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KNOWLEDGE, EMPATHY, CONTACT AND STIGMATIZATION TOWARD PEOPLE

WITH SCHIZOPHRENIA AMONG UNIVERSITY STUDENTS IN MALAYSIA

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Knowledge, Empathy, Contact, and Stigmatization towards

People who have Schizophrenia among University Students in Malaysia

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APPROVAL FORM

This research paper attached hereto, entitled "Knowledge, Empathy, and Contact towards people who have schizophrenia" prepared and submitted by "Leong Jia Hao, Lim Fei Min, and Phoon Kah Kei" in partial fulfilment of the requirements for the Bachelor of Social Science (Hons) Psychology is hereby accepted.

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Abstract

Schizophrenia is a severe mental illness that affects how a person feels, thinks, and behaves. The number of people with schizophrenia has showed an increase trend per year in Malaysia. Stigmatization against schizophrenia is a serious issue that brings detrimental effects, thus requires pressing attention. However, limited studies were done to investigate several predictors of stigmatization towards people with schizophrenia among university students in Malaysia. Current study was a descriptive and cross-sectional study that aimed to determine the predictive effects of knowledge and empathy on stigmatization towards people with schizophrenia as well as the moderating effect of contact on the association between the variables. A total of 248 university students from various public and private institutions in Malaysia were recruited through online survey method via social media platforms (e.g., Facebook groups, Messengers, and Whatsapp) by using purposive non-probability sampling method. Targeted participants were undergraduates and postgraduates who were pursuing Foundation, Diploma, Bachelor's Degree, PhD, or Master programs in Malaysia. Present findings have revealed that knowledge negatively predicted stigmatization towards people with schizophrenia whereas empathy showed a non-significant predictive effect on stigma. On the other hand, it was found that knowledge about schizophrenia predicted stigma against the disorder more negatively for students who have contact with the patients, but not in the case for empathy. Present study contributed as a source of reference for relevant authorities to implement appropriate interventions in order to reduce stigma against schizophrenia, specifically in the context of Malaysia.

Keywords: schizophrenia, stigmatization, knowledge, empathy, contact

Declaration

We hereby to declare that the project "Knowledge, Empathy, Contact and Stigmatization towards people with Schizophrenia" which is under the supervision of Dr. Kok Jin Kuan, is our own work with quotations, bibliography and references which have been duly acknowledged.

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Abbreviations

1. KAST   Knowledge about Schizophrenia Test

2. ISEI   Interpersonal and Social Empathy Index

3. AQ-9   Attributional Questionnaire 9

4. MLR   Multiple Linear Regression

Chapter I

Introduction

Background of Study

Schizophrenia is a mental disorder that is complicated in its own nature. It has brought detrimental effects to people and caused trouble on daily functioning. The exact causes of schizophrenia are still unknown to the world but research has suggested that genetic, environmental, and physiological factors contribute to the disorder (American Psychiatric Association [APA], 2013). According to Mäki et al. (2005), genetic inheritance was found to be the highest risk factor. People with psychosis family history have a 10-fold higher risk compared to others due to genetic loading. However, 85% of people without first-degree relative with schizophrenia are also prone to the illness due to environmental and physiological factors such as exposure to virus or malnutrition before birth, problem during birth, stress, developmental disturbances, drug use during young age, and other unknown factors (Picchioni & Murray, 2007; Psychology Today, 2019).

The symptoms of schizophrenia vary across people. In general, schizophrenia affects how a person thinks, feels, and behaves. Many of the patients have reported symptoms such as delusions, hallucinations, peculiar behavior, and disorganized speech (APA, 2013). The symptoms of schizophrenia can be classified into positive symptoms (e.g., hallucinations, delusions, and impaired thought), negative symptoms that disturb behaviours and emotions (e.g., lack of pleasure in everyday activities), and cognitive symptoms (e.g., attention and other working memory problems) (Psychology Today, 2019). The symptoms of psychosis among people with schizophrenia which are unusual and unpredictable often lead to stigmatization (Hanafiah & Van Bortel, 2015).

Stigmatization may happen to different people especially mental illness patients. Stigma referred to the stereotypes or negative perceptions attributed to a person or a group of

people who are opposed to the social norms (Ahmedani, 2011). It was characterized as disparages people through distinguishing characteristic or label (Biernat & Dovidio, 2000) and a social construction which is a label attached by the society (Major & O'brien, 2005). Stigma can occur at various levels including public level (i.e., how stigma presents in society and everyday attitude), structural level (i.e., institutional), and personal level (i.e., patient's self-perception) (Vrbova et al., 2016). The three common forms of public stigma are prejudice (i.e., negative emotions such as no pity, anger, and fear), discrimination (i.e., negative behaviours such as avoidance, segregation, coercion, and withhold help) and stereotypes (i.e., negative beliefs such as dangerousness and responsibility or blame) (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Corrigan & Watson, 2002). Prior studies found that people with mental illness such as schizophrenia suffered from stigmatization (Chee & Aziz, 2014; Thornicroft, Rose, Kassam, & Sartorius, 2007). As the symptoms of schizophrenia vary across people, people who have schizophrenia often perceived by the public as dangerous and unpredictable (Silva et al., 2017), some even having the misconception that they are having split personality (Picchioni & Murray, 2007).

In order to reduce the stigmatization, knowledge, contact, and empathy serve as important variables. Previous studies have found that knowledge and contact are foundations in changing public attitudes toward the disorder (Eack & Newhill, 2008; Reinke, Corrigan, Leonhard, Lundin, & Kubiak, 2004). People who have higher knowledge and contact with the patients generate more positive attitudes and beliefs towards the disorder by showing more tolerance and viewing the illness less severe than others (Eack & Newhill, 2008; Smith, Reddy, Foster, Asbury, & Brooks, 2011). On the other hand, McFarland (2010) has found that empathy has a positive significant relationship with attitudes toward mental illness and stigma has a negative relationship with empathy (Vagheei et al., 2018). In the simplest words, the higher the level of empathy, the more positive attitudes toward mental illness or the lower

the stigma. It was explained as people who are high in empathy level able to put themselves into another person's shoes and they are more capable to understand, feel, and express their emotions and feelings, thus showing lower stigma (Knolhoff, 2018; Vagheei et al., 2018). Hence, knowledge, contact, and empathy act as important roles to reduce stigmatization toward people with schizophrenia.

