 = ไม่เห็นด้วย

1 = ไม่เห็นด้วยอย่างยิ่ง

1. ศาสนาเป็นสิ่งสำคัญในชีวิตประจำวันของฉัน

1 2 3 4

2. การสวดมนต์และทำสมาธิเป็นสิ่งที่ช่วยให้ฉันรับมือกับช่วงเวลาเจ็บป่วยร้ายแรง

1 2 3 4

3. ฉันเชื่อว่าพระเจ้า พระพุทธเจ้า หรือศาสนาของฉันช่วยปกป้องฉันจากอันตราย

1 2 3 4

4. ฉันแน่ใจว่าพระเจ้า และ/หรือ กรรมในรูปแบบต่าง ๆ มีจริง

1 2 3 4

5. ฉันสวดมนต์เพื่อขอความช่วยเหลือในช่วงเวลาร้าย ๆ

1 2 3 4

6. ฉันเชื่อว่าพระเจ้า และ/หรือกรรมจะไม่มอบภาระที่ฉันแบกไม่ไหวให้กับฉัน

1 2 3 4

7. การมีชีวิตและเสียชีวิตของคนเราเป็นสิ่งที่พระเจ้าลิขิตไว้แล้ว และ/หรือเป็นสิ่งที่กำหนดไว้แล้วโดยกรรม

จากชาติก่อน

1 2 3 4

8. ในช่วงเวลาแห่งความเจ็บป่วย ความเชื่อทางศาสนาหรือจิตวิญญาณของฉันยิ่งแข็งแกร่งขึ้น

1 2 3 4

9. ฉันเคยสัมผัสถึงความสงบในจิตใจผ่านการสวดมนต์และทำสมาธิ

1 2 3 4

10. ฉันเคยสัมผัสถึงความหวังที่เป็นผลมาจากความเชื่อทางศาสนาหรือจิตวิญญาณของฉัน

1 2 3 4

สำหรับข้อ 11-93 กรุณาตอบคำถามโดยใช้ตัวเลขดังต่อไปนี้

1 = ไม่เห็นด้วยอย่างยิ่ง 2 = ค่อนข้างไม่เห็นด้วย 3 = ไม่เห็นด้วยเล็กน้อย

4 = เห็นด้วยเล็กน้อย 5 = ค่อนข้างเห็นด้วย 6 = เห็นด้วยอย่างยิ่ง

11. ถ้าฉันป่วย พฤติกรรมของตนเองจะเป็นตัวกำหนดว่าอีกนานแค่ไหนที่ฉันจะหาย

1 2 3 4 5 6

12. ไม่ว่าฉันจะอย่างไร ถ้าฉันจะป่วย ฉันก็จะป่วยอยู่ดี

1 2 3 4 5 6

13. การพบแพทย์เป็นประจำนั้นเป็นวิธีที่ดีที่สุดที่ฉันใช้เสี่ยงความเจ็บป่วย

1 2 3 4 5 6

14. สิ่งส่งผลต่อสุขภาพฉันแทบทั้งหมดเป็นอุบัติเหตุ

1 2 3 4 5 6

15. เมื่อไหร่ที่ฉันรู้สึกไม่ค่อยดี ฉันควรจะไปปรึกษาผู้เชี่ยวชาญทางการแพทย์

1 2 3 4 5 6

16. ฉันเป็นผู้รับผิดชอบต่อสุขภาพของตัวเอง

- 1 2 3 4 5 6
17. ครอบครัวของฉันมีส่วนอย่างมากในการที่ฉันป่วยหรือสุขภาพดี
- 1 2 3 4 5 6
18. เมื่อฉันป่วย ก็เป็นความผิดของตนเอง
- 1 2 3 4 5 6
19. โชคมีส่วนอย่างมากในการกำหนดว่าอีกนานแค่ไหนที่ฉันจะหาย
- 1 2 3 4 5 6
20. ผู้เชี่ยวชาญทางการแพทย์เป็นผู้กำหนดสุขภาพของฉัน
- 1 2 3 4 5 6
21. สุขภาพที่แข็งแรงของฉันส่วนใหญ่เป็นเรื่องของความโชคดี
- 1 2 3 4 5 6
22. สิ่งสำคัญที่มีผลต่อสุขภาพของฉันคือสิ่งที่ตัวฉันทำ
- 1 2 3 4 5 6
23. ถ้าฉันดูแลตัวเอง ฉันก็จะสามารถเลี่ยงความเจ็บป่วยได้
- 1 2 3 4 5 6
24. เมื่อไหร่ก็ตามที่ฉันหายป่วย ปกติแล้วเป็น เพราะคนอื่น (เช่น แพทย์ พยาบาล ครอบครัว และเพื่อน) ดูแลฉันเป็นอย่างดี
- 1 2 3 4 5 6
25. ไม่ว่าฉันจะทำอย่างไร ฉันก็มักจะป่วย
- 1 2 3 4 5 6

26. ถ้าฉันจะมีสุขภาพที่ดี ฉันก็จะมีสุขภาพที่ดี

1 2 3 4 5 6

27. ถ้าฉันปฏิบัติตัวอย่างถูกต้อง ฉันก็จะมีสุขภาพที่ดี

1 2 3 4 5 6

28. ในเรื่องสุขภาพ ฉันสามารถทำได้เท่าที่แพทย์บอกให้ฉันทำ

1 2 3 4 5 6

29. เงินภาษีควรถูกใช้ไปกับการดูแลและการรักษาความเจ็บป่วยทางจิตใจให้มากขึ้น

1 2 3 4 5 6

30. การบำบัดที่ดีที่สุดสำหรับผู้ป่วยทางจิตคือการเป็นส่วนหนึ่งของชุมชนตามปกติ

1 2 3 4 5 6

31. คนที่ป่วยทางจิตเป็นภาระของสังคม

1 2 3 4 5 6

32. การที่มีศูนย์บริการสุขภาพจิตในบริเวณที่อยู่อาศัยเป็นการลดระดับยานั้น

1 2 3 4 5 6

33. คนที่ป่วยทางจิตถูกมองว่าเป็นตัวตลกมานานเกินไปแล้ว

1 2 3 4 5 6

34. ควรจะจัดให้มีบริการสุขภาพจิตในศูนย์บริการของชุมชนให้มากเท่าที่จะเป็นไปได้

1 2 3 4 5 6

35. การใช้เงินภาษีไปกับบริการสุขภาพจิตที่เพิ่มขึ้นเป็นเรื่องสิ้นเปลือง

1 2 3 4 5 6

36. การมีผู้ป่วยทางจิตอาศัยอยู่ในบริเวณที่พักอาศัยอาจจะเป็นการบำบัดที่ดี แต่ความเสี่ยงสำหรับผู้อยู่อาศัยนั้นก็มีมากขึ้นไป

1 2 3 4 5 6

37. เราจำเป็นต้องมีทัศนคติในการอดทนอดกลั้นอีกมากต่อผู้ป่วยทางจิตในสังคมของเรา

1 2 3 4 5 6

38. ผู้อยู่อาศัยควรยอมให้จัดตั้งศูนย์บริการสุขภาพจิตในย่านที่อยู่อาศัยเพื่อเป็นการให้ความ

ช่วยเหลือแก่ผู้ที่มีความต้องการในชุมชน

1 2 3 4 5 6

39. บริการสำหรับผู้ป่วยทางจิตนั้นมีอยู่เพียงพอแล้ว

1 2 3 4 5 6

40. ผู้อยู่อาศัยมีเหตุผลที่ดีที่จะต่อต้านการตั้งศูนย์บริการสุขภาพจิตในย่านที่อยู่อาศัยของพวกเขา

1 2 3 4 5 6

41. โรงพยาบาลจิตเวชของเราดูเหมือนคุณมากกว่าจะเป็นที่สำหรับผู้ป่วยทางจิตจะได้รับการดูแล

1 2 3 4 5 6

42. การตั้งศูนย์บริการสุขภาพจิตในย่านที่อยู่อาศัยไม่เป็นอันตรายต่อผู้อยู่อาศัย

1 2 3 4 5 6

43. ผู้ป่วยทางจิตไม่ควรได้รับความสงสารจากเรา

1 2 3 4 5 6

44. ศูนย์บริการสุขภาพจิตควรจะต้องอยู่ให้ห่างจากย่านที่อยู่อาศัย

1 2 3 4 5 6

45. เรามีหน้าที่ในการจัดการดูแลที่ดีที่สุดให้กับผู้ป่วยทางจิต

- 1 2 3 4 5 6
46. การที่มีคนเข้ามาในย่านที่พักอาศัยเพื่อรับบริการด้านสุขภาพจิตนั้นไม่มีอะไรที่ผู้อยู่อาศัยจะต้องกลัว
- 1 2 3 4 5 6
47. การหลีกเลี่ยงผู้ป่วยทางจิตนั้นเป็นวิธีที่ดีที่สุด
- 1 2 3 4 5 6
48. มันน่ากลัวที่จะคิดว่ามีผู้ป่วยทางจิตอาศัยอยู่ในย่านที่พักอาศัย
- 1 2 3 4 5 6
49. ทันทีที่คนเริ่มมีสัญญาณของการรบกวนทางจิตใจ เขาก็ควรจะถูกพาส่งโรงพยาบาล
- 1 2 3 4 5 6
50. ผู้ป่วยทางจิตควรจะถูกแยกออกมาจากชุมชน
- 1 2 3 4 5 6
51. การเจ็บป่วยทางจิตก็เหมือนกับการเจ็บป่วยอื่นๆ
- 1 2 3 4 5 6
52. ความเจ็บป่วยทางจิตนั้นอันตรายน้อยกว่าที่คนคิดไว้มาก
- 1 2 3 4 5 6
53. มีบางอย่างเกี่ยวกับคนที่ป่วยทางจิตที่ใช้จำแนกคนเหล่านั้นออกจากคนทั่วไปได้อย่างง่ายดาย
- 1 2 3 4 5 6
54. ผู้หญิงคงจะใส่ใจแต่งงานกับผู้ชายที่ป่วยทางจิตแม้ว่าเขาดูเหมือนจะหายสนิทแล้ว
- 1 2 3 4 5 6
55. การปกป้องผู้คนให้พ้นจากคนที่ป่วยทางจิตควรจะถูกลดความสำคัญลง
- 1 2 3 4 5 6

56. ไม่มีใครมีสิทธิ์ที่จะแยกผู้ป่วยทางจิตออกจากย่านที่อยู่อาศัยของพวกเขา
- 1 2 3 4 5 6
57. ผู้ป่วยทางจิตต้องการการควบคุมและระเบียบเหมือนกับเด็กเล็ก
- 1 2 3 4 5 6
58. ฉันคงไม่อยากอาศัยอยู่ติดกับบ้านของคนที่ถูกวินิจฉัยว่าป่วยทางจิต
- 1 2 3 4 5 6
59. คนที่ป่วยทางจิตจะต้องไม่ได้รับการปฏิบัติเหมือนกับเป็นคนที่สังคมไม่ยอมรับ
- 1 2 3 4 5 6
60. คนที่ป่วยทางจิตควรจะได้รับส่งเสริมให้มีความรับผิดชอบชีวิตตามปกติ
- 1 2 3 4 5 6
61. วิธีที่ดีที่สุดที่ใช้จัดการกับคนที่ป่วยทางจิตคือการขังเอาไว้ในห้อง
- 1 2 3 4 5 6
62. คนที่มีประวัติการป่วยทางจิตควรจะถูกกันออกจากการรับราชการ
- 1 2 3 4 5 6
63. โรงพยาบาลจิตเวชเป็นสถานที่ที่ล้าสมัยไปแล้วสำหรับการรักษาคนที่ป่วยทางจิต
- 1 2 3 4 5 6
64. คนที่ป่วยทางจิตไม่ควรจะถูกปฏิเสธสิทธิส่วนบุคคล
- 1 2 3 4 5 6
65. สาเหตุหนึ่งของการป่วยทางจิตคือการไม่มีระเบียบวินัยในตนเองและความตั้งใจจริง
- 1 2 3 4 5 6
66. คนที่ป่วยทางจิตไม่ควรจะได้รับการมอบหมายหน้าที่ความรับผิดชอบใดๆ

- 1 2 3 4 5 6
67. จริง ๆ แล้วแทบทุกคนก็สามารถป่วยทางจิตได้
- 1 2 3 4 5 6
68. ผู้หญิงส่วนใหญ่ที่เคยเป็นผู้ป่วยในโรงพยาบาลจิตเวชสามารถได้รับความไว้วางใจให้เป็นพี่เลี้ยงเด็กได้
- 1 2 3 4 5 6
69. ทศณคติเกี่ยวกับโรคสมาธิสั้นของคนทั่วไปอาจทำให้คนที่เป็โรคสมาธิสั้นรู้สึกแย่กับตัวเอง มากขึ้น
- 1 2 3 4 5 6
70. คนที่เป็นโรคสมาธิสั้นอาจคิดว่ามันเสี่ยงที่จะบอกคนอื่นว่าเขาเป็นโรคนี้
- 1 2 3 4 5 6
71. คนที่เป็นโรคสมาธิสั้นพยายามอย่างมากที่จะเก็บเรื่องนี้เป็นความลับ
- 1 2 3 4 5 6
72. คนส่วนใหญ่คิดว่าคนที่เป็โรคสมาธิสั้นมีตำหนิ
- 1 2 3 4 5 6
73. คนที่เป็นโรคสมาธิสั้นส่วนใหญ่จะถูกปฏิเสธเมื่อคนอื่นรู้
- 1 2 3 4 5 6
74. หลังจากรู้ว่าเป็โรคสมาธิสั้น คนจะกังวลว่าจะถูกคนอื่นจะเลือกปฏิบัติ
- 1 2 3 4 5 6
75. คนที่เป็นโรคสมาธิสั้นกังวลว่าเขาจะถูกตัดสินหากคนอื่นรู้ว่าเขามีโรคทางจิต
- 1 2 3 4 5 6
76. คนที่เป็นโรคสมาธิสั้นรู้สึกว่คิดผิดที่บอกคนอื่นว่าเขาเป็นโรคนี้
- 1 2 3 4 5 6