Problem Statement

Schizophrenia is a serious mental disorder that requires immediate attention. According to the global statistics provided by World Health Organization [WHO] (2018), there were more than 23 million people worldwide affected by schizophrenia. In Malaysia, an estimate of 7.7 to 43.0 per 100,000 people was suffering from schizophrenia in a year (Chee & Aziz, 2014). The Star Online (2016) stated that about 400,227 sought psychiatric help from the government hospital and there was an increment of 2,000 new cases of schizophrenia patients every year. It was believed to have more underreported cases as supported by The Star Online (2014) that one out of 100 Malaysians suffered from schizophrenia but most of them did not view it as a serious issue and refused to receive any form of treatment. In fact, schizophrenia is treatable with medication and psychosocial support but more than 50% of people with schizophrenia do not receive appropriate treatment or care (WHO, 2018). Hindrance in receiving treatment might be due to mental illness stigmatization (Henderson, Evans-Lacko, & Thornicroft, 2013). In Malaysia, schizophrenia is a mental health condition that received most stigma due to the unpredictable and observable symptoms as compared with depression and bipolar disorder (Hanafiah & Van Bortel, 2015), thus required more pressing attention.

Other than hindrance of treatment (Henderson et al., 2013), stigmatization toward people with schizophrenia brought other issues such as social isolation and unemployment (Buizza et al., 2007), termination of working and studying (Chee & Aziz, 2014), and

structural discrimination which mental health services get lesser funding in contrast to physical health services (Mubarak, 2003; Rüsch, Zlati, Black, & Thornicroft, 2014). Moreover, public stigma can cause an even worse state of the mental disorder as the impact is twofold (Corrigan & Watson, 2002). It causes stigmatized patients to believe about public attitudes toward them, internalize, and act according to it, thus increasing the disorder's severity and symptoms' intensity as well as prolong treatment duration (Vrbova et al., 2016). These issues have shown that stigmatization has contributed a lot of negative impacts so it should be dealt with immediately, but the majority of us are still unaware of it.

As there is a lack of mental health literacy in developing country such as Malaysia, people tend to conceptualize mental disorder (i.e., schizophrenia) based on their subjective cultural beliefs specific to their ethnicities (e.g., Malay, Chinese, Indian, and etc.) and act accordingly (Chong, Mohamad, & Er, 2013). Past studies found that Malay and Indian showed more tolerant attitudes toward mental illness whereas Chinese tend to conceal about it to prevent losing face (Chang & Horrocks, 2006; Chong et al., 2007). Moreover, Malays who believed that schizophrenia is caused by 'spirits' tend to seek traditional healers who are lack of proper knowledge about it rather than trained mental health experts for treatment, which in turn worsens the conditions that require medical concerns (Hanafiah & Van Bortel, 2015). Hence, it is essential to include cultural diversity while recruiting sample for the study of mental disorder stigmatization in a multi-ethnic country such as Malaysia, which could not be done by studies conducted in Western context.

Nevertheless, most of the past studies on stigmatization of schizophrenia that have reported worldwide were found in Western countries such as USA and Europe contexts (Benov et al., 2013; Smith et al., 2011) whereas there is a lack of finding about schizophrenia in non-Western culture especially Malaysia (Hanafiah & Van Bortel, 2015). Moreover, the studies done in Western cultures did not provide a multi-racial perspective in understanding

stigmatization toward people with schizophrenia. In this case, the studies done in Western context may not depict same findings in Malaysia's populations which are makeup of different ethnics (Chong et al., 2013). Additionally, most of the studies done in Malaysia were focused on investigating the views and attitudes among primary caregivers (ZamZam et al., 2011), mental health practitioners (Hanafiah & Van Bortel, 2015), and general public and relatives (Razali & Ismail, 2014). Related studies that were done among university students were limited and most of the studies were focused merely on medical students' perspectives (Mas & Hatim, 2002; Tan et al., 2005) rather than students from other fields of courses.

Besides, prior studies found that increase in familiarity about mental illness (i.e., knowledge and contact about mental illness) decrease stigma (Corrigan, River, et al., 2001; Schachter et al., 2008). However, inconsistencies of past findings were demonstrated by Takeuchi and Sakagami (2018) that good knowledge about schizophrenia leads to more perceived stigma whereas Smith et al. (2011) illustrated that people who have a family member with schizophrenia (has contact) showed more tolerance attitudes but they feel less comfortable and tend to avoid the patients. These showed there were mixed findings about the roles of knowledge and contact on stigmatization and further confirmations are needed. Additionally, Eack and Newhill (2008) found negative correlations among knowledge, contact, and stigma but knowledge was only associated with positive outcomes for people who had a higher degree of personal contact with schizophrenia patients. Hence, contact may be a factor that moderates the association between knowledge and stigmatization towards people with schizophrenia, yet no study has further investigate about this.

There were contradictions found among prior studies about the prediction of stigma from empathy. Knolhoff (2018) discovered that empathy play a significant role in reducing stigma towards the disorder while there were researchers revealed that there were no significant or negligible effects found between empathy and stigmatization with psychiatric

(Silke, Swords, & Heary, 2017; Vagheei et al., 2018; Webb et al., 2016). Hence, more

exploration on the association between empathy and stigma are needed to resolve these

mixed findings. In addition, past studies done were focused specifically on emotional

empathy (Akinbobola & Zugwai, 2019; Gateshill, Kucharska-Pietura, & Wattis, 2011) and

lack of study considered about the importance of other aspects of empathy (e.g., cognitive

and social empathy) in stigma reduction. As a person's attitude can be affected by social

conformity, especially in the collectivist culture such as Malaysia where a person's behaviour

often rules by social norms and the compliance of values. Hence, rely merely upon emotional

empathy itself to reduce stigmatization can be ineffective.

Research Objectives

 I.   To investigate whether knowledge about schizophrenia negatively predicts

       stigmatization toward people with schizophrenia among university students.

 II. To investigate whether empathy negatively predicts stigmatization toward people with

       schizophrenia among university students.

III. To investigate whether contact (with or without) moderates the association between

       knowledge about schizophrenia and stigmatization toward people with schizophrenia

       among university students.

IV.   To investigate whether contact (with or without) moderates the association between

       empathy and stigmatization toward people with schizophrenia among university

       students.

Significance of Study

        In general, current study aimed to draw public's attention about contributing factors in

the issue of stigmatization towards mental disorder such as schizophrenia so that they can do

something to reduce the existing stigma. Besides, instead of studying people from the same

cultural background, current study concerned about cultural diversity while studying

stigmatizing attitudes across different ethnicities to ensure external validity of the study. This study was important to ensure future interventions for mental illness stigma reduction became more applicable worldwide by encouraging future researchers to take cultural diversity into consideration while investigating different causes of mental illness stigmatization. Present study could encourage more related literatures to be proposed in order to guide authorities to deal with mental illness stigmatization more effectively, which in turn reducing negative impacts of stigma towards people with schizophrenia in Malaysia.