77. บางคนทำเหมือนกับว่ามันเป็นความผิดของคนที่เป็นโรคสมาธิสั้น

1 2 3 4 5 6

78. ดูเหมือนคนจะหวาดกลัวคนที่ เป็นโรคสมาธิสั้นเมื่อได้รู้ว่าเขาเป็นโรคสมาธิสั้น

1 2 3 4 5 6

79. คนที่เป็นโรคสมาธิสั้นรู้สึกผิดที่เป็นโรคสมาธิสั้น

1 2 3 4 5 6

80. คนที่เป็นโรคสมาธิสั้นตกงานเมื่อเจ้านายรู้

1 2 3 4 5 6

81. บางคนที่เป็นโรคสมาธิสั้นรู้สึกว่าเขาไม่ใช่คนที่ดีเหมือนคนอื่นเพราะว่าเขาเป็นโรคสมาธิสั้น

1 2 3 4 5 6

82. คนที่เป็นโรคสมาธิสั้นถูกปฏิบัติเหมือนกับเป็นคนนอก

1 2 3 4 5 6

83. คนที่เป็นโรคสมาธิสั้นรู้สึกว่าตนเองมีตำหนิเพราะโรคนี้

1 2 3 4 5 6

84. หลังจากที่ได้รู้ว่าเป็นโรคสมาธิสั้น คนจะรู้สึกแปลกแยกและโดดเดี่ยวจากคนทั้งโลก

1 2 3 4 5 6

85. คนที่เป็นโรคสมาธิสั้นรู้สึกว่าเขาหรือเธอแย่เพราะโรคนี้

1 2 3 4 5 6

86. คนที่เป็นโรคสมาธิสั้นจะระมัดระวังอย่างมากที่จะเล่าให้ใครฟัง

1 2 3 4 5 6

87. บางคนที่ว่ามีคนอื่นเป็นโรคสมาธิสั้นจะตีตัวออกห่างจากคน ๆ นั้น

1 2 3 4 5 6

88. คนส่วนใหญ่รู้สึกอึดอัดเมื่ออยู่ใกล้กับคนที่ เป็นโรคสมาธิสั้น

1 2 3 4 5 6

89. มันเหมือนกับเป็นกฎว่าคนที่ เป็นโรคสมาธิสั้นจะรู้สึกว่าการบอกคนอื่นว่าตนเองเป็นโรคนั้น เป็นความ ผิดพลาด

1 2 3 4 5 6

90. คนทั่วไปไม่อยากจะให้คนที่ เป็นโรคสมาธิสั้น เข้าใกล้ลูก ๆ ของพวกเขา

1 2 3 4 5 6

91. คนที่เป็นโรคสมาธิสั้นเสียเพื่อนหลังจากบอกไปว่าเป็นโรคสมาธิสั้น

1 2 3 4 5 6

92. ดูเหมือนว่าข้อดีของคนที่เป็นโรคสมาธิสั้นจะถูกกลบเกลาย

1 2 3 4 5 6

93. คนที่เป็นโรคสมาธิสั้นจะบอกเพื่อนที่รู้ว่าเขาเป็นโรคสมาธิสั้นให้เรื่องนี้เป็นความลับ

1 2 3 4 5 6

กรุณาอ่านข้อความในข้อ 94-120 และวงกลมเพื่อแสดงว่าคุณ เห็นด้วยหรือไม่เห็นมากน้อยแค่ไหน

94. การใช้ยาเป็นการรักษาที่ปลอดภัยสำหรับโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

95. การดูแลเรื่องอาหารเป็นพิเศษจะช่วยให้การรักษาโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

96. โรคสมาธิสั้นเกี่ยวข้องกับการทำงานของระบบประสาทในสมอง

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

97. เทคนิคการสอนแบบพิเศษจะช่วยในการจัดการกับโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

98. เป็นไปได้ว่าโรคสมาธิสั้นเป็นกรรมพันธุ์

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

99. การจัดการพฤติกรรมนั้นเป็นวิธีการรักษาโรคสมาธิสั้นอย่างมีประสิทธิภาพ

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

100. การรักษาด้วยยาร่วมกับการจัดการพฤติกรรมนั้นเป็นการรักษาโรคสมาธิสั้นที่ดีที่สุด

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

101. การฝึกเรื่องการจัดการพฤติกรรมให้กับครูเป็นวิธีการรักษาโรคสมาธิสั้นที่เป็นประโยชน์

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

102. มีความเป็นไปได้ว่ายาที่ใช้รักษาโรคสมาธิสั้นนั้นได้ผลเพราะว่าเป็นการเปลี่ยนแปลงสารสื่อประสาทในสมองของเด็ก

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

103. ปริมาณโครงสร้างในสิ่งแวดล้อมของเด็ก (เช่น กิจวัตรประจำวัน) สามารถส่งผลต่ออาการของโรคสมาธิสั้นได้

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

104. ยาเป็นการรักษาโรคสมาธิสั้นที่ได้ผลเกือบทุกครั้ง

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

105. อาการของโรคสมาธิสั้นพบได้ตั้งแต่เด็กยังมีอายุน้อย

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

106. โรคสมาธิสั้นเป็นผลจากการที่พ่อแม่ไม่สม่ำเสมอในเรื่องกฎและผลของการกระทำ

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

107. โรคสมาธิสั้นเกิดจากการสัมผัสกับสารที่อยู่ในสิ่งแวดล้อม เช่น ตะกั่ว

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

108. บ่อยครั้งที่โรคสมาธิสั้นเป็นอาการตอบสนองภูมิแพ้หรือความไวต่อวัตถุกันเสียในอาหาร

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

109. เด็กบางคนที่มีการพัฒนาของโรคสมาธิสั้นนั้นเพราะว่าเด็กเรียกร้องความสนใจ

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

110. การพัฒนาทักษะการเลี้ยงลูกในพ่อแม่ของเด็กที่เป็นโรคสมาธิสั้นจะเป็นประโยชน์ต่อเด็ก

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

111. การนำเสนอของสื่อทำให้เป็นเรื่องยากที่จะให้ยากับเด็กที่เป็นโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

112. การบำบัดด้วยวิตามินเป็นประโยชน์ต่อการรักษาโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

113. ปัญหาครอบครัว เช่น การติดยาหรือความผิดปกติที่เกี่ยวข้องกับการแต่งงานทำให้เด็กเป็นโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

114. โรคสมาธิสั้นอาจเป็นผลมาจากการที่เด็กไม่พยายามควบคุมพฤติกรรมของตนเองให้มากพอ

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

115. การจำกัดการบริโภคน้ำตาลของเด็กอาจเป็นการรักษาโรคสมาธิสั้นที่ได้ผล

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

116. ฉันคงจะไม่ลังเลเลยที่จะให้เด็กที่เป็นโรคสมาธิสั้นกินยาหากแพทย์แนะนำ

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

117. ฉันคงจะรู้สึกไม่เต็มใจที่จะเรียนรู้เทคนิคการสอนแบบพิเศษใช้ในการรักษาเด็กที่เป็นโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

118. การฝึกทักษะการเข้าสังคมอาจเป็นประโยชน์ต่อเด็กที่เป็นโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

119. กฎและผลลัพธ์ที่ชัดเจนและสม่ำเสมอเป็นประโยชน์ในการรักษาเด็กที่เป็นโรคสมาธิสั้น

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

120. โรคสมาธิสั้นเกี่ยวข้องกับการที่พ่อแม่ใช้เทคนิคด้านระเบียบวินัยที่ไม่ดี

1-----2-----3-----4-----5-----6-----7

เห็นด้วย

เฉย ๆ

ไม่เห็นด้วย

กรุณาดตอบว่าใช่หรือไม่ใช่ในคำถามข้อ 121-123

121. เพื่อนของคุณหรือคนรอบครัวเป็นโรคสมาธิสั้นหรือไม่

ใช่ หรือ ไม่ใช่

122. คุณเป็นโรคสมาธิสั้นหรือไม่

ใช่ หรือ ไม่ใช่

123. คุณเคยรู้จักใครที่เป็นโรคสมาธิสั้นหรือไม่

ใช่ หรือ ไม่ใช่

สำหรับข้อความในข้อ 124-146 กรุณาระบุว่าคุณเห็นด้วยหรือไม่มากน้อยแค่ไหนกับข้อความ ดังกล่าว กรุณา

วงกลมตัวเลขเพื่อแสดงระดับความเห็นด้วยและไม่เห็นด้วยของคุณ

1-----2-----3-----4-----5-----6-----7

ไม่เห็นด้วยอย่างยิ่ง ไม่เห็นด้วย เจย ๆ เห็นด้วย เห็นด้วยอย่างยิ่ง

124. เราควรเลี่ยงความสุดโต่ง (has1)

1-----2-----3-----4-----5-----6-----7

125. การให้ความสนใจรอบข้างทั้งหมดนั้นสำคัญกว่าการให้ความสนใจรายละเอียด (has2)

1-----2-----3-----4-----5-----6-----7

126. เหตุการณ์ในอนาคตสามารถคาดเดาได้โดยดูจากสถานการณ์ในปัจจุบัน (has3)

1-----2-----3-----4-----5-----6-----7

127. ทั้งหมดดีกว่าผลรวมของแต่ละส่วน (has4)

1-----2-----3-----4-----5-----6-----7

128. ทุกอย่างในโลกนี้เชื่อมโยงกันในความสัมพันธ์แบบเหตุและผล (has5)

1-----2-----3-----4-----5-----6-----7

129. คนที่ตอนนี้ซื้อสตัยอนาคตก็ยังคงซื้อสตัย (has6)

1-----2-----3-----4-----5-----6-----7

130. ควรเลี่ยงการเลือกที่จะอยู่ตรงกลางของการโต้แย้ง (has7)

1-----2-----3-----4-----5-----6-----7

131. ปรากฏการณ์เป็นผลสืบเนื่องมาจากผลหลายๆ ครั้งมารวมกัน แม้ว่าผลบางอย่างจะไม่ถูกรับรู้ (has8)

1-----2-----3-----4-----5-----6-----7

132. คนที่ตอนนี้ประสบความสำเร็จในชีวิตก็จะประสบความสำเร็จต่อไป (has9)

1-----2-----3-----4-----5-----6-----7

133. เมื่อความเห็นของคนหนึ่งขัดแย้งกับของอีกคนหนึ่ง การหาจุดประนีประนอมนั้นสำคัญว่าเถียงกันว่าใครผิดใครถูก (has10)

1-----2-----3-----4-----5-----6-----7

134. ไม่มีอะไรที่ไม่สัมพันธ์กัน (has11)

1-----2-----3-----4-----5-----6-----7

135. ในการทำความเข้าใจพฤติกรรมของคน เราควรพิจารณาสถานการณ์ที่คนๆ นั้นเผชิญอยู่ รวมถึงบุคลิกภาพของคนนั้น (has12)

1-----2-----3-----4-----5-----6-----7

136. การหาจุดตรงกลางนั้นเป็นสิ่งที่พึงกระทำมากกว่าความสุดโต่ง (has13)

1-----2-----3-----4-----5-----6-----7

137. สถานการณ์ในปัจจุบันสามารถเปลี่ยนแปลงได้ตลอดเวลา (has14)

1-----2-----3-----4-----5-----6-----7

138. การให้ความสนใจทั้งหมดสำคัญกว่าการสนใจองค์ประกอบของสิ่งนั้น (has15)

1-----2-----3-----4-----5-----6-----7

139. ถ้าเหตุการณ์เป็นไปในทางใดทางหนึ่งแล้ว มันก็จะเป็นเช่นนั้นต่อไป (has16)

1-----2-----3-----4-----5-----6-----7

140. ปรากฏการณ์ใด ๆ เกิดได้จากหลายสาเหตุแม้ว่าบางสาเหตุอาจไม่ได้ถูกรับรู้ (has17)

1-----2-----3-----4-----5-----6-----7

141. ทุกปรากฏการณ์ในโลกนี้เคลื่อนไปในทิศทางที่คาดการณ์ได้ (has18)

1-----2-----3-----4-----5-----6-----7

142. เมื่อมีความขัดแย้งเกิดขึ้นในหมู่คน พวกเขาควรค้นหาวิธีที่จะประนีประนอมกันและยอมรับ ความเห็นของทุกคน (has19)

1-----2-----3-----4-----5-----6-----7

143. มันเป็นไปได้ที่จะเข้าใจแต่ละส่วนโดยไม่คำนึงถึงภาพรวมทั้งหมด (has20)

1-----2-----3-----4-----5-----6-----7

144. การเปลี่ยนแปลงแม้เพียงเล็กน้อยของส่วนประกอบหนึ่งในจักรวาลก็สามารถนำไปสู่การเปลี่ยนแปลงที่สำคัญในส่วนประกอบอื่นๆ ได้ (has21)

1-----2-----3-----4-----5-----6-----7

145. ในการทำความเข้าใจปรากฏการณ์ควรพิจารณาถึงสิ่งที่เกิดขึ้นทั้งหมดมากกว่าส่วนประกอบต่าง ๆ (has22)

1-----2-----3-----4-----5-----6-----7

146. การปรองดองกันกับผู้ที่มีความคิดเห็นแตกต่างจากตนเองเป็นสิ่งที่ควรกระทำมากกว่าสร้างความขัดแย้ง (has23)

1-----2-----3-----4-----5-----6-----7

147. ดูเหมือนว่าทุกสิ่งในจักรวาลนั้นสัมพันธ์กับสิ่งอื่น ๆ (has24)

1-----2-----3-----4-----5-----6-----7



Questionnaire for Study 2 and Study 3 (English version)

Age: _____

Gender: _____

Higher educational level completed: _____

The questionnaire is as follows:

Please respond to questions 1 - 10 using the scale below:

1 = strongly disagree

2 = disagree

3 = agree

4 = strongly agree

1. Religion is important to my day-to-day life.
2. Prayer or meditation has helped me cope during times of serious illness.
3. I believe God, Buddha, or my religion protects me from harm
4. I feel certain that God and/or karma in some form exists.
5. I pray for help during bad times.
6. I believe that God and/or karma will not give me a burden I cannot carry.
7. One's life and death follows a predetermined plan from God and/or is determined by karma from previous lives.
8. During times of illness, my religious or spiritual beliefs have been strengthened.
9. I have experienced peace of mind through my prayers and meditation.

10. I have experienced a sense of hope as a result of my religious or spiritual beliefs.

For questions 11 - 93 please answer as follows:

1 = Strongly Disagree

2 = Moderately Disagree

3 = Slightly Disagree

4 = Slightly Agree

5 = Moderately Agree

6 = Strongly Agree

12. If I get sick, it is my own behavior which determine how soon I get well again.
13. No matter what I do, if I am going to get sick, I will get sick.
14. Having regular contact with my physician is the best way for me to avoid illness
15. Most things that affect my health happen to me by accident.
16. Whenever I don't feel well, I should consult a medically trained professional.
17. I am in control of my health.
18. My family has a lot to do with my becoming sick or staying healthy.
19. When I get sick, I am to blame.
20. Luck plays a big part in determining how soon I will recover from an illness.
21. Health professionals control my health.
22. My good health is largely a matter of good fortune.
23. The main thing which affects my health is what I myself do.
24. If I take care of myself, I can avoid illness.
25. Whenever I recover from an illness, it's usually because other people (for example, doctors, nurses, family, and friends) have been taking good care of me.
26. No matter what I do, I'm likely to get sick.

27. If it's meant to be, I will stay healthy.
28. If I take the right actions, I can stay healthy.
29. Regarding my health, I can only do what my doctor tells me to do.
30. More tax money should be spent on the care and treatment of the mentally ill.
31. The best therapy for many mental health patients is to be part of a normal community.
32. The mentally ill are a burden to society.
33. Locating mental health facilities in a residential area downgrades the neighborhood.
34. The mentally ill have for too long been the subject of ridicule.
35. As far as possible mental health services should be provided through community-based facilities.
36. Increased spending on mental health services is a waste of tax dollars.
37. Having mental patients living within residential neighborhoods might be good therapy, but risks to residents are too great.
38. We need to adopt a far more tolerant attitude toward the mentally ill in our society.
39. Residents should accept the location of mental health facilities in their neighborhood to serve the needs of the local community.
40. There are sufficient existing services for the mentally ill.
41. Local residents have good reason to resist the location of mental health services in their neighborhood.
42. Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.
43. Locating mental health services in residential neighborhoods does not endanger local residents.
44. The mentally ill do not deserve our sympathy.

45. Mental health facilities should be kept out of residential neighborhoods.
46. We have the responsibility to provide the best possible care for the mentally ill.
47. Residents have nothing to fear from people coming into their neighborhood to obtain mental health treatment services.
48. It is best to avoid anyone who has a mental illness.
49. It is frightening to think of the mentally ill living in residential neighborhoods.
50. As soon as a person shows signs of mental disturbance, he should be hospitalized.
51. The mentally ill should be isolated from the rest of the community.
52. Mental illness is an illness like any other.
53. The mentally ill are far less of a danger than most people suppose.
54. There is something about the mentally ill that makes it easy to tell them from normal people.
55. A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.
56. Less emphasis should be placed on protecting the public from the mentally ill.
57. No one has the right to exclude the mentally ill from their neighborhood.
58. Mental patients need the same kind of control and discipline as a young child.
59. I would not want to live next door to someone who has been mentally ill.
60. The mentally ill should not be treated as outcasts of society.
61. Mental patients should be encouraged to assume the responsibilities of normal life.
62. The best way to handle the mentally ill is to keep them behind locked doors.
63. Anyone with a history of mental problems should be excluded from taking public office.
64. Mental hospitals are an outdated means of treating the mentally ill.
65. The mentally ill should not be denied their individual rights.

66. One of the main causes of mental illness is a lack of self-discipline and will power.
67. The mentally should not be given any responsibility.
68. Virtually anyone can become mentally ill.
69. Most women who were once patients in a mental hospital can be trusted as babysitters.
70. People's attitudes about ADHD may make people with ADHD feel worse about themselves.
71. Someone who has ADHD would think it's risky to tell others about it
72. People with ADHD work hard to keep it a secret.
73. Most people think that people with ADHD are damaged.
74. Most people with ADHD are rejected when others find out.
75. After learning they have ADHD, people worry about others discriminating against them.
76. People with ADHD worry that others may judge them when they learn that they have a mental illness.
77. People with ADHD regret having told some people that they have ADHD.
78. Some people act as though it's the person's fault that they have ADHD.
79. People seem afraid of a person with ADHD once they learn they have ADHD.
80. People with ADHD feel guilty about it.
81. People with ADHD lose their jobs when their employers find out.
82. Some people with ADHD feel they aren't as good a person as others because they have ADHD.
83. People with ADHD are treated like outcasts.
84. People with ADHD feel damaged because of it.

85. After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.
86. A person with ADHD feels that he or she is bad because of it.
87. People with ADHD are very careful about who they tell.
88. Some people who learn of another person having ADHD grow distant from the person with ADHD.
89. Most people are uncomfortable around someone with ADHD.
90. As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.
91. People don't want someone with ADHD around their children.
92. People with ADHD have lost friends by telling them they have ADHD.
93. The good points of people with ADHD tend to be ignored.

Please read statements 94 - 120 and circle the extent to which you disagree or agree.

94. Medication is a safe treatment for ADHD.
- 1-----2-----3-----4-----5-----6-----7
- Agree Neutral Disagree

95. Special diets are often helpful for treating ADHD.
96. ADHD is related to neurological functioning in the brain.
97. Special teaching techniques are helpful in managing ADHD.
98. ADHD is likely to be inherited.
99. Behavior management is an effective treatment for ADHD.
100. A combination of medication and behavior management is best for treating ADHD.

101. Training teachers in behavior management is a useful treatment for ADHD.
102. It is likely that medications used to treat ADHD are effective because they alter the neurotransmitters in the child's brain.
103. The amount of structure in the child's environment (e.g., routines) can affect ADHD symptoms.
104. Medication is almost always an effective treatment for ADHD.
105. Symptoms of ADHD often are evident early in the child's life.
106. ADHD results from parents being inconsistent with rules and consequences.
107. ADHD is caused by exposure to environmental substances such as lead.
108. ADHD often is an allergic reaction or sensitivity to food preservatives.
109. Some children develop ADHD because they want attention.
110. Improving the parenting skills of parents of children with ADHD would benefit their child.
111. Media reports make me uneasy about giving children medication for ADHD.
112. Vitamin therapy is useful in treating ADHD.
113. Family problems such as alcoholism or marital disorder often contribute to a child's ADHD.
114. ADHD can be the result of the child not trying hard enough to control his/her behavior.
115. Limiting a child's sugar intake can be an effective treatment for ADHD.
116. I would not hesitate to medicate a child with ADHD if a doctor recommended it.
117. I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.
118. Social skills training can be helpful for children with ADHD.

119. Clear, consistent rules and consequences are helpful in treating children with ADHD.
120. ADHD is related to parents' use of poor discipline strategies.

Please answer yes or no to questions 121 – 123

121. Do any of your friends or family have ADHD?
122. Do you have ADHD?
123. Have you ever known anyone with ADHD?

On Statements 124 – 147 please indicate how much you agree or disagree with the statement in the given scale below. Please circle the number indicating the extent to which disagree or agree.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

124. We should avoid going to extremes. (has1)

1-----2-----3-----4-----5-----6-----7

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

125. It is more important to pay attention to the whole context rather than the details.
(has2)

126. Future events are predictable based on present situations. (has3)

127. The whole is greater than the sum of its parts. (has4)

128. Everything in the world is intertwined in a causal relationship. (has5)

129. An individual who is currently honest will stay honest in the future.

(has6)

130. Choosing a middle ground in an argument should be avoided. (has7)

131. Any phenomenon entails a numerous number of consequences, although some of them may not be known. (has8)

132. A person who is currently living a successful life will continue to stay successful.

133. It is more important to find a point of compromise than to debate who is right or wrong, when one's opinions conflict with other's opinions. (has10)

134. Nothing is unrelated. (has11)

135. We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior. (has12)

136. It is more desirable to take the middle ground than go to extremes.

(has13)

137. Current situations can change at any time. (has14)

138. It is more important to pay attention to the whole than its parts. (has15)

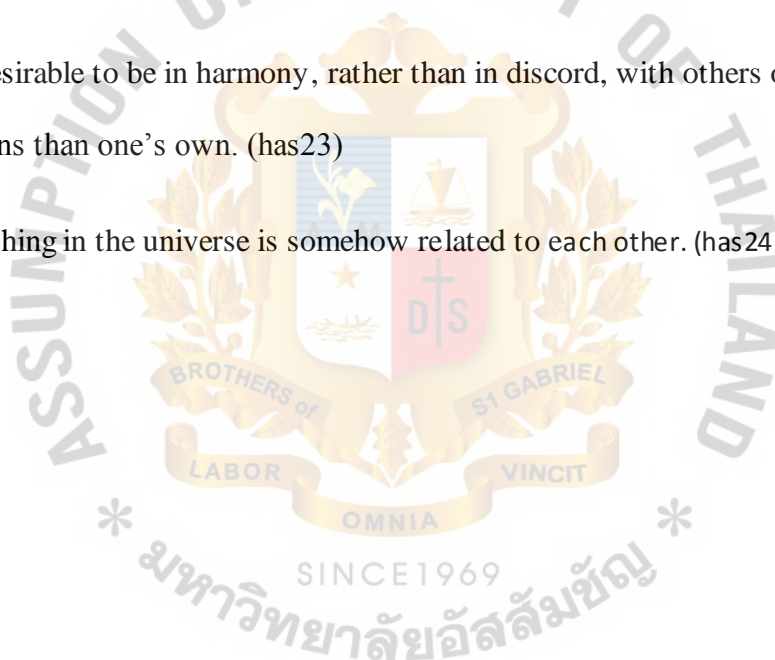
139. If an event is moving toward a certain direction, it will continue to move toward that direction. (has16)

140. Any phenomenon has numerous numbers of causes, although some of the causes are not known. (has17)

141. Every phenomenon in the world moves in predictable directions.

(has18)

142. When disagreement exists among people, they should search for ways to compromise and embrace everyone's opinions. (has19)
143. It is not possible to understand the parts without considering the whole picture. (has20)
144. Even a small change in any element of the universe can lead to significant alterations in other elements. (has21)
145. The whole, rather than its parts, should be considered in order to understand a phenomenon. (has22)
146. It is desirable to be in harmony, rather than in discord, with others of different opinions than one's own. (has23)
147. Everything in the universe is somehow related to each other. (has24)



Appendix B

Exploratory Factor Analysis and Confirmatory Factor Analysis (SPSS Output)

MHLC (Locus of Control)

Communalities

	Initial	Extraction
If I get sick, it is my own behavior which determine how soon I get well again.	1.000	.413
No matter what I do, if I am going to get sick, I will get sick.	1.000	.509
Having regular contact with my physician is the best way for me to avoid illness	1.000	.353
Most things that affect my health happen to me by accident.	1.000	.483
Whenever I don't feel well, I should consult a medically trained professional.	1.000	.526
I am in control of my health.	1.000	.604
My family has a lot to do with my becoming sick or staying healthy.	1.000	.306
When I get sick, I am to blame.	1.000	.359

Luck plays a big part in determining how soon I will recover from an illness.	1.000	.562
Health professionals control my health.	1.000	.524
My good health is largely a matter of good fortune.	1.000	.556
The main thing which affects my health is what I myself do.	1.000	.563
If I take care of myself, I can avoid illness.	1.000	.617
Whenever I recover from an illness, it's usually because other people have been taking good care of me.	1.000	.376
No matter what I do, I'm likely to get sick.	1.000	.523
If it's meant to be, I will stay healthy.	1.000	.468
If I take the right actions, I can stay healthy.	1.000	.626
Regarding my health, I can only do what my doctor tells me to do.	1.000	.410

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings
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	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %
1	4.513	25.073	25.073	4.513	25.073	25.073	3.989	22.164	22.164
2	2.903	16.127	41.200	2.903	16.127	41.200	2.734	15.188	37.352
3	1.361	7.560	48.760	1.361	7.560	48.760	2.053	11.408	48.760
4	1.174	6.525	55.285						
5	1.015	5.637	60.922						
6	.891	4.948	65.870						
7	.787	4.371	70.240						
8	.719	3.992	74.232						
9	.671	3.729	77.961						
10	.645	3.581	81.542						
11	.548	3.046	84.588						
12	.511	2.838	87.426						
13	.475	2.640	90.066						
14	.434	2.414	92.480						
15	.429	2.383	94.863						
16	.354	1.966	96.829						
17	.294	1.634	98.463						
18	.277	1.537	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component		
	1	2	3
I am in control of my health.	.674	-.351	
If I take the right actions, I can stay healthy .	.642	-.406	