Other than contribution to future literatures, present study was important to reduce public stigma about schizophrenia, by focusing on investigating variables (i.e., knowledge, contact, and empathy) that aimed to serve as protective factors against stigmatizing attitudes toward schizophrenia. The study on whether knowledge predicts stigma negatively is important as a person's views or attitudes may be illustrated by his or her knowledge. As supported by Pierce (2012), people who are lack of knowledge in an illness often show ignorance and a negative attitude toward that group of people. It showed that one of the ways to reduce stigma toward schizophrenia is to understand more about it through gaining related knowledge. Therefore, current study is important to increase people's awareness that schizophrenia is a mental disorder that is often being stigmatized due to the lack of knowledge about it so that they are more willing to seek accurate information about it, which then increase their knowledge about schizophrenia and eventually fix previous misconceptions that resulting in stigmatization. Besides, current findings are important for authorities to take action such as incorporate relevant knowledge in Malaysia's education system to deliver more formal, accurate, and up-to-date knowledge about the disorder to younger generations. In this case, people may become more familiar with the disorder and reduce stigma from time to time. Besides, it may increase the number of mental health professionals in Malaysia, thus leading to better mental health care in the future.

Furthermore, current study on whether empathy predicts stigma toward schizophrenia negatively is important as well because it focused on both interpersonal (cognitive) and social aspects in studying empathy. Through current finding, people might be aware of the importance of the role of interpersonal and social empathy in stigma reduction. In this case, interventions in reducing schizophrenia-related stigma could be designed by using both aspects of empathy as the focus. For example, the use of virtual reality (VR) that puts people in a context as if they are those patients to allow them to experience the symptoms of schizophrenia so that they can understand more about the internal states of the patients to increase their interpersonal and social empathy toward schizophrenics. Moreover, intervention programs such as having someone who was previously diagnosed with schizophrenia to express feelings while he or she was living with the disorder and share experiences about the face of stigmatization in the societal context, to increase individuals' interpersonal and social empathy which serve crucial roles for stigma reduction. In the near future, it allowed researchers to focus more on studying the correlation between stigmatization and different aspects of empathy in order to provide higher effectiveness for psychologists to deal with mental illness stigmatization from the psychological perspective.

In addition, current study also investigated whether contact could strengthen the effects of knowledge and empathy in stigma reduction. This was important as knowledge about schizophrenia and empathy able to reduce stigma but maybe not as effective as if contact is available at the same time as contact may increase a person's familiarity with the illness and fix negative perceptions better. Once people realized that the patients were not as negative as what they perceived, this could reduce stigma against the disorder. In evidence, people who had previous contact experience with the patients of severe mental illness (i.e., schizophrenia) were less likely to report perceived dangerous and fears towards them (Corrigan, Green, Lundin, Kubiak, & Penn, 2001). Thus, it is important to increase public

awareness about the moderating role of contact in reducing stigma. People may understand better about schizophrenia through contact such as real-life interaction with schizophrenic patients or any other forms of exposure to schizophrenia-related information, regardless of direct or indirect contact. Moreover, current findings aimed to provide the society an insight that media as one of the forms of contact, should have portrait more accurate information and positive sides about schizophrenia so that public stigma toward the disorder can be reduced indirectly. In addition, it aimed to become a useful reference for authorities while designing anti-stigma program by incorporating contact elements into mental disorder's education. Lastly, it could also be taken as a guideline for future researches to ensure contact elements are taking into consideration while conducting studies about mental illness stigmatization.

Research Questions

I.   Does knowledge about schizophrenia negatively predict stigmatization toward people with schizophrenia among university students?

II.   Does empathy negatively predict stigmatization toward people with schizophrenia among university students?

III.   Does contact (with or without) moderate the association between knowledge about schizophrenia and stigmatization toward people with schizophrenia among university students?

IV.   Does contact (with or without) moderate the association between empathy and stigmatization toward people with schizophrenia among university students?

Hypotheses

I.   Knowledge about schizophrenia negatively predicts stigmatization toward people with schizophrenia among university students.

II.   Empathy negatively predicts stigmatization toward people with schizophrenia among university students.

III. Contact (with or without) moderates the association between knowledge about schizophrenia and stigmatization toward people with schizophrenia among university students.

IV. Contact (with or without) moderates the association between empathy and stigmatization toward people with schizophrenia among university students.

Conceptual Definitions

Knowledge. Knowledge was classified into explicit knowledge and implicit knowledge. Explicit knowledge was the information known from books, documents, and media (e.g. television, radio, and newspaper) whereas implicit knowledge was tacit knowledge inserted into the human mind unconsciously through experience, including skills, insight, intuition, and judgment (Takala, 2008).

Empathy. Empathy, in general, was defined as the ability to feel emotions of others, which means the ability of us to feel what others are feeling because something happens to them (Wondra & Ellsworth, 2015). It could be categorized into interpersonal empathy and social empathy. Interpersonal empathy refers to the ability to understand the inner states of others and provide them with sensitive care whereas social empathy includes broader concept which is the ability to understand fully about the stigma exists in others' lives by experiencing or imagining their life situation (Segal, Cimino, Gerdes, Harmon, & Wagaman, 2013). Social empathy is the application of empathy to a larger scale of our social system where we can understand different people, cultures, and communities (Segal, 2011).

Contact. Contact referred to the number of interactions between an individual and people with mental disorder (Corrigan et al., 2002). Contact with schizophrenic could be classified into direct and indirect contact. Direct contact is face-to-face contact such as having family members or neighbour who is diagnosed with schizophrenia, providing services for them, or even having brief contact with them. For indirect contact, it includes watching or

listening to media (e.g., Youtube, Television, and Radio) that delivers content about schizophrenia (Couture & Penn, 2003).

Stigmatization. In general, stigmatization was defined as negative and stereotyping views were being assigned to someone or a group of people who are inferior or having different behaviors or characteristics from social norms (Dudley, 2000). Link and Phelan (2001) provide a deeper view in defining stigma as the result of power which leads to the co-existence of labeling, stereotyping, discrimination, status loss, and separation. In defining stigma particularly in mental illness, it was defined as general populations' negative attitudes and behaviours towards people with serious psychiatric disorders, including schizophrenia (Corrigan & Watson, 2002). It happened to people who have significant psychological or behavioural patterns that are distressing (Ahmedani, 2011), in which the general public viewed them differently.

Operational Definitions

Knowledge. Knowledge in the current study was measured by using Knowledge about Schizophrenia Test (KAST). It was a brief 18-item test that measured general knowledge toward people with schizophrenia. This scale consisted of 18 multiple-choice items that measure seven different domains of knowledge toward people with schizophrenia. Each multiple-choice item came with five responses (A to E) and only one of the responses was correct. The possible scores range from zero to 18.