Whenever I don't feel well, I should consult a medically trained professional.	.638		
If I take care of myself, I can avoid illness.	.633	-.461	
The main thing which affects my health is what I myself do.	.624	-.396	
If it's meant to be, I will stay healthy.	.584		
When I get sick, I am to blame.	.567		
Whenever I recover from an illness, it's usually because other people have been taking good care of me.	.567		
My family has a lot to do with my becoming sick or staying healthy.	.532		
Having regular contact with my physician is the best way for me to avoid illness	.528		
Regarding my health, I can only do what my doctor tells me to do.	.429	.372	
Luck plays a big part in determining how soon I will recover from an illness.		.650	
No matter what I do, I'm likely to get sick.		.592	.410
Health professionals control my health.	.362	.574	

Most things that affect my health happen to me by accident.	.363	.571	
My good health is largely a matter of good fortune.	.363	.545	-.356
No matter what I do, if I am going to get sick, I will get sick.	.331	.456	.438
If I get sick, it is my own behavior which determine how soon I get well again.	.390		.511

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Rotated Component Matrix^a

	Component		
	1	2	3
If I take care of myself, I can avoid illness.	.778		
I am in control of my health.	.775		
The main thing which affects my health is what I myself do.	.750		
If I take the right actions, I can stay healthy.	.708		
Whenever I don't feel well, I should consult a medically trained professional.	.683		
If it's meant to be, I will stay healthy.	.565		.371

My family has a lot to do with my becoming sick or staying healthy.	.502		
When I get sick, I am to blame.	.483	.343	
Luck plays a big part in determining how soon I will recover from an illness.		.740	
My good health is largely a matter of good fortune.		.739	
Health professionals control my health.		.709	
Most things that affect my health happen to me by accident.		.661	
Having regular contact with my physician is the best way for me to avoid illness		.391	.332
No matter what I do, if I am going to get sick, I will get sick.			.664
If I get sick, it is my own behavior which determine how soon I get well again.			.588
No matter what I do, I 'm likely to get sick.			.584
Regarding my health, I can only do what my doctor tells me to do.			.554

Whenever I recover from an illness, it's usually because other people have been taking good care of me.	.407		.438
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Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3
1	.840	.370	.397
2	-.512	.782	.356
3	-.179	-.502	.846

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

KMO and Bartlett's Test

Kaiser-Meyer-Okin Measure of Sampling Adequacy .		.801
Bartlett's Test of Sphericity	Approx. Chi-Square	1097.669
	df	153
	Sig.	.000

Communalities

	Initial	Extraction
If I get sick, it is my own behavior which determine how soon I get well again.	1.000	.413

No matter what I do, if I am going to get sick, I will get sick.	1.000	.509
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Whenever I recover from an illness, it's usually because other people have been taking good care of me.	1.000	.376
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If I take the right actions, I can stay healthy .	1.000	.626
Regarding my health, I can only do what my doctor tells me to do.	1.000	.410

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.513	25.073	25.073	4.513	25.073	25.073	3.989	22.164	22.164
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15	.429	2.383	94.863					
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17	.294	1.634	98.463					
18	.277	1.537	100.000					

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component		
	1	2	3
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The main thing which affects my health is what I myself do.	.624	-.396	
If it's meant to be, I will stay healthy.	.584		
When I get sick, I am to blame.	.567		

Whenever I recover from an illness, it's usually because other people have been taking good care of me.	.567		
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Having regular contact with my physician is the best way for me to avoid illness	.528		
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Luck plays a big part in determining how soon I will recover from an illness.	.650		
No matter what I do, I'm likely to get sick.	.592	.410	
Health professionals control my health.	.362	.574	
Most things that affect my health happen to me by accident.	.363	.571	
My good health is largely a matter of good fortune.	.363	.545	-.356
No matter what I do, if I am going to get sick, I will get sick.	.331	.456	.438
If I get sick, it is my own behavior which determine how soon I get well again.	.390		.511

Rotated Component Matrix^a

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	1	2	3
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I am in control of my health.	.775		
The main thing which affects my health is what I myself do.	.750		
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Whenever I don't feel well, I should consult a medically trained professional.	.683		
If it's meant to be, I will stay healthy.	.565		.371
My family has a lot to do with my becoming sick or staying healthy.	.502		
When I get sick, I am to blame.	.483	.343	
Luck plays a big part in determining how soon I will recover from an illness.		.740	
My good health is largely a matter of good fortune.		.739	
Health professionals control my health.		.709	

Most things that affect my health happen to me by accident.		.661	
Having regular contact with my physician is the best way for me to avoid illness		.391	.332
No matter what I do, if I am going to get sick, I will get sick.			.664
If I get sick, it is my own behavior which determine how soon I get well again.			.588
No matter what I do, I 'm likely to get sick.		.584	
Regarding my health, I can only do what my doctor tells me to do.		.554	
Whenever I recover from an illness, it's usually because other people have been taking good care of me.	.407		.438

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser

Normalization.^a

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3
1	.840	.370	.397
2	-.512	.782	.356
3	-.179	-.502	.846

Correlation Matrix

		If I get sick, it is my own behavior which determine how soon I get well again.	No matter what I do, if I am going to get sick, I will get sick.	Having regular contact with my physician is the best way for me to avoid illness	Most things that affect my health happen to me by accident.	Whenever I don't feel well, I should consult a medically trained professional.	I am in control of my health.	My family has a lot to do with my becoming sick or staying healthy.	When I get sick, I am to blame.	Luck plays a big part in determining how soon I will recover from an illness.	Health professionals control my health.	My good health is largely a matter of good fortune.	The main thing which affects my health is what I myself do.	If I take care of myself, I can avoid illness.	When ever I recover from an illness, it's usually because other people have been taking good care of me.	No matter what I do, I'm likely to get sick.	If it's meant to be, I will stay healthy.	If I take the right actions, I can stay healthy.	Regarding my health, I can only do what my doctor tells me to do.
Correlation	If I get sick, it is my own behavior which determine how soon I get well again.	1.000	.315	.186	.048	.066	.174	.158	.202	.084	.056	.015	.239	.244	.128	.140	.239	.263	.119
	No matter what I do, if I am going to get sick, I will get sick.	.315	1.000	.368	.348	.036	.044	.070	.164	.180	.216	.198	.039	.010	.180	.313	.122	.009	.257
	Having regular contact with my physician is the best way for me to avoid illness	.186	.368	1.000	.293	.344	.160	.121	.277	.213	.317	.217	.252	.238	.205	.130	.147	.207	.253
	Most things that affect my health happen to me by accident.	.048	.348	.293	1.000	.096	.140	.240	.274	.356	.343	.391	-.024	.000	.185	.252	.025	-.050	.243
	Whenever I don't feel well, I should consult a medically trained professional.	.066	.036	.344	.096	1.000	.491	.355	.228	.073	.176	.174	.472	.375	.324	-.129	.337	.346	.155
	I am in control of my health.	.174	.044	.160	.140	.491	1.000	.413	.413	-.015	.027	.029	.499	.577	.261	-.137	.330	.455	.153
	My family has a lot to do with my becoming sick or staying healthy.	.158	.070	.121	.240	.355	.413	1.000	.248	.173	.000	.149	.292	.266	.196	.000	.225	.311	.246
	When I get sick, I am to blame.	.202	.164	.277	.274	.228	.413	.248	1.000	.147	.281	.190	.311	.343	.159	.035	.226	.258	.113
	Luck plays a big part in determining how soon I will recover from an illness.	.084	.180	.213	.356	.073	-.015	.173	.147	1.000	.445	.484	-.057	-.132	.114	.233	-.075	-.085	.283
	Health professionals control my health.	.056	.216	.317	.343	.176	.027	.000	.281	.445	1.000	.471	.072	-.030	.181	.238	.096	.019	.240
	My good health is largely a matter of good fortune.	.015	.198	.217	.391	.174	.029	.149	.190	.484	.471	1.000	.061	.061	.166	.191	.130	-.014	.208
	The main thing which affects my health is what I myself do.	.239	.039	.252	-.024	.472	.499	.292	.311	-.057	.072	.061	1.000	.559	.271	-.157	.348	.419	-.029
	If I take care of myself, I can avoid illness.	.244	.010	.238	.000	.375	.577	.256	.343	-.132	-.030	.061	.559	1.000	.275	-.238	.357	.512	.087
	When ever I recover from an illness, it's usually because other people have been taking good care of me.	.128	.180	.205	.185	.324	.261	.196	.159	.114	.181	.166	.271	.275	1.000	.107	.330	.391	.422
	No matter what I do, I'm likely to get sick.	.140	.313	.130	.252	-.129	-.137	.000	.035	.233	.238	.191	-.157	-.238	.107	1.000	.008	-.136	.286
	If it's meant to be, I will stay healthy.	.239	.122	.147	.025	.337	.330	.225	.226	-.075	.096	.130	.348	.357	.330	.008	1.000	.596	.166
	If I take the right actions, I can stay healthy.	.263	.009	.207	-.050	.346	.455	.311	.258	-.085	.019	-.014	.419	.512	.391	-.136	.596	1.000	.210
	Regarding my health, I can only do what my doctor tells me to do.	.119	.257	.253	.243	.155	.153	.246	.113	.283	.240	.208	-.029	.087	.422	.286	.166	.210	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .		.889
Bartlett's Test of Sphericity	Approx. Chi-Square	702.622
	df	45
	Sig.	.000

Religiosity (SBI)

Communalities

	Initial	Extraction
Religion is important to my day-to-day life.	1.000	.599
Prayer or meditation has helped me cope during times of serious illness.	1.000	.462
I believe God, Buddha, or my religion protects me from harm	1.000	.587
I feel certain that God and/or kama in some form exists.	1.000	.605
I pray for help during bad times.	1.000	.566
I believe that God and/or kama will not give me a burden I cannot carry.	1.000	.640
One's life and death follows a predetermined plan from God and/or is determined my kama from previously lives.	1.000	.452

During times of illness, my religious or spiritual beliefs have been strengthened.	1.000	.597
I have experienced peace of mind through my prayers and meditation.	1.000	.636
I have experienced a sense of hope as a result of my religious or spiritual beliefs.	1.000	.514

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.584	45.837	45.837	4.584	45.837	45.837	3.235	32.351	32.351
2	1.075	10.745	56.582	1.075	10.745	56.582	2.423	24.231	56.582
3	.826	8.263	64.845						
4	.680	6.805	71.650						
5	.637	6.372	78.022						
6	.549	5.491	83.513						
7	.479	4.786	88.299						
8	.430	4.303	92.602						
9	.397	3.973	96.576						
10	.342	3.424	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
--	-----------

	1	2
I feel certain that God and/or kama in some form exists.	.772	
I believe God, Buddha, or my religion protects me from harm	.766	
I pray for help during bad times.	.751	
I have experienced a sense of hope as a result of my religious or spiritual beliefs.	.707	
One's life and death follows a predetermined plan from God and/or is determined my kama from previously lives.	.664	
Religion is important to my day-to-day life.	.654	-.413
I have experienced peace of mind through my prayers and meditation.	.649	-.464
Prayer or meditation has helped me cope during times of serious illness.	.647	
During times of illness, my religious or spiritual beliefs have been strengthened.	.635	.440
I believe that God and/or kama will not give me a burden I cannot carry.	.474	.644

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix^a

	Component	
	1	2
I have experienced peace of mind through my prayers and meditation.	.797	
Religion is important to my day-to-day life.	.770	
I feel certain that God and/or kama in some form exists.	.666	.402
Prayer or meditation has helped me cope during times of serious illness.	.636	
I believe God, Buddha, or my religion protects me from harm	.587	.493
I pray for help during bad times.	.570	.491
I believe that God and/or kama will not give me a burden I cannot carry.		.800
During times of illness, my religious or spiritual beliefs have been strengthened.		.739
I have experienced a sense of hope as a result of my religious or spiritual beliefs.	.479	.533

One's life and death follows a predetermined plan from God and/or is determined my kama from previously lives.	.456	.494
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Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	.785	.620
2	-.620	.785

Extraction Method: Principal Component Analysis.

Stigmatization

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .		.769
Bartlett's Test of Sphericity	Approx. Chi-Square	2964.964
	df	780
	Sig.	.000

Communalities

	Initial	Extraction
More tax money should be spent on the care and treatment of the mentally ill.	1.000	.650

The best therapy for many mental health patients is to be part of a normal community.	1.000	.676
The mentally ill are a burden to society.	1.000	.607
Locating mental health facilities in a residential area downgrades the neighbourhood.	1.000	.756
The mentally ill have for too long been the subject of ridicule.	1.000	.609
As far as possible mental health services should be provided through community-based facilities.	1.000	.714
Increased spending on mental health services is a waste of tax dollars.	1.000	.714
Having mental patients living within residential neighbourhoods might be good therapy, but risks to residents are too great.	1.000	.842
We need to adopt a far more tolerant attitude toward the mentally ill in our society.	1.000	.698

Residents should accept the location of mental health facilities in their neighbourhood to serve the local community	1.000	.761
There are sufficient existing services for the mentally ill.	1.000	.752
Local residents have good reason to resist the location of mental health services in their neighbourhood.	1.000	.659
Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	1.000	.561
Locating mental health services in residential neighbourhoods does not endanger local residents.	1.000	.726
The mentally ill do not deserve our sympathy.	1.000	.725
Mental health facilities should be kept out of residential neighbourhoods.	1.000	.714
We have the responsibility to provide the best possible care for the mentally ill.	1.000	.674

Residents have nothing to fear from people coming into their neighbourhood to obtain mental health treatment services.	1.000	.705
It is best to avoid any one who has a mental illness.	1.000	.603
It is frightening to think of the mentally ill living in residential neighbourhoods.	1.000	.700
As soon as a person shows signs of mental disturbance, he should be hospitalized.	1.000	.606
The mentally ill should be isolated from the rest of the community.	1.000	.677
Mental illness is an illness like any other.	1.000	.673
The mentally ill are far less of a danger than most people suppose.	1.000	.588
There is something about the mentally ill that makes it easy to tell them from normal people.	1.000	.603
A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	1.000	.674

Less emphasis should be placed on protecting the public from the mentally ill.	1.000	.685
No one has the right to exclude the mentally ill from their neighbourhood.	1.000	.735
Mental patients need the same kind of control and discipline as a young child.	1.000	.549
I would not want to live next door to someone who has been mentally ill.	1.000	.662
The mentally ill should not be treated as outcasts of society.	1.000	.670
Mental patients should be encouraged to assume the responsibilities of normal life.	1.000	.667
The best way to handle the mentally ill is to keep them behind locked doors.	1.000	.710
Any one with a history of mental problems should be excluded from taking public office.	1.000	.703
Mental hospitals are an outdated means of treating the mentally ill.	1.000	.585

The mentally ill should not be denied their individual rights.	1.000	.704
One of the main causes of mental illness is a lack of self-discipline and will power.	1.000	.663
The mentally should not be given any responsibility.	1.000	.591
Virtually anyone can become mentally ill.	1.000	.617
Most women who were once patients in a mental hospital can be trusted as babysitters.	1.000	.619

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.786	19.464	19.464	7.786	19.464	19.464
2	4.194	10.486	29.950	4.194	10.486	29.950
3	1.862	4.656	34.606	1.862	4.656	34.606
4	1.679	4.197	38.803	1.679	4.197	38.803
5	1.573	3.931	42.734	1.573	3.931	42.734
6	1.509	3.771	46.506	1.509	3.771	46.506
7	1.351	3.378	49.884	1.351	3.378	49.884
8	1.290	3.226	53.110	1.290	3.226	53.110
9	1.199	2.999	56.108	1.199	2.999	56.108
10	1.192	2.981	59.089	1.192	2.981	59.089
11	1.112	2.781	61.870	1.112	2.781	61.870
12	1.072	2.681	64.551	1.072	2.681	64.551

13	1.009	2.521	67.072	1.009	2.521	67.072
14	.977	2.443	69.515			
15	.886	2.215	71.730			
16	.858	2.144	73.874			
17	.826	2.064	75.939			
18	.738	1.845	77.784			
19	.670	1.674	79.458			
20	.645	1.613	81.071			
21	.618	1.546	82.617			
22	.589	1.473	84.090			
23	.565	1.412	85.502			
24	.553	1.382	86.884			
25	.525	1.312	88.196			
26	.476	1.190	89.386			
27	.466	1.165	90.551			
28	.431	1.077	91.629			
29	.402	1.006	92.634			
30	.391	.978	93.612			
31	.379	.947	94.559			
32	.337	.844	95.402			
33	.298	.744	96.147			
34	.271	.678	96.825			
35	.259	.648	97.472			
36	.246	.614	98.086			
37	.218	.546	98.632			
38	.215	.537	99.169			
39	.178	.444	99.613			
40	.155	.387	100.000			

Extraction Method: Principal Component Analysis.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Okin Measure of Sampling Adequacy .		.769
Bartlett's Test of Sphericity	Approx. Chi-Square	2964.964
	df	780
	Sig.	.000

Communalities

	Initial	Extraction
More tax money should be spent on the care and treatment of the mentally ill.	1.000	.311
The best therapy for many mental health patients is to be part of a normal community.	1.000	.349
The mentally ill are a burden to society.	1.000	.418
Locating mental health facilities in a residential area downgrades the neighbourhood.	1.000	.295
The mentally ill have for too long been the subject of ridicule.	1.000	.293

As far as possible mental health services should be provided through community-based facilities.	1.000	.558
Increased spending on mental health services is a waste of tax dollars.	1.000	.477
Having mental patients living within residential neighbourhoods might be good therapy, but risks to residents are too great.	1.000	.371
We need to adopt a far more tolerant attitude toward the mentally ill in our society.	1.000	.376
Residents should accept the location of mental health facilities in their neighbourhood to serve the local community	1.000	.402
There are sufficient existing services for the mentally ill.	1.000	.373
Local residents have good reason to resist the location of mental health services in their neighbourhood.	1.000	.442

Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	1.000	.220
Locating mental health services in residential neighbourhoods does not endanger local residents.	1.000	.361
The mentally ill do not deserve our sympathy.	1.000	.547
Mental health facilities should be kept out of residential neighbourhoods.	1.000	.355
We have the responsibility to provide the best possible care for the mentally ill.	1.000	.381
Residents have nothing to fear from people coming into their neighbourhood to obtain mental health treatment services.	1.000	.532
It is best to avoid anyone who has a mental illness.	1.000	.438
It is frightening to think of the mentally ill living in residential neighbourhoods.	1.000	.571
As soon as a person shows signs of mental disturbance, he should be hospitalized.	1.000	.382

The mentally ill should be isolated from the rest of the community.	1.000	.448
Mental illness is an illness like any other.	1.000	.402
The mentally ill are far less of a danger than most people suppose.	1.000	.427
There is something about the mentally ill that makes it easy to tell them from normal people.	1.000	.346
A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	1.000	.402
Less emphasis should be placed on protecting the public from the mentally ill.	1.000	.530
No one has the right to exclude the mentally ill from their neighbourhood.	1.000	.395
Mental patients need the same kind of control and discipline as a young child.	1.000	.312
I would not want to live next door to someone who has been mentally ill.	1.000	.415
The mentally ill should not be treated as outcasts of society.	1.000	.272

Mental patients should be encouraged to assume the responsibilities of normal life.	1.000	.469
The best way to handle the mentally ill is to keep them behind locked doors.	1.000	.487
Any one with a history of mental problems should be excluded from taking public office.	1.000	.185
Mental hospitals are an outdated means of treating the mentally ill.	1.000	.314
The mentally ill should not be denied their individual rights.	1.000	.378
One of the main causes of mental illness is a lack of self-discipline and will power.	1.000	.223
The mentally should not be given any responsibility.	1.000	.275
Virtually anyone can become mentally ill.	1.000	.383
Most women who were once patients in a mental hospital can be trusted as babysitters.	1.000	.411

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.786	19.464	19.464	7.786	19.464	19.464	5.091	12.727	12.727
2	4.194	10.486	29.950	4.194	10.486	29.950	4.193	10.483	23.209
3	1.862	4.656	34.606	1.862	4.656	34.606	3.674	9.186	32.395
4	1.679	4.197	38.803	1.679	4.197	38.803	2.563	6.408	38.803
5	1.573	3.931	42.734						
6	1.509	3.771	46.506						
7	1.351	3.378	49.884						
8	1.290	3.226	53.110						
9	1.199	2.999	56.108						
10	1.192	2.981	59.089						
11	1.112	2.781	61.870						
12	1.072	2.681	64.551						
13	1.009	2.521	67.072						
14	.977	2.443	69.515						
15	.886	2.215	71.730						
16	.858	2.144	73.874						
17	.826	2.064	75.939						
18	.738	1.845	77.784						
19	.670	1.674	79.458						
20	.645	1.613	81.071						
21	.618	1.546	82.617						
22	.589	1.473	84.090						
23	.565	1.412	85.502						
24	.553	1.382	86.884						

25	.525	1.312	88.196					
26	.476	1.190	89.386					
27	.466	1.165	90.551					
28	.431	1.077	91.629					
29	.402	1.006	92.634					
30	.391	.978	93.612					
31	.379	.947	94.559					
32	.337	.844	95.402					
33	.298	.744	96.147					
34	.271	.678	96.825					
35	.259	.648	97.472					
36	.246	.614	98.086					
37	.218	.546	98.632					
38	.215	.537	99.169					
39	.178	.444	99.613					
40	.155	.387	100.000					

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component			
	1	2	3	4
I would not want to live next door to someone who has been mentally ill.	.616			
Less emphasis should be placed on protecting the public from the mentally ill.	.608		.383	

It is frightening to think of the mentally ill living in residential neighbourhoods.	.606			
The mentally ill should be isolated from the rest of the community.	.581			
It is best to avoid anyone who has a mental illness.	.571			
There is something about the mentally ill that makes it easy to tell them from normal people.	.552			
The best way to handle the mentally ill is to keep them behind locked doors.	.538	-.354		
A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	.537			
Increased spending on mental health services is a waste of tax dollars.	.533	-.436		
The mentally ill are a burden to society.	.533	-.342		
Local residents have good reason to resist the location of mental health services in their neighbourhood.	.519		.340	

As soon as a person shows signs of mental disturbance, he should be hospitalized.	.519			
Mental patients need the same kind of control and discipline as a young child.	.503			
There are sufficient existing services for the mentally ill.	.490			
Most women who were once patients in a mental hospital can be trusted as babysitters.	.486		.362	
The mentally ill have for too long been the subject of ridicule.	.480			
Mental health facilities should be kept out of residential neighbourhoods.	.463		.351	
More tax money should be spent on the care and treatment of the mentally ill.	.461			
The mentally ill are far less of a danger than most people suppose.	.447		.432	
The mentally ill should not be treated as outcasts of society.	.441			
One of the main causes of mental illness is a lack of self-discipline and will power.	.440			

Mental hospitals are an outdated means of treating the mentally ill.	.438			
Having mental patients living within residential neighbourhoods might be good therapy, but risks to residents are too great.	.423		-.368	
The mentally should not be given any responsibility.	.404			
Locating mental health facilities in a residential area downgrades the neighbourhood.	.398			
Any one with a history of mental problems should be excluded from taking public office.	.392			
Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	.364			
As far as possible mental health services should be provided through community-based facilities.		.695		

Mental patients should be encouraged to assume the responsibilities of normal life.	.576			
Residents should accept the location of mental health facilities in their neighbourhood to serve the local community	.565			
We have the responsibility to provide the best possible care for the mentally ill.	.539			
The mentally ill should not be denied their individual rights.	.535			
The mentally ill do not deserve our sympathy.	.462	.524		
Virtually anyone can become mentally ill.	.488	.330		
The best therapy for many mental health patients is to be part of a normal community.	.469			
Residents have nothing to fear from people coming into their neighbourhood to obtain mental health treatment services.	.461		.365	
Locating mental health services in residential neighbourhoods does not endanger local residents.	.434			

We need to adopt a far more tolerant attitude toward the mentally ill in our society.	.359	.362		
Mental illness is an illness like any other.			.496	
No one has the right to exclude the mentally ill from their neighbourhood.			.459	

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

Rotated Component Matrix^a

	Component			
	1	2	3	4
The mentally ill do not deserve our sympathy.	.687			
The best way to handle the mentally ill is to keep them behind locked doors.	.674			
Increased spending on mental health services is a waste of tax dollars.	.605			
A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	.596			
There are sufficient existing services for the mentally ill.	.592			

Most women who were once patients in a mental hospital can be trusted as babysitters.	.545		.333	
The mentally ill are a burden to society.	.543			
I would not want to live next door to someone who has been mentally ill.	.530			
The mentally ill should be isolated from the rest of the community.	.519	.413		
It is best to avoid anyone who has a mental illness.	.474	.457		
The mentally ill have for too long been the subject of ridicule.	.431			
The mentally ill are far less of a danger than most people suppose.	.429	.421		
There is something about the mentally ill that makes it easy to tell them from normal people.	.391	.358		
One of the main causes of mental illness is a lack of self-discipline and will power.	.379			

Residents have nothing to fear from people coming into their neighbourhood to obtain mental health treatment services.	.678			
As far as possible mental health services should be provided through community-based facilities.	.661			
Residents should accept the location of mental health facilities in their neighbourhood to serve the local community	.606			
Locating mental health services in residential neighbourhoods does not endanger local residents.	.588			
We have the responsibility to provide the best possible care for the mentally ill.	.581			
The best therapy for many mental health patients is to be part of a normal community.	.578			
Mental patients should be encouraged to assume the responsibilities of normal life.	.497		.455	

We need to adopt a far more tolerant attitude toward the mentally ill in our society.	.471	.385		
More tax money should be spent on the care and treatment of the mentally ill.	.417			
The mentally ill should not be denied their individual rights.	.399	.359		
Mental patients need the same kind of control and discipline as a young child.	.361			
It is frightening to think of the mentally ill living in residential neighbourhoods.	.428	.595		
Having mental patients living within residential neighbourhoods might be good therapy, but risks to residents are too great.		.531		
Locating mental health facilities in a residential area downgrades the neighbourhood.		.480		
As soon as a person shows signs of mental disturbance, he should be hospitalized.		.477		

Local residents have good reason to resist the location of mental health services in their neighbourhood.	.464	.386
The mentally should not be given any responsibility.	.452	
The mentally ill should not be treated as outcasts of society.	.430	
Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	.402	
Any one with a history of mental problems should be excluded from taking public office.	.339	
Mental illness is an illness like any other.	.615	
No one has the right to exclude the mentally ill from their neighbourhood.	.604	
Less emphasis should be placed on protecting the public from the mentally ill.	.435	.493
Mental hospitals are an outdated means of treating the mentally ill.		.440
Virtually anyone can become mentally ill.		.435

Mental health facilities should be kept out of residential neighbourhoods.			.386	.424
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Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 7 iterations.