Empathy. Empathy in the current study was measured by the Interpersonal and Social Empathy Index (ISEI). The ISEI was a brief 15-item scale that was used to measure the level of empathy that included interpersonal and social aspects. The scale measured four factors of empathy which are macro perspective-taking, cognitive empathy, self-other awareness, and affective response by using a 6-point Likert scale ranging from 'one' (='never') to 'six' (='always'). The possible scores range from 15 to 90.

Contact. A question stated that "Are you having/had contact with people with schizophrenia?" was used to ask participants whether they have contact (i.e., direct or indirect) or have no contact with people who have schizophrenia.

Stigmatization. In the current study, stigmatization toward people with schizophrenia was measured by using the Attribution Questionnaire (AQ-9). AQ-9 was a self-administered questionnaire that consisted of nine items which were used to measure people's stigmatization level in nine different constructs. The nine constructs could be separated into two bigger domains which were discriminative attitudes (i.e. anger, dangerousness, fear, segregation, avoidance, coercion, and responsibility) and attitudes closeness and assistance (i.e. help and pity). The items were scored by using 9-point Likert scale ranging from 'one' (='none at all') to 'nine' (=' very much '). The possible scores range from nine to 81.

Chapter II

Literature Review

Introduction

This chapter has highlighted the roles of knowledge, empathy, and contact on stigmatization toward people with schizophrenia and was reviewed across past studies.

Knowledge and Stigmatization towards People with Schizophrenia

Knowledge about schizophrenia was found to predict lower stigmatization toward people with schizophrenia. According to Stuart and Arboleda-Florez (2001), schizophrenia had been viewed as a brain disease which was under a biological cause. There was a study revealed that the rural residents who did not know about the biological basis of schizophrenia, were having stereotyping views on the patients by emphasizing them as having split personalities and behaving violently (i.e., high stigma) (Stuart & Arboleda-Florez, 2001). A study that was done by Altindag, Yanik, Ucok, Alptekin, and Ozkan (2006) revealed that individual who possess greater knowledge showed lower stigmatization toward people with schizophrenia. Thornicroft et al. (2007) supported that knowledge often in congruence with the actual behaviour. In another word, when an individual has knowledge about schizophrenia, he or she will show more positive attitude or behaviour when interacting with schizophrenics as compared to those who do not know (Economou, Richardson, Gramandani, Stalikas, & Stefanis, 2009). This is because they understand about accurate information about schizophrenia and fix their previous misconceptions.

In align with the study conducted by Smith et al. (2011), better knowledge of schizophrenia results in positive attitude and beliefs towards the person with schizophrenia. Besides, Rüsch, Angermeyer, and Corrigan (2005) stated that negative attitude such as mental health stigma often happens due to the lack of societal understanding about the stigmatized disorder, such as schizophrenia. In their study, the general public showed more

stigmatizing attitudes than psychology students toward people with mental disorders, including schizophrenia. This is because psychology students are having prior knowledge about mental disorders which were included in their course's topics of interest, which led to lesser stigma (Rüsch et al., 2005). This has provided evidence that knowledge about schizophrenia has contributed an important role in stigma reduction.

In addition, Filipcic et al. (2003) signified that education, which increases knowledge about mental illness, is crucial to reduce the stigma of mental illness because it is hard to stigmatize or stereotype towards people with mental illness once we learned to view a person with illness as a unique individual through the gain of knowledge. Similarly, in a study conducted by Mino, Yasuda, Kanazawa, and Inoue (2000), they proposed that a five-year medical education plays an important role in reducing stigmatizing's attitude towards people with mental illness. As evidence, medical students showed higher acceptance and positive attitudes towards people with mental illness due to the gain of related knowledge through lectures and clinical experience of mental illness (Mino et al., 2000). Moreover, Naylor, Cowie, Walters, Talamelli, and Dawkins (2009) also indicated that participants who involved in a mental health teaching programme education have low stigmatization towards people with mental illness such as schizophrenia. When people understood about the mental illness, it may facilitate empathy that helps lighten the challenge of stigma (Naylor et al., 2009).

On the contrary, there was a study revealed that people will not modify their beliefs and perception towards the individual with schizophrenia even they have the knowledge about schizophrenia as it is better to reducing stigma by contact rather than just inform them about the knowledge (Martinez-Zambrano et al., 2013). Besides, a study was done by Thornicroft et al. (2007) also stated that it is not necessarily that people who have higher knowledge about mental illness will show positive attitude or behaviour toward the person with schizophrenia. In addition, Loch et al. (2013) have supported that mental health literacy

which includes knowledge or education might be one of the factors of the presence of stigmatization. Mental health professionals who have more correct identification about the disorder sometimes might exhibit authoritarian attitudes (e.g., forcing treatment decisions), which prompt them to have higher stigmatization than general public even though they would not avoid the patients (Corrigan, 2006; Loch et al., 2013). Similarly, students who are having good knowledge about schizophrenia reported higher in their perceived stigma compared to those who are poor about the knowledge (Takeuchi & Sakagami, 2018).

Empathy and Stigmatization towards People with Schizophrenia

Empathy was found to be another predictor of stigmatization towards people with schizophrenia. Prior studies have proposed that there was a significant and inverse correlation between empathy and mental health stigma and empathy was able to predict mental health stigma significantly, based on correlation and regression analysis in these study (Webb et al., 2016; Rattu, 2017). According to Webb and his partners (2016), they revealed that empathy is one of the predictors for stigmatization and they have suggested that enhancing empathy may reduce negative attitude towards mental illness. Similarly, McFarland (2010) also revealed a significant negative correlation between empathy and prejudice or stigma. In another word, the lower the empathy, the higher the levels of prejudice or stigma. According to a study conducted by Hecht, Kloss, Bartsch, and Oliver (2018), high empathy was correlated with mental health stigma reduction. Empathetic feelings encourage a person to rethink their negative perceptions about the stigmatized group of people, thus individuals feel more positive and show more behavioural intentions toward people with mental illness (Hecht et al., 2018). In addition, Gateshill et al. (2011) supported that empathy significantly associated with positive attitudes toward people who have a mental disorder, such as schizophrenia. A similar finding was found in another study proposed by Yang, Hargreaves, and Bostrom (2014) that nurses who scored high in empathy performed less isolation and

avoidance behaviours toward psychiatric disorder patients such as schizophrenia patients, which mean higher empathy leads to lesser stigma.