Component Transformation Matrix

Component	1	2	3	4
1	.671	.351	.571	.317
2	-.510	.830	-.035	.222
3	-.248	-.388	.037	.887
4	.478	.191	-.819	.252

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Attitudes Towards ADHD

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .		.904
Bartlett's Test of Sphericity	Approx. Chi-Square	2956.280
	df	300
	Sig.	.000

Communalities

	Initial	Extraction
People's attitudes about ADHD may make people with ADHD feel worse about themselves.	1.000	.518

Someone who has ADHD would think it's risky to tell others about it	1.000	.707
People with ADHD work hard to keep it a secret.	1.000	.449
Most people think that people with ADHD are damaged.	1.000	.661
Most people with ADHD are rejected when others find out.	1.000	.665
After learning they have ADHD, people worry about others discriminating against them.	1.000	.712
People with ADHD worry that others may judge them when they learn that they have a mental illness.	1.000	.769
People with ADHD regret having told some people that they have ADHD.	1.000	.715
Some people act as though it's the person's fault that they have ADHD.	1.000	.672
People seem afraid of a person with ADHD once they learn they have ADHD.	1.000	.738
People with ADHD feel guilty about it.	1.000	.708

People with ADHD lose their jobs when their employers find out.	1.000	.674
Some people with ADHD feel they aren't as good a person as others because they have ADHD.	1.000	.640
People with ADHD are treated like outcasts.	1.000	.741
People with ADHD feel damaged because of it.	1.000	.746
After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	1.000	.748
A person with ADHD feels that he or she is bad because of it.	1.000	.750
People with ADHD are very careful about who they tell.	1.000	.809
Some people who learn of another person having ADHD grow distant from the person with ADHD.	1.000	.766
Most people are uncomfortable around someone with ADHD.	1.000	.706
As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	1.000	.649

People don't want someone with ADHD around their children.	1.000	.711
People with ADHD have lost friends by telling them they have ADHD.	1.000	.757
The good points of people with ADHD tend to be ignored.	1.000	.569
People with ADHD have told others close to them to keep the fact that they have ADHD a secret.	1.000	.575

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.361	41.444	41.444	10.361	41.444	41.444	3.571	14.285	14.285
2	1.843	7.370	48.815	1.843	7.370	48.815	2.915	11.662	25.947
3	1.425	5.701	54.516	1.425	5.701	54.516	2.800	11.200	37.147
4	1.304	5.215	59.730	1.304	5.215	59.730	2.722	10.889	48.036
5	1.152	4.606	64.336	1.152	4.606	64.336	2.648	10.591	58.627
6	1.073	4.291	68.628	1.073	4.291	68.628	2.500	10.000	68.628
7	.875	3.500	72.128						
8	.843	3.373	75.501						
9	.736	2.942	78.444						
10	.573	2.290	80.734						
11	.536	2.144	82.878						

12	.502	2.007	84.885						
13	.477	1.907	86.792						
14	.442	1.767	88.559						
15	.418	1.671	90.230						
16	.365	1.462	91.691						
17	.334	1.335	93.027						
18	.279	1.117	94.143						
19	.267	1.066	95.210						
20	.246	.985	96.194						
21	.221	.884	97.079						
22	.211	.845	97.923						
23	.189	.755	98.678						
24	.176	.705	99.382						
25	.154	.618	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component					
	1	2	3	4	5	6
After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	.729					
A person with ADHD feels that he or she is bad because of it.	.727			-.416		
People with ADHD regret having told some people that they have ADHD.	.721					-.346

Most people think that people with ADHD are damaged.	.714					
People with ADHD feel guilty about it.	.712		-.330			
Some people who learn of another person having ADHD grow distant from the person with ADHD.	.701				.335	
People with ADHD are very careful about who they tell.	.691			-.395		
People with ADHD lose their jobs when their employers find out.	.691					
Most people with ADHD are rejected when others find out.	.688	.405				
People seem afraid of a person with ADHD once they learn they have ADHD.	.681		-.450			
Some people act as though it's the person's fault that they have ADHD.	.677		-.361			
People with ADHD worry that others may judge them when they learn that they have a mental illness.	.661	.358				
After learning they have ADHD, people worry about others discriminating against them.	.639	.433				

People with ADHD have lost friends by telling them they have ADHD.	.639	-.382				
People with ADHD feel damaged because of it.	.638		.542			
People don't want someone with ADHD around their children.	.635					
As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	.625	-.482				
Some people with ADHD feel they aren't as good a person as others because they have ADHD.	.618					
Most people are uncomfortable around someone with ADHD.	.617	-.438		.344		
Someone who has ADHD would think it's risky to tell others about it	.598	.360			.432	
People with ADHD are treated like outcasts.	.577		.466			
People with ADHD have told others close to them to keep the fact that they have ADHD a secret.	.568			.451		
People with ADHD work hard to keep it a secret.	.513					

People's attitudes about ADHD may make people with ADHD feel worse about themselves.	.466					.368
The good points of people with ADHD tend to be ignored.	.460			.400	.402	

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

Rotated Component Matrix^a

	Component					
	1	2	3	4	5	6
People seem afraid of a person with ADHD once they learn they have ADHD.	.764					
People with ADHD feel guilty about it.	.729					
People with ADHD lose their jobs when their employers find out.	.694					
Some people act as though it's the person's fault that they have ADHD.	.624					.407
People with ADHD are very careful about who they tell.		.799				
A person with ADHD feels that he or she is bad because of it.		.695			.343	

Some people who learn of another person having ADHD grow distant from the person with ADHD.	.653		.436		
After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	.592			.456	
People's attitudes about ADHD may make people with ADHD feel worse about themselves.		.672			
Someone who has ADHD would think it's risky to tell others about it	.451	.653			
Most people think that people with ADHD are damaged.	.400	.592			
People with ADHD work hard to keep it a secret.		.557			
Most people with ADHD are rejected when others find out.	.405	.527		.357	
The good points of people with ADHD tend to be ignored.			.659		
People with ADHD have lost friends by telling them they have ADHD.	.477		.624		
Most people are uncomfortable around someone with ADHD.	.439		.603		

People don't want someone with ADHD around their children.	.463			.583		
As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	.385	.342		.573		
People with ADHD have told others close to them to keep the fact that they have ADHD a secret.			.429	.542		
People with ADHD are treated like outcasts.					.806	
People with ADHD feel damaged because of it.					.739	
Some people with ADHD feel they aren't as good a person as others because they have ADHD.					.688	
People with ADHD worry that others may judge them when they learn that they have a mental illness.						.764
After learning they have ADHD, people worry about others discriminating against them.			.336			.711
People with ADHD regret having told some people that they have ADHD.	.408					.633

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 22 iterations.

Component Transformation Matrix

Component	1	2	3	4	5	6
1	.498	.424	.397	.374	.381	.360
2	-.016	-.192	.563	-.575	-.258	.499
3	-.694	.189	.094	-.161	.661	.102
4	-.202	-.719	.244	.591	.077	.163
5	-.396	.377	-.239	.338	-.491	.537
6	-.267	.297	.633	.201	-.322	-.544

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .		.904
Bartlett's Test of Sphericity	Approx. Chi-Square	2956.280
	df	300
	Sig.	.000

Communalities

	Initial	Extraction
People's attitudes about ADHD may make people with ADHD feel worse about themselves.	1.000	.217
Someone who has ADHD would think it's risky to tell others about it	1.000	.357

People with ADHD work hard to keep it a secret.	1.000	.263
Most people think that people with ADHD are damaged.	1.000	.510
Most people with ADHD are rejected when others find out.	1.000	.474
After learning they have ADHD, people worry about others discriminating against them.	1.000	.409
People with ADHD worry that others may judge them when they learn that they have a mental illness.	1.000	.437
People with ADHD regret having told some people that they have ADHD.	1.000	.519
Some people act as though it's the person's fault that they have ADHD.	1.000	.458
People seem afraid of a person with ADHD once they learn they have ADHD.	1.000	.463
People with ADHD feel guilty about it.	1.000	.507
People with ADHD lose their jobs when their employers find out.	1.000	.478

Some people with ADHD feel they aren't as good a person as others because they have ADHD.	1.000	.382
People with ADHD are treated like outcasts.	1.000	.333
People with ADHD feel damaged because of it.	1.000	.407
After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	1.000	.532
A person with ADHD feels that he or she is bad because of it.	1.000	.528
People with ADHD are very careful about who they tell.	1.000	.478
Some people who learn of another person having ADHD grow distant from the person with ADHD.	1.000	.491
Most people are uncomfortable around someone with ADHD.	1.000	.381
As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	1.000	.391
People don't want someone with ADHD around their children.	1.000	.403

People with ADHD have lost friends by telling them they have ADHD.	1.000	.409
The good points of people with ADHD tend to be ignored.	1.000	.212
People with ADHD have told others close to them to keep the fact that they have ADHD a secret.	1.000	.323

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.361	41.444	41.444	10.361	41.444	41.444
2	1.843	7.370	48.815			
3	1.425	5.701	54.516			
4	1.304	5.215	59.730			
5	1.152	4.606	64.336			
6	1.073	4.291	68.628			
7	.875	3.500	72.128			
8	.843	3.373	75.501			
9	.736	2.942	78.444			
10	.573	2.290	80.734			
11	.536	2.144	82.878			
12	.502	2.007	84.885			
13	.477	1.907	86.792			

14	.442	1.767	88.559			
15	.418	1.671	90.230			
16	.365	1.462	91.691			
17	.334	1.335	93.027			
18	.279	1.117	94.143			
19	.267	1.066	95.210			
20	.246	.985	96.194			
21	.221	.884	97.079			
22	.211	.845	97.923			
23	.189	.755	98.678			
24	.176	.705	99.382			
25	.154	.618	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component
	1
After learning they have ADHD, a person may feel set apart and isolated from the rest of the world.	.729
A person with ADHD feels that he or she is bad because of it.	.727
People with ADHD regret having told some people that they have ADHD.	.721
Most people think that people with ADHD are damaged.	.714

People with ADHD fell guilty about it.	.712
Some people who learn of another person having ADHD grow distant from the person with ADHD.	.701
People with ADHD are very careful about who they tell.	.691
People with ADHD lose their jobs when their employers find out.	.691
Most people with ADHD are rejected when others find out.	.688
People seem afraid of a person with ADHD once they learn they have ADHD.	.681
Some people act as though it's the person's fault that they have ADHD.	.677
People with ADHD worry that others may judge them when they learn that they have a mental illness.	.661
After learning they have ADHD, people worry about others discriminating against them.	.639

People with ADHD have lost friends by telling them they have ADHD.	.639
People with ADHD feel damaged because of it.	.638
People don't want someone with ADHD around their children.	.635
As a rule, people with ADHD feel that telling others that they have ADHD was a mistake.	.625
Some people with ADHD feel they aren't as good a person as others because they have ADHD.	.618
Most people are uncomfortable around someone with ADHD.	.617
Someone who has ADHD would think it's risky to tell others about it	.598
People with ADHD are treated like outcasts.	.577
People with ADHD have told others close to them to keep the fact that they have ADHD a secret.	.568
People with ADHD work hard to keep it a secret.	.513

People's attitudes about ADHD may make people with ADHD feel worse about themselves.	.466
The good points of people with ADHD tend to be ignored.	.460

Extraction Method: Principal Component Analysis.

Perceptions of ADHD

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .		.822
Bartlett's Test of Sphericity	Approx. Chi-Square	2097.710
	df	351
	Sig.	.000

Communalities

	Initial	Extraction
Medication is a safe treatment for ADHD.	1.000	.098
Special diets are often helpful for treating ADHD.	1.000	.288
ADHD is related to neurological functioning in the brain.	1.000	.510

Special teaching techniques are helpful in managing ADHD.	1.000	.482
ADHD is likely to be inherited.	1.000	.221
Behaviour management is an effective treatment for ADHD.	1.000	.406
A combination of medication and behaviour management is best for treating ADHD.	1.000	.426
Training teachers in behaviour management is a useful treatment for ADHD.	1.000	.417
It is likely that medications used to treat ADHD are effective because they alter the neurotransmitters in the child's brain.	1.000	.334
The amount of structure in the child's environment (e.g., routines) can affect ADHD symptoms.	1.000	.469
Medication is almost always an effective treatment for ADHD.	1.000	.302
Symptoms of ADHD often are evident early in the child's life.	1.000	.383

ADHD results from parents being inconsistent with rules and consequences.	1.000	.266
ADHD is caused by exposure to environmental substances such as lead.	1.000	.459
ADHD often is an allergic reaction or sensitivity to food preservatives.	1.000	.545
Some children develop ADHD because they want attention.	1.000	.384
Improving the parenting skills of parents of children with ADHD would benefit their child.	1.000	.483
Media reports make me uneasy about giving children medication for ADHD.	1.000	.389
Vitamin therapy is useful in treating ADHD.	1.000	.303
Family problems such as alcoholism or marital disorder often contribute to a child's ADHD.	1.000	.441
ADHD can be the result of the child not trying hard enough to control his/her behaviour.	1.000	.344

Limiting a child's sugar intake can be an effective treatment for ADHD.	1.000	.488
I would not hesitate to medicate a child with ADHD if a doctor recommended it.	1.000	.364
I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.	1.000	.175
Social skills training can be helpful for children with ADHD.	1.000	.523
Clear, consistent rules and consequences are helpful in treating children with ADHD.	1.000	.401
ADHD is related to parents' use of poor discipline strategies.	1.000	.326

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.208	26.698	26.698	7.208	26.698	26.698	5.601	20.744	20.744
2	3.019	11.181	37.879	3.019	11.181	37.879	4.626	17.135	37.879
3	1.496	5.541	43.421						
4	1.335	4.943	48.363						

5	1.265	4.685	53.048					
6	1.229	4.550	57.598					
7	1.021	3.782	61.380					
8	1.000	3.705	65.085					
9	.957	3.546	68.631					
10	.860	3.184	71.815					
11	.767	2.842	74.657					
12	.722	2.673	77.330					
13	.716	2.652	79.981					
14	.649	2.404	82.386					
15	.544	2.014	84.400					
16	.538	1.993	86.393					
17	.495	1.833	88.226					
18	.486	1.800	90.026					
19	.417	1.544	91.570					
20	.399	1.478	93.048					
21	.353	1.308	94.356					
22	.307	1.135	95.491					
23	.290	1.074	96.566					
24	.257	.951	97.517					
25	.245	.908	98.426					
26	.220	.814	99.240					
27	.205	.760	100.000					

Extraction Method: Principal Component Analysis.

Component Matrix^a

	Component	
	1	2

The amount of structure in the child's environment (e.g., routines) can affect ADHD symptoms.	.638	
Improving the parenting skills of parents of children with ADHD would benefit their child.	.632	
Behaviour management is an effective treatment for ADHD.	.619	
Clear, consistent rules and consequences are helpful in treating children with ADHD.	.600	
A combination of medication and behaviour management is best for treating ADHD.	.596	
ADHD can be the result of the child not trying hard enough to control his/her behaviour.	.585	
It is likely that medications used to treat ADHD are effective because they alter the neurotransmitters in the child's brain.	.578	
Special teaching techniques are helpful in managing ADHD.	.572	-.394

ADHD is related to parents' use of poor discipline strategies.	.570	
Family problems such as alcoholism or marital disorder often contribute to a child's ADHD.	.564	.351
ADHD is related to neurological functioning in the brain.	.558	-.445
Training teachers in behaviour management is a useful treatment for ADHD.	.552	-.334
I would not hesitate to medicate a child with ADHD if a doctor recommended it.	.548	
Vitamin therapy is useful in treating ADHD.	.542	
Some children develop ADHD because they want attention.	.518	.341
Special diets are often helpful for treating ADHD.	.506	
Media reports make me uneasy about giving children medication for ADHD.	.493	.383
Symptoms of ADHD often are evident early in the child's life.	.478	-.392

Medication is almost always an effective treatment for ADHD.	.441	
ADHD results from parents being inconsistent with rules and consequences.	.400	
ADHD is likely to be inherited.	.333	.331
Medication is a safe treatment for ADHD.		
ADHD often is an allergic reaction or sensitivity to food preservatives.	.470	.570
ADHD is caused by exposure to environmental substances such as lead.	.379	.562
Limiting a child's sugar intake can be an effective treatment for ADHD.	.458	.527
Social skills training can be helpful for children with ADHD.	.498	.525
I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.		

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix^a

	Component
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	1	2
Social skills training can be helpful for children with ADHD.	.716	
ADHD is related to neurological functioning in the brain.	.714	
Special teaching techniques are helpful in managing ADHD.	.693	
Improving the parenting skills of parents of children with ADHD would benefit their child.	.675	
The amount of structure in the child's environment (e.g., routines) can affect ADHD symptoms.	.655	
Training teachers in behaviour management is a useful treatment for ADHD.	.641	
A combination of medication and behaviour management is best for treating ADHD.	.633	
Symptoms of ADHD often are evident early in the child's life.	.619	
Clear, consistent rules and consequences are helpful in treating children with ADHD.	.596	

I would not hesitate to medicate a child with ADHD if a doctor recommended it.	.587	
Behaviour management is an effective treatment for ADHD.	.580	
It is likely that medications used to treat ADHD are effective because they alter the neurotransmitters in the child's brain.	.442	.373
ADHD can be the result of the child not trying hard enough to control his/her behaviour.	.429	.400
ADHD is related to parents' use of poor discipline strategies.	.428	.378
Medication is a safe treatment for ADHD.		
ADHD often is an allergic reaction or sensitivity to food preservatives.		.738
Limiting a child's sugar intake can be an effective treatment for ADHD.		.698
ADHD is caused by exposure to environmental substances such as lead.		.676

Family problems such as alcoholism or marital disorder often contribute to a child's ADHD.		.625
Media reports make me uneasy about giving children medication for ADHD.		.606
Some children develop ADHD because they want attention.		.588
Medication is almost always an effective treatment for ADHD.		.531
ADHD results from parents being inconsistent with rules and consequences.		.504
ADHD is likely to be inherited.		.466
Special diets are often helpful for treating ADHD.		.455
I would be reluctant to learn specialized teaching techniques to treat a child's ADHD.		.418
Vitamin therapy is useful in treating ADHD.	.369	.408

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 3 iterations.

Component Transformation

Matrix

Component	1	2
1	.785	.619
2	-.619	.785

Extraction Method: Principal

Component Analysis.

Rotation Method: Varimax with

Kaiser Normalization.

Holistic Thinking (CAS)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy .		.872
Bartlett's Test of Sphericity	Approx. Chi-Square	2152.362
	df	276
	Sig.	.000

Communalities

	Initial	Extraction
We should avoid going to extremes. (has 1)	1.000	.206
It is more important to pay attention to the whole context rather than the details. (has2)	1.000	.322
Future events are predictable based on present situations. (has3) (reversed scoring)	1.000	.397

The whole is greater than the sum of its parts. (has4)	1.000	.490
Everything in the world is intertwined in a causal relationship. (has5)	1.000	.361
An individual who is currently honest will stay honest in the future. (has6) (reversed scoring)	1.000	.317
Choosing a middle ground in an argument should be avoided. (has7) (reversed scoring)	1.000	.274
Any phenomenon entails a numerous number of consequences, although some of them may not be known. (has8)	1.000	.200
A person who is currently living a successful life will continue to stay successful. (has9) (reversed scoring)	1.000	.372
It is more important to find a point of compromise than to debate who is right or wrong, when one's opinions conflict with other's opinions. (has10)	1.000	.454

Nothing is unrelated. (has11)	1.000	.425
We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior. (has12)	1.000	.579
It is more desirable to take the middle ground than go to extremes. (has13)	1.000	.440
Current situations can change at any time. (has14)	1.000	.572
It is more important to pay attention to the whole than its parts. (has15)	1.000	.347
If an event is moving toward a certain direction, it will continue to move toward that direction. (has16) (reversed scoring)	1.000	.395
Any phenomenon has numerous numbers of causes, although some of the causes are not known. (has17)	1.000	.409
Every phenomenon in the world moves in predictable directions. (has18) (reversed scoring)	1.000	.378

When disagreement exists among people, they should search for ways to compromise and embrace everyone's opinions. (has19)	1.000	.523
It is not possible to understand the parts without considering the whole picture. (has20)	1.000	.543
Even a small change in any element of the universe can lead to significant alterations in other elements. (has21)	1.000	.586
The whole, rather than its parts, should be considered in order to understand a phenomenon. (has22)	1.000	.470
It is desirable to be in harmony, rather than in discord, with others of different opinions than one's own. (has23)	1.000	.667
Everything in the universe is somehow related to each other. (has24)	1.000	.424

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings
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	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulati ve %
1	7.978	33.241	33.241	7.978	33.241	33.241	5.891	24.547	24.547
2	2.172	9.052	42.293	2.172	9.052	42.293	4.259	17.747	42.293
3	1.740	7.251	49.544						
4	1.525	6.354	55.898						
5	1.045	4.355	60.253						
6	.996	4.151	64.404						
7	.951	3.962	68.365						
8	.855	3.561	71.927						
9	.716	2.982	74.908						
10	.671	2.797	77.705						
11	.630	2.623	80.329						
12	.552	2.301	82.630						
13	.507	2.114	84.744						
14	.488	2.035	86.779						
15	.457	1.906	88.685						
16	.422	1.760	90.445						
17	.386	1.607	92.053						
18	.347	1.446	93.499						
19	.315	1.312	94.811						
20	.281	1.169	95.980						
21	.271	1.129	97.109						
22	.256	1.068	98.177						
23	.238	.991	99.168						
24	.200	.832	100.000						

Component Matrix^a

	Component
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	1	2
We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior. (has12)	.742	
Current situations can change at any time. (has14)	.708	
It is desirable to be in harmony , rather than in discord, with others of different opinions than one's own. (has23)	.703	-.415
It is more important to find a point of compromise than to debate who is right or wrong, when one's opinions conflict with other's opinions. (has10)	.669	
It is not possible to understand the parts without considering the whole picture. (has20)	.667	
Even a small change in any element of the universe can lead to significant alterations in other elements. (has21)	.666	-.378

It is more desirable to take the middle ground than go to extremes. (has13)	.657	
The whole, rather than its parts, should be considered in order to understand a phenomenon. (has22)	.645	
Nothing is unrelated. (has11)	.628	
When disagreement exists among people, they should search for ways to compromise and embrace everyone's opinions. (has19)	.614	-.382
Everything in the universe is somehow related to each other. (has24)	.607	
Everything in the world is intertwined in a causal relationship. (has5)	.581	
A person who is currently living a successful life will continue to stay successful. (has9) (reversed scoring)	.572	
It is more important to pay attention to the whole than its parts. (has15)	.559	
The whole is greater than the sum of its parts. (has4)	.547	.437

Any phenomenon has numerous numbers of causes, although some of the causes are not known. (has17)	.534	.352
An individual who is currently honest will stay honest in the future. (has6) (reversed scoring)	.493	
Future events are predictable based on present situations. (has3) (reversed scoring)	.492	.394
Choosing a middle ground in an argument should be avoided. (has7) (reversed scoring)	.477	
Any phenomenon entails a numerous number of consequences, although some of them may not be known. (has8)	.444	
We should avoid going to extremes. (has 1)	.441	
If an event is moving toward a certain direction, it will continue to move toward that direction. (has16) (reversed scoring)	.344	.526

Every phenomenon in the world moves in predictable directions. (has18) (reversed scoring)	.412	.456
It is more important to pay attention to the whole context rather than the details. (has2)	.393	.410

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component	
	1	2
It is desirable to be in harmony , rather than in discord, with others of different opinions than one's own. (has23)	.812	
Even a small change in any element of the universe can lead to significant alterations in other elements. (has21)	.760	
Current situations can change at any time. (has14)	.726	
It is not possible to understand the parts without considering the whole picture. (has20)	.722	

When disagreement exists among people, they should search for ways to compromise and embrace everyone's opinions. (has19)	.720	
We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior. (has12)	.696	
The whole, rather than its parts, should be considered in order to understand a phenomenon. (has22)	.655	
Everything in the universe is somehow related to each other. (has24)	.626	
It is more important to find a point of compromise than to debate who is right or wrong, when one's opinions conflict with other's opinions. (has10)	.582	.339
It is more desirable to take the middle ground than go to extremes. (has13)	.579	
Everything in the world is intertwined in a causal relationship. (has5)	.556	

Any phenomenon entails a numerous number of consequences, although some of them may not be known. (has8)		
The whole is greater than the sum of its parts. (has4)	.678	
If an event is moving toward a certain direction, it will continue to move toward that direction. (has16) (reversed scoring)	.627	
Every phenomenon in the world moves in predictable directions. (has18) (reversed scoring)	.612	
Future events are predictable based on present situations. (has3) (reversed scoring)	.610	
Any phenomenon has numerous numbers of causes, although some of the causes are not known. (has17)	.602	
It is more important to pay attention to the whole context rather than the details. (has2)	.563	

Nothing is unrelated. (has11)	.398	.517
An individual who is currently honest will stay honest in the future. (has6) (reversed scoring)		.513
A person who is currently living a successful life will continue to stay successful. (has9) (reversed scoring)	.330	.513
It is more important to pay attention to the whole than its parts. (has15)	.337	.484
Choosing a middle ground in an argument should be avoided. (has7) (reversed scoring)		.457
We should avoid going to extremes. (has 1)		.352

Component Transformation
Matrix

Component	1	2
1	.800	.600
2	-.600	.800

Extraction Method: Principal
Component Analysis.

Rotation Method: Varimax with
Kaiser Normalization.