Besides, Oliver, Dillard, Bae, and Tamul (2012) proposed that participants who showed more compassion and sympathy (i.e., high empathy) toward a particular individual from the stigmatized group had lower stigmatization toward the stigmatized group. Similarly, a study that was conducted by Pascucci and colleagues (2017) in a medical school has proposed that the improvement in empathy among students is important as it can reduce their stigmatization and discrimination towards mental illness. This is because students with a higher level of empathy showed a more positive attitude towards mental illness, which includes schizophrenia, compared to those with a lower level of empathy (Pascucci et al., 2017). In addition, Silke et al. (2017) supported that high in cognitive empathy able to reduce prejudice whereas high in affective empathy produces lesser discrimination towards people with mental illness. In general, it showed that a high level of empathy able to predict low stigmatization toward people with a psychiatric disorder, for example, schizophrenia.

In contrast, Vagheei and other researchers (2018) indicated that there was only an aspect of stigma, which is the social responsibility subscale, showed a significant negative correlation with empathy toward people with psychiatric disorders. It showed an insignificant correlation between empathy and stigmatization toward people with mental illness among nursing students. As supported by Papadopoulos, Foster, and Caldwell (2013), no significant relationship found between empathy and stigmatization toward mental illness and it may be due to cultural factor. In particular, collectivist cultures which hold firmly in societal norms are more likely to stigmatize people with mental illness as compared to individualist cultures (Papadopoulos et al., 2013; Vagheei et al., 2018). Moreover, people in Western countries are better in emotional expressing, thus enhance their empathetic feelings toward people with a mental disorder which in turn reduce stigmatization (Vagheei et al., 2018).

Contact and Stigmatization towards People with Schizophrenia

Different types of contact with people with mental illness are effective in reducing stigmatizing attitude (Alexander & Link, 2003). According to Couture and Penn (2003), people who have direct interpersonal contact with patients who have a severe mental disorder such as schizophrenia were reported to have less negative attitude especially for those who were involuntary nature of contact with the patients. Similarly, mental health professionals were found to have a lesser stigma as compared with those who are not from this profession because they are having higher contact with a mental disorder (Smith & Cashwell, 2010). Nevertheless, Knolhoff (2018) revealed that there were no significant differences between mental health and non-mental health professionals in term of their stigmatization towards people with a mental disorder.

Direct contacts through project and training program are also effective in ensuring schizophrenia stigma reduction among students. A study that conducted in Japan revealed that the implicit attitudes can be changed after having contact with schizophrenia patients through clinical training in psychiatric (Omori et al., 2012). Schulze, Richter-Werling, Matschinger, and Angermeyer (2003) also supported that there was a significant reduction in students' negative stereotypes toward people with schizophrenia after they have participated in project weeks which focused on having contact with someone with schizophrenia.

For the involuntary type of contact, it produces similar effects as voluntary contact in term of their stigmatization level. As supported by Corrigan, Edwards, Green, Diwan, and Penn (2001), individuals who have a family member or friend with mental illness were less likely to avoid the patient as they perceived the patient as less dangerous (i.e., less stigma). People learn that the patients are not dangerous that they had expected through contact with them, thus they feel less fearful of them and will not intentionally avoid those people (Alexander & Link, 2003). Sousa, Marques, Curral, and Queirós (2012) also supported that

participants perceived people with schizophrenia as less dangerous and showed positive attitudes towards them due to their familiarity with the disorder through contact with their family member who has schizophrenia. However, in a study conducted by Gonzalez-Torres and his colleagues (2007) demonstrated that family members (i.e., high degree of contact) was having stigmatizing attitudes toward schizophrenia patient as they felt ashamed of being related to a schizophrenic person and this led to the self-discrimination among the patients as well (Gonzalez-Torres, Oraa, Aristegui, Fernandez-Rivas, & Guimon, 2007).

Instead of direct contact with schizophrenia patients, indirect contact is important as well to reduce stigma. For examples, video-type of contact which portrayed life experience of four persons with schizophrenia (Chan, Mak, & Law, 2009), documentary film which included interviews of five people who have diagnosed with schizophrenia (Thonon, Pletinx, Grandjean, Billieux, & Larøi, 2016), and reading a vignette of people with mental illness (Alexander & Link, 2003) were found effective in reducing stigmatizing attitudes. In contrary, Penn, Chamberlin, and Mueser (2003) revealed that participants who have watched a documentary film about schizophrenia were less likely to attribute blame to the patients, but no significant changes were found among participants' general attitudes. Besides, it did not increase participants' intention to have more contact with the patients (Penn et al., 2003). Additionally, online video interventions (i.e., personal sharing of own mental illness experience and family or loved one share their support to the patient) did not significantly reduce stigma as it only produced a temporary effect on it (Hackler, 2011). Moreover, indirect contact may also increase stigma due to the spreading of erroneous information about mental illness through media (Link & Phelan, 2006).

Knowledge, Contact, and Stigmatization towards people with schizophrenia

The influence of knowledge about schizophrenia on stigmatizing attitude toward people with the illness was found to be moderated by the role of contact. Eack and Newhill

(2008) stated that both knowledge and contact (frequency and degree of contact) about schizophrenia significantly predict positive attitudes toward people with schizophrenia among social worker students. However, it was evidenced that only a stronger association appeared between knowledge and positive attitude for social worker students who have higher and frequent contact with the patients, such as when a person was involving in a programme on severe mental illness or taking psychology course and having direct contact with mental illness people at the same time (Eack & Newhill, 2008). This indicated that knowledge about schizophrenia able to produce greater effects in reducing stigma toward schizophrenic when direct or indirect contact with that group of people is present.

Besides, both knowledge and contact were commonly used as the interventions keys in anti-stigma programmes. In an anti-stigma program carried out by Fung et al. (2016), education was applied to deliver knowledge about mental illness to minimize stigmatization towards people with mental illness, meanwhile encouraging people to contact with the patients. It was revealed that participants who have both mental illness literacy and contact with the patients reported more willingly to interact with schizophrenia patients and indicated low stigmatization toward people with schizophrenia (Fung et al., 2016). Similarly, in a study done by Altindag et al. (2006), after a two-hour anti-stigma program that included both education (i.e., two hours lecture about stigma and schizophrenia) and contact (i.e., sharing from schizophrenia patient and viewing a movie about the story of schizophrenic struggles with the illness), participants understood more about schizophrenia and showed positive changes in their belief about the cause of schizophrenia, their social distance, and care towards the patients. Hence, prior studies have provided evidences that both knowledge and contacts are crucial in reducing stigma toward people with schizophrenia.

Another study done by Ritterfeld and Jin (2006) found that entertainment-education strategy, which incorporates education about schizophrenia with an accurate movie portrayal

of schizophrenia, was effective in stigma reduction. The study also revealed that people who are lack of precise knowledge about schizophrenia may be easily affected by the misrepresentation of the information in media, an indirect type of contact with schizophrenia patients, thus causing stereotypes and increase stigmatization (Ritterfeld & Jin, 2006). Moreover, it supported by Chan et al. (2009) that it will be more effective in changing social distance and attitude toward people with schizophrenia if video-based contact is applied after educating about the knowledge. These findings demonstrated that contact moderates the association between knowledge and stigmatization toward people with schizophrenia.

Empathy, Contact, and Stigmatization towards People with Schizophrenia

Recent studies have found that there was a significant association between level of empathy, contact and stigmatization toward people with schizophrenia (Knolhoff, 2018; Yuan et al., 2018). The direct or indirect contact with people with a mental disorder, might apply to people with schizophrenia, were contributing an important role in enhancing the association between empathy and stigmatization. Supported by Allport's Intergroup Contact Theory, the arousal of a primary positive emotion such as empathy will be increased by quality contact, thus diminishing stereotypes towards out-group members such as people with psychiatric disorders and associating with more helping behaviours (Johnston & Glasford, 2018; Vagheei et al., 2018).

According to a study conducted by Yang et al. (2014), the higher the empathy among nurses who work in psychiatric inpatient care (i.e., have contact with people with a mental disorder), the lower the stigmatization. This might because empathy motivates a person to provide behavioural and emotional care in the first place. Through regular contacts, they feel more positive toward the illness and lead to lesser stigma (Dovidio, Gaertner, & Kawakami, 2003). Vagheei et al. (2018) also supported that close contact with people with a mental disorder may be a factor that contributes to lesser stigma. With the presence of contact,

empathy for schizophrenia patients can be enhanced and prejudice can be reduced because of people able to understand better about the feelings of the stigmatized group through the contact experiences (Pettigrew, Tropp, Wagner, & Christ, 2011). In addition, a study done by Gateshill et al. (2011) stated that there was no significant difference in emotional empathy among mental health and non-mental health professionals. However, mental healthcare professionals showed more positive attitudes or lesser stigma towards people with mental illness such as schizophrenia than non-mental health professionals due to the reason that they are having more contact with this group of people (Gateshill et al., 2011). These findings have shown that empathy may reduce stigmatizing attitudes through contact.

Instead of direct contact, indirect contact may serve a similar moderating role. Hackler (2011) supported that a person's empathy may greatly enhance through indirect contact such as watching a video about people with mental illness shares own experiences, which then led to a decrease in stigmatization. Similarly, participants who have indirect contact with people who have diagnosed with schizophrenia through watching a documentary film about schizophrenia reported more pity emotional responses towards the patients, more likely to protect or help them, and cooperate with them (Thonon et al., 2016), indicating lesser stigmatizing attitudes. Therefore, past studies have shown that indirect contact about schizophrenia strengthens the negative association between empathy and stigma toward people with schizophrenia.

Theoretical Framework

Albert Bandura's Social Cognitive Theory (SCT) is selected to explain the current study model. SCT is well known as the common use of theory in promoting behavioural modifications (Plow & Chang, 2019). It is useful in explaining mental illness stigmas such as the impacts of stigma and ways to change it (Corrigan, 2002). The central concept of SCT is reciprocal determinism, in which personal factors, environmental influences, and human

behaviours continually interact with one another dynamically and reciprocally in a three-way manner (Glanz, 2001). In simplest words, human behaviours have resulted from the interaction between the personal and environmental factor and the consequences of these behaviours are then reverting and impacting the persons and the environment.

It has been evidenced that SCT was relevant to various behavioural interventions by focusing on both personal and environmental factors as strategies to change current behaviours (Plow & Chang, 2019). Corrigan (2002) who used SCT to explain mental illness stigmatization has found that familiarity lessens negative attitudes thus related knowledge and contact may play crucial roles in changing the negative stigma and improving helping behaviours. Besides, social cognitive paradigms have proposed that mental health stigma rooted from discriminative cues (i.e., psychiatric symptoms such as aloud self-talking) and stereotypes (e.g., perceived dangerousness), followed by behavioural reactions (i.e., housing and employment discrimination). It is the human knowledge structures which processed and generated stigma (Corrigan, 2006).

Other than SCT, attribution theory can also be applied in explaining mental health stigma. It has been stated that people make assumptions about an event based on their causal attribution of the event's controllability (Corrigan, 2006). People who believe that the cause of the stigmatized trait is non-controllable (e.g., knowledge about the biological causes of schizophrenia) evoked pity and helping behaviours towards stigmatized groups whereas those who attributed the causes as controllable (e.g., personal choices) generated anger and unwilling to provide help to the stigmatized group (Corrigan, 2006). Moreover, according to Allport's intergroup contact theory, empathy can diminish stereotypes towards out-group members through quality contact and result in more helping behaviours (Johnston & Glasford, 2018; Vagheei et al., 2018).

Therefore, both personal factors (i.e., knowledge and empathy) are taken as the predictors of stigmatization towards people with schizophrenia whereas environmental factor (i.e., contact) is hypothesized as the moderator in the current study.

Conceptual Framework
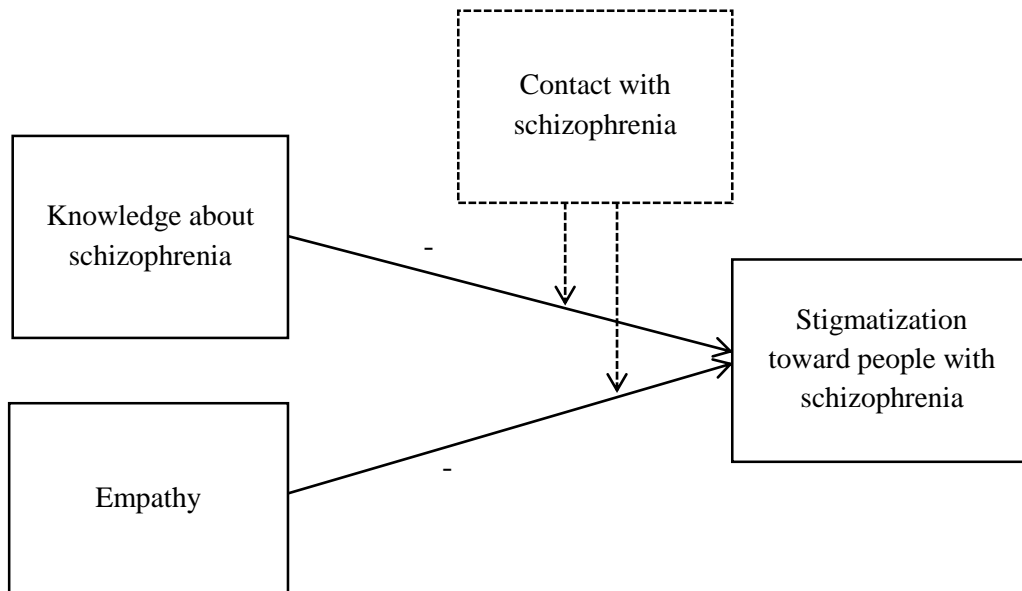
Figure 1

In Figure 1, it shows that knowledge and empathy are the predictors of stigmatization towards schizophrenia whereas contact acts as a moderator for the model.