Confirmatory Factor Analysis with all

Variables

Indicator Variables (item parcels)		Latent Constructs	Unstd. Estimates	Std. Error	Critical ratio	Sig.	Std. Estimates	Average variance Extracted (AVE)	Composite Reliability
Part A: Factor Loadings								Part C: Convergent validity	
REL1	<---	Religiosity (REL)	1.000				0.767	0.814	0.915
REL2	<---		1.549	0.130	11.919	***	0.989		
REL3	<---		0.829	0.080	10.346	***	0.687		
INT1	<---	Internal Locus (INT)	1.000				0.752	0.814	0.876
INT2	<---		0.974	0.123	7.904	***	0.875		
HOL1	<---	Holistic (HOL)	1.000				0.893	0.844	0.948
HOL2	<---		0.923	0.058	15.907	***	0.844		
HOL3	<---		0.910	0.064	14.128	***	0.789		
HOL4	<---		0.872	0.054	16.070	***	0.848		
STIGM1	<---	Stigmatization (STG)	1.000				0.678	0.703	0.869
STIGM2	<---		1.277	0.145	8.791	***	0.739		
STIGM3	<---		1.285	0.136	9.458	***	0.835		
STIGM4	<---		0.770	0.110	7.002	***	0.560		
ATTP1	<---	Attitude ADHD (ATT)	1.000				0.889	0.901	0.961
ATTP2	<---		0.966	0.052	18.628	***	0.908		
ATTP3	<---		1.248	0.067	18.529	***	0.905		
PER1	<---	Perception ADHD (PER)	1.000				0.684	0.744	0.867
PER2	<---		1.467	0.165	8.916	***	0.779		
PER3	<---		1.085	0.122	8.861	***	0.770		
EADHD1	<---	Exposure to ADHD (EXPO)	1.000				0.849	0.666	0.800
EADHD2	<---		0.620	0.107	5.808	***	0.632		
EADHD3	<---		0.850	0.158	5.380	***	0.518		
Part B: Factor and Error Covariance								Part D: Model Fit	
Religiosity	<-->	Internal Locus	-0.666	0.276	-2.413	0.016	-0.201	Model χ^2	
Religiosity	<-->	Holistic	-1.457	0.580	-2.511	0.012	-0.196	Value =	309.939
Religiosity	<-->	Stigmatization	0.222	0.331	0.671	0.502	0.053	df =	187.000
Religiosity	<-->	Attitude ADHD	0.811	0.382	2.123	0.034	0.163	p =	0.000
Religiosity	<-->	Perception ADHD	-0.521	0.303	-1.720	0.085	-0.142	χ^2/df =	1.657
Religiosity	<-->	Exposure to ADHD	0.060	0.039	1.523	0.128	0.125	GFI =	0.882
Internal Locus	<-->	Holistic	4.473	0.947	4.722	***	0.469	CFI =	0.946
Internal Locus	<-->	Stigmatization	-1.033	0.486	-2.127	0.033	-0.192	TLI =	0.933
Internal Locus	<-->	Attitude ADHD	-0.786	0.525	-1.498	0.134	-0.123	PNFI =	0.709
Internal Locus	<-->	Perception ADHD	1.928	0.493	3.913	***	0.409	RMSEA	
Internal Locus	<-->	Exposure to ADHD	0.029	0.054	0.542	0.588	0.048	Value =	0.057
Holoistic	<-->	Stigmatization	2.531	1.022	2.476	0.013	0.210	90%CI =	(0.046 - 0.069)
Holoistic	<-->	Attitude ADHD	2.755	1.130	2.437	0.015	0.192	pClose =	0.138
Holoistic	<-->	Perception ADHD	6.954	1.165	5.970	***	0.657		
Holoistic	<-->	Exposure to ADHD	0.265	0.118	2.239	0.025	0.191		
Stigmatization	<-->	Attitude ADHD	4.477	0.824	5.435	***	0.553		
Stigmatization	<-->	Perception ADHD	2.160	0.594	3.640	***	0.362		
Stigmatization	<-->	Exposure to ADHD	0.055	0.069	0.797	0.425	0.070		
Attitude ADHD	<-->	Perception ADHD	1.530	0.610	2.509	0.012	0.215		
Attitude ADHD	<-->	Exposure to ADHD	0.087	0.078	1.121	0.262	0.094		
Perception ADHD	<-->	Exposure to ADHD	0.162	0.064	2.529	0.011	0.237		
e5	<-->	e9	1.299	0.370	3.515	***	0.395		

Confirmatory Factor Analysis Exposure to ADHD Removed

Indicator Variables (item parcels)		Latent Constructs	Unstd. Estimates	Std. Error	Critical ratio	Sig.	Std. Estimates	Average variance Extracted (AVE)	Composite Reliability
Part A: Factor Loadings								Part C: Convergent validity	
REL1	<---	Religiosity (REL)	1.000				0.771	0.680	0.861
REL2	<---		1.535	0.129	11.908	***	0.984		
REL3	<---		0.829	0.080	10.390	***	0.690		
INT1	<---	Internal Locus (INT)	1.000				0.755	0.665	0.798
INT2	<---		0.966	0.122	7.928	***	0.872		
HOL1	<---	Holistic (HOL)	1.000				0.893	0.713	0.908
HOL2	<---		0.925	0.058	15.945	***	0.845		
HOL3	<---		0.911	0.065	14.113	***	0.789		
HOL4	<---		0.872	0.054	16.018	***	0.847		
STIGM1	<---	Stigmatization (STG)	1.000				0.677	0.504	0.799
STIGM2	<---		1.280	0.146	8.781	***	0.739		
STIGM3	<---		1.287	0.136	9.442	***	0.836		
STIGM4	<---		0.772	0.110	7.003	***	0.560		
ATTP1	<---	Attitude ADHD (ATT)	1.000				0.889	0.811	0.928
ATTP2	<---		0.966	0.052	18.627	***	0.908		
ATTP3	<---		1.248	0.067	18.532	***	0.905		
PER1	<---	Perception ADHD (PER)	1.000				0.687	0.556	0.789
PER2	<---		1.452	0.163	8.887	***	0.774		
PER3	<---		1.085	0.122	8.883	***	0.773		
Part B: Factor and Error Covariance								Part D: Model Fit	
Religiosity	<-->	Internal Locus	-0.679	0.280	-2.426	0.015	-0.203	Model χ^2	
Religiosity	<-->	Holistic	-1.471	0.585	-2.515	0.012	-0.197	Value = 219.012	
Religiosity	<-->	Stigmatization	0.227	0.333	0.683	0.494	0.054	df = 136	
Religiosity	<-->	Attitude ADHD	0.820	0.385	2.130	0.033	0.164	p = 0.000	
Religiosity	<-->	Perception ADHD	-0.526	0.307	-1.715	0.086	-0.142	χ^2/df = 1.610	
Internal Locus	<-->	Holistic	4.505	0.950	4.742	***	0.470	GFI = 0.900	
Internal Locus	<-->	Stigmatization	-1.033	0.487	-2.119	0.034	-0.192	CFI = 0.961	
Internal Locus	<-->	Attitude ADHD	-0.793	0.528	-1.502	0.133	-0.123	TLI = 0.951	
Internal Locus	<-->	Perception ADHD	1.952	0.497	3.931	***	0.411	PNFI = 0.719	
Holistic	<-->	Stigmatization	2.521	1.020	2.471	0.013	0.209	RMSEA	
Holistic	<-->	Attitude ADHD	2.751	1.130	2.435	0.015	0.191	Value = 0.055	
Holistic	<-->	Perception ADHD	6.979	1.168	5.977	***	0.657	90%CI = (0.041 - 0.069)	
Stigmatization	<-->	Attitude ADHD	4.471	0.823	5.432	***	0.553	pClose = 0.248	
Stigmatization	<-->	Perception ADHD	2.166	0.595	3.640	***	0.362		
Attitude ADHD	<-->	Perception ADHD	1.550	0.613	2.530	0.011	0.217		
e5	<-->	e9	1.295	0.370	3.500	***	0.389		

SEM Base Model

Structural Paths			Unstd. Estimates	Std. Error	Critical ratio	Sig.	Std. Estimates
Part A: Structural Model							
Attitude ADHD	<---	Religiosity	0.378	0.145	2.616	0.009	0.148
Attitude ADHD	<---	Internal Locus	0.069	0.108	0.640	0.522	0.048
Attitude ADHD	<---	Stigmatization	0.705	0.121	5.823	***	0.467
Attitude ADHD	<---	Holoistic	0.113	0.041	2.769	0.006	0.197
Perception ADHD	<---	Internal Locus	0.218	0.088	2.470	0.014	0.170
Perception ADHD	<---	Stigmatization	0.126	0.083	1.527	0.127	0.094
Perception ADHD	<---	Holoistic	0.306	0.037	8.162	***	0.599
Perception ADHD	<---	Religiosity	-0.234	0.116	-2.016	0.044	-0.103
Part B: Measurement Model							
Indicators		Latent Constructs					
REL1	<---	Religiosity	1.000				0.594
REL2	<---	Religiosity	1.906	0.225	8.476	***	0.987
REL3	<---	Religiosity	0.855	0.097	8.772	***	0.541
INT1	<---	Internal Locus	1.000				0.824
INT2	<---	Internal Locus	0.927	0.084	11.087	***	0.842
STIGM1	<---	Stigmatization	1.000				0.591
STIGM2	<---	Stigmatization	1.429	0.160	8.906	***	0.717
STIGM3	<---	Stigmatization	1.446	0.159	9.069	***	0.755
STIGM4	<---	Stigmatization	0.722	0.122	5.917	***	0.409
HOL1	<---	Holoistic	1.000				0.914
HOL2	<---	Holoistic	0.901	0.039	23.076	***	0.883
HOL3	<---	Holoistic	0.765	0.046	16.776	***	0.747
HOL4	<---	Holoistic	0.777	0.038	20.713	***	0.836
ATTP1	<---	Attitude ADHD	1.000				0.849
ATTP2	<---	Attitude ADHD	1.041	0.050	20.700	***	0.900
ATTP3	<---	Attitude ADHD	1.281	0.062	20.619	***	0.900
PER1	<---	Perception ADHD	1.000				0.708
PER2	<---	Perception ADHD	1.295	0.103	12.580	***	0.820
PER3	<---	Perception ADHD	0.934	0.078	11.975	***	0.759
Part C: Factor and Error Covariances							
Religiosity	<-->	Stigmatization	0.220	0.161	1.364	0.173	0.091
Religiosity	<-->	Internal Locus	-0.430	0.163	-2.641	0.008	-0.169
Internal Locus	<-->	Holoistic	5.817	0.832	6.988	***	0.513
Stigmatization	<-->	Holoistic	0.150	0.722	0.208	0.835	0.014
Internal Locus	<-->	Stigmatization	-1.280	0.338	-3.792	***	-0.298
Religiosity	<-->	Holoistic	-1.635	0.434	-3.770	***	-0.255
e5	<-->	e9	2.583	0.406	6.365	***	0.629
e15	<-->	e17	-1.244	0.374	-3.325	***	-0.297
e4	<-->	e9	2.053	0.438	4.685	***	0.431
e4	<-->	e13	-0.207	0.277	-0.749	0.454	-0.052
e12	<-->	e13	2.836	0.717	3.954	***	0.286
e1	<-->	e13	-0.613	0.270	-2.273	0.023	-0.139
e1	<-->	e12	0.812	0.345	2.352	0.019	0.137
e1	<-->	e8	-0.678	0.285	-2.382	0.017	-0.164
e1	<-->	e7	0.718	0.303	2.368	0.018	0.157
e16	<-->	e17	-1.062	0.456	-2.328	0.020	-0.206

Part A: Structural Path Coefficients for both groups under equal and unequal assumptions														
		Not Exposed (Gr1)					Exposed (Gr2)					Δ Coefficients		
Structural Paths		Unstd. Estimates	Std. Error	Critical ratio	Sig.	Std. Estimates	Unstd. Estimates	Std. Error	Critical ratio	Sig.	Std. Estimates	Gr1 vs Gr2	CR	
		Model 1: All parameters across groups assumed unequal												
Attitude ADHD	<---	Religiosity	0.005	0.219	0.022	0.982	0.002	0.622	0.183	3.396	***	0.260	-0.617	2.163*
Attitude ADHD	<---	Internal locus	-0.211	0.146	-1.441	0.150	-0.160	0.295	0.156	1.888	0.059	0.201	-0.506	2.363*
Attitude ADHD	<---	Stigmatization	0.842	0.193	4.360	***	0.520	0.477	0.134	3.555	***	0.344	0.365	1.553
Attitude ADHD	<---	Holistic	0.134	0.059	2.278	0.023	0.225	0.097	0.061	1.597	0.110	0.173	0.037	0.436
Perception ADHD	<---	Internal locus	0.453	0.141	3.205	0.001	0.353	0.079	0.119	0.661	0.509	0.065	0.374	2.022*
Perception ADHD	<---	Stigmatization	0.331	0.143	2.313	0.021	0.210	-0.012	0.094	-0.126	0.899	-0.010	0.343	2.004*
Perception ADHD	<---	Holistic	0.285	0.057	4.996	***	0.492	0.303	0.054	5.656	***	0.654	-0.018	0.231
Perception ADHD	<---	Religiosity	-0.448	0.206	-2.169	0.030	-0.161	-0.088	0.133	-0.665	0.506	-0.045	-0.360	1.465
Model 2: Structural path coefficients across groups assumed Equal														
Attitude ADHD	<---	Religiosity	0.379	0.141	2.682	0.007	0.137	0.379	0.141	2.682	0.007	0.152		
Attitude ADHD	<---	Internal locus	0.008	0.108	0.077	0.939	0.006	0.008	0.108	0.077	0.939	0.006		
Attitude ADHD	<---	Stigmatization	0.677	0.113	6.009	***	0.494	0.677	0.113	6.009	***	0.430		
Attitude ADHD	<---	Holistic	0.124	0.043	2.904	0.004	0.216	0.124	0.043	2.904	0.004	0.216		
Perception ADHD	<---	Internal locus	0.257	0.091	2.827	0.005	0.227	0.257	0.091	2.827	0.005	0.189		
Perception ADHD	<---	Stigmatization	0.129	0.079	1.643	0.100	0.106	0.129	0.079	1.643	0.100	0.090		
Perception ADHD	<---	Holistic	0.292	0.039	7.447	***	0.569	0.292	0.039	7.447	***	0.559		
Perception ADHD	<---	Religiosity	-0.229	0.115	-1.997	0.046	-0.093	-0.229	0.115	-1.997	0.046	-0.101		

Appendix C

Translators

Ms. Atita Uttravanich: atita.u@gmail.com

Bangkok Translations: <https://www.bangkok-translation.com/>

Translation Plus: <http://www.translationplus.net/>



Biography

Eric K. Mason was born in California, but grew up in North Carolina, USA. He attended East Carolina University where he earned his BA degrees in psychology and German in 2002, a MA in international studies in 2005, and a MS in clinical counseling with an emphasis on addictions in 2009. He also attended Albert-Ludwigs University in Freiburg, Germany as a Fulbright scholar. Eric is a licensed clinical mental health counselor and a licensed clinical addictions specialist who has worked in the mental health and addiction treatment field since 2004. In the past, Eric has worked as a clinical counselor at mental health treatment centers in the United States and as a school counselor in Japan. Presently, he works as psychotherapist and addictions counselor in Bangkok, Thailand. Although American by birth, Eric has become a naturalized Thai citizen in his adopted country of Thailand where he has lived since 2012.