Note: - sign denotes negative prediction

Chapter III

Method

Research Design

Current study was a descriptive study that used cross-sectional design, a one-time survey or observation that was used to measure a representative subset of the population where it was ideal to calculate the prevalence rates (Thompson & Panacek, 2007). A quantitative approach with the use of online survey method was selected to understand the relationship between knowledge, empathy, contact, and stigmatization toward people with schizophrenia among university students in Malaysia.

Research Sample

The minimum sample size for the current study was calculated by using G*Power 3.1.9.2. For the first model (knowledge and stigmatization), the calculated sample size was 144 with alpha=.05; power=.95; effect size=.11. For the second model (empathy and stigmatization), the calculated sample size was 261 with alpha=.05; power=.95; effect size=.06 (Appendix A). By averaging up the sample size from both models, we got the minimum sample size which was 203.

In current study, we have collected a total number of 248 university students as the study's participants. Participants were recruited through the use of purposive nonprobability sampling method, which targeted on undergraduates and postgraduates from various private and public institutions in Malaysia. The questionnaire was generated through Qualtrics and a link to access the questionnaire was distributed through social media platforms (e.g., email, messenger, and Facebook). University students were selected as targeted participants as the onset of schizophrenia usually occurs during young adulthood. The signs and symptoms could be noticed at early to mid-20s for men and at late 20s for women (APA, 2013). As most of the university students are within or close to this age range of group, they may have more

contact with people who are in-risk, thus they have to be more aware of and understand about the disorder.

Instrumentations

In the first section of the questionnaire, an inform consent was inserted followed by a section that collected demographic information of the participants (i.e., age, gender, race, current qualification that is pursuing, and university of study). A question stated "Are you having/had contact with people with schizophrenia?" that asked participants whether they have direct, indirect, or totally no contact with people who have schizophrenia was inserted as well for the purpose of study (Appendix B).

A total of three instruments which were Knowledge about Schizophrenia Test (KAST), Interpersonal and Social Empathy Index (ISEI), and Attribution Questionnaire (AQ-9) were used as current research measures (Appendix B).

Knowledge about schizophrenia test (KAST). A 18-item scale that was used to test participants' general knowledge about schizophrenia (Compton, Quintero, & Esterberg, 2007). It consisted of seven domains which were causes of schizophrenia, symptoms of schizophrenia, treatment, diagnosis, self-help, course of the disorder, and continuation care towards schizophrenia. The possible total score ranges from zero to 18 points, with the higher score signified better knowledge about schizophrenia. The responses were collected using multiple-choice questions and five options that consisted of a correct answer and four distractors were provided for each question. The Cronbach alpha of this scale was 0.71.

Interpersonal and social empathy index (ISEI). A 15-item scale that was used to measure personal and social empathy (Segal et al., 2013). Item one to five were referred as the macro perspective-taking (MPT), item six to nine represented cognitive empathy (COG), item 10 to 12 stood for self-other awareness (SOA), and item 13 to 15 considered as the affective response (AR). The responses were collected using a 6-point Likert scale ranging

from 'one' (='never') to 'six' (='always') and the total score was calculated by adding up all the factors with the possible scores range from 15 to 90 points. Higher score indicated higher levels of interpersonal and social empathy. The Cronbach alpha of this scale was 0.85.

Attribution questionnaire (AQ-9). A short version of the 27-item Attribution Questionnaire (AQ-27) which consisted of nine items that were used in current study to test stigmatizing attitudes of a person towards people with schizophrenia (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Corrigan, Powell, & Michaels, 2014). It came with a vignette that described Harry's life as a schizophrenia patient while asking respondents' attitudes toward him. The scale consisted of nine components which were blame/responsibility (Item four), anger (Item six), pity (Item one), help (Item seven), dangerousness (Item two), fear (Item three), avoidance (Item eight), segregation (Item five), and coercion (Item nine). Participants' responses were collected by using a 9-point Likert scale where participants indicated the best answer for each question from 'one' (='none at all') to 'nine' (='very much'). The items for Help and Pity are reversed coded. The total scores were ranging from nine to 81 with the higher score indicating more stigmatization toward people with schizophrenia (Corrigan, Powell & Michaels, 2014). The Cronbach alpha of this scale was 0.60.

Research Procedure

A pilot study was conducted in University Tunku Abdul Rahman (UTAR) with a total of 100 participants collected prior to the data collection of a larger sample size. The main purpose of conducting the pilot study is to test the reliability or feasibility of the instruments used. The result of the pilot study showed reliability of 0.71 for KAST, 0.82 for ISEI, and 0.58 for AQ-9. In general accepted rule for instruments' reliability, 0.60 to 0.70 indicated acceptable ranges and 0.80 and above showed good level of reliability (Ursachi, Horodnic, & Zait, 2015). In final sample of 248 participants, the result showed acceptable and good

reliability among the instruments, which were 0.71 for KAST, 0.85 for ISEI, and 0.60 for AQ-9.

In order to collect responses, an online questionnaire created by Qualtrics was distributed through social media to reach out to participants, both undergraduates and postgraduates who were studying Foundation, Diploma, Bachelor's Degree, PhD, and Master programs in university in Malaysia. First and foremost, participants were introduced about the purpose of study, informed about confidentiality and researchers' contact information, and more. They were allowed to stop participate at any time once they have changed their mind. Upon participation, they were required to agree the informed consent by clicking "Yes" to proceed to the questionnaire and "No" to refuse to participate. Participants took approximately 8 to 13 minutes to complete the survey. After that, IBM Statistic Package for Social Science (SPSS) version 25.0 was used to analyse the results.

Data Cleaning

The current study collected a total of 255 responses. Initially, five cases were removed as the responses consisted of missing value. After that, two cases were found as univariate outliers, thus, were removed from the data set (Appendix). To conclude, a total of six cases were removed from 255 responses, thus 248 responses were used as the final data for analysis.

Data Analysis

The collected data first went through analysis to test five assumptions of the Normality which are univariate outliers, normal Q-Q Plot, histogram, skewness and kurtosis, and normality test. After testing the five assumptions of normality, current study proceed to assumptions testing for multiple regression analysis which are variable type, linearity, multicollinearity, homoscedasticity, independent, independent error, influential cases and normality distributed error. Subsequently, multiple linear regression was used to test whether

knowledge and empathy significantly predict stigmatization toward people with

schizophrenia negatively. Lastly, PROCESS Macro which is a type of moderator analyser

was used to examine the moderating effects of contact with schizophrenia on the associations

among variables.

Chapter IV

Results

Assumptions of Normality

Univariate outliers. Assumptions for normality were examined before proceeding to data analysis. A total of two univariate outliers were found and removed from the total sample (Appendix C).

Skewness and kurtosis. Subsequently, skewness and kurtosis were examined toward each distribution. The results from table 4.1 showed that there was no violation toward the assumptions. The values of skewness and kurtosis did not exceed the benchmarking range of -2 to +2 (George & Mallery, 2010).

Table 4.1

Skewness and Kurtosis

	Skewness	Kurtosis
Knowledge	-.016	.590
Empathy	.088	-.315
Stigma	-.177	-.286
Contact	-.179	-1.984

Histogram. Moreover, the results showed from the histograms for each scale were in bell-shaped curve, thus assumptions of normality were met (Appendix C).

Normal Q-Q plots. Besides, the results showed each data point was near to the reference line, thus, the data for each scale were normally distributed as for all scales (Appendix C).

Normality test. Finally, Kolmogorov-Smirnov and Shapiro-Wilk test was used to examine the assumptions of normality. Based on Table 4.2, the Kolmogorov-Smirnov test showed a significant level of $p < .05$ for all scales and Shapiro-Wilk test show a significant

level of p >.05 for empathy and stigmatization while $p < .05$ for contact and knowledge. Even

though this assumption did not meet, another four out of five of the assumptions of normality

showed no violation.

Table 4.2

Kolmogorov-Smirnov and Shapiro-Wilk Test

	Kolmogorov-Smirnov Significant level	Shapiro-Wilk Significant level
Knowledge	.001	.139
Empathy	.027	.004
Stigma	.039	.276
Contact	.000	.000

* refer to Appendix C, p. 82 for SPSS output

Descriptive Statistics

In the current study, a total of 248 participants were collected with 23% of Malay ($n = $

57), 66.5% of Chinese ($n = 165$), 4.4% of Indians ($n = 11$), and 6% from other races ($n = 15$).

The age of the total participants ranged from 18 to 57 years old ($M = 22.33$; $SD = 3.80$), with

39.1% of males ($n = 97$) and 60.9% of females ($n = 151$). The majority of the participants,

56.9% were from private universities ($n = 141$), and 43.1% were from public universities ($n = $

107) with 8.5% who were pursuing foundation, diploma, matriculation or any equivalence (n

$= 21$), 81.5% pursuing bachelor's degree ($n = 202$), 8.1% pursuing master ($n = 20$) and 2%

pursuing PhD ($n = 5$).

Moreover, the mean score for knowledge variable was 9.46, where 51.6% of the

participants showed low knowledge about schizophrenia ($n = 128$), while 48.4% showed high

knowledge about schizophrenia ($n = 120$). Empathy variable demonstrated a mean score of

66.20, where 55.2% of participants showed low interpersonal and social empathy ($n = 137$),

while 44.8% showed high interpersonal and social empathy ($n = 111$). For stigma variable,

the mean score was 38.99, where 48.4% of participant reported to have lower stigmatization

toward people with schizophrenia, and 51.6% reported to have higher stigmatization toward

people with schizophrenia. Besides, 54.5% reported of having contact (i.e. direct contact and

indirect contact) with people with schizophrenia ($n = 135$), while 45.6% reported to have

totally no contact with people who have schizophrenia ($n = 113$; Table 4.3).

Table 4.3

Frequency Distribution of Participants for Demographic Variables and Main Variables

	n	%	*M*	*SD*
Demographic Variables				
Age			20.33	3.80
Gender				
Male	97	39.1		
Female	151	60.9		
Race				
Malay	57	23.0		
Chinese	165	66.5		
Indians	11	4.4		
Others	15	6.0		
University				
Private universities	141	56.9		
Public universities	107	43.1		
Currently pursuing				
Foundation, diploma, matriculation, or etc.	21	8.5		
Bachelor degree	202	81.5		
Master	20	8.1		
PhD	5	2.0		
Main Variables				
Knowledge about schizophrenia			9.46	3.29
High (≥9.47)	120	48.4		
Low (≤9.46)	128	51.6		

Note. N=246.

Table 4.3 (Continued)

Frequency Distribution of Participants for Demographic Variables and Main Variables

	n	%	*M*	*SD*
Interpersonal and social empathy			66.20	9.45
High (≥66.21)	111	44.8		
Low (≤66.20)	137	55.2		
Stigmatization toward people with schizophrenia			38.99	8.78
High (≥39.00)	128	51.6		
Low (≤38.99)	120	48.4		
Contact with people with schizophrenia				
Yes	135	45.6		
No	113	54.4		

Note. N=246.

Assumptions of Multiple Linear Regression.

Types of variables. Based on the assumptions of multiple linear regression, all variables were preferably in quantitative form or categorical (Berry, 1993). In current study, all variables met the assumption as knowledge, empathy, and stigma were continuous variables calculated in quantitative forms and contact (with or without) was a categorical variable.

Independent. Next, according to the assumptions of multiple linear regression, all values of the outcome variable were assumed to be independent (Berry, 1993). The assumption was met as all the variables in current study were independent from others.

Multicollinearity. Multiple linear regression assumed that there were low inter-correlations between predictors, thus, Variance Inflation Factor (VIF) values and tolerance

were used to measure. According to Hair, Black, Babin, and Anderson (2010), the result from

VIF values indicated that all predictors were less than 10, and tolerance values were larger

than 10 (Table 4.4). This indicated that assumption of multicollinearity was not violated.

Table 4.4

Statistics for Multicollinearity

	Tolerance	VIF
Knowledge	.992	1.008
Empathy	.992	1.008

* refer to Appendix C, p. 84 for SPSS output.

Independent error. The fourth assumption of MLR was independent error which

used Durbin Watson to test it. According Chen (2016), the benchmark for Durbin Watson

should be within one to three and preferably closer to two. Based on Table 4.5, the

assumption had been met in current study as it fell near to two which indicated congruent to

assumption.

Table 4.5

Test of Independent Error

Model	Durbin-Watson
1	2.042

Note. Predictors: Knowledge, Stigma

Dependent variable: Stigmatization

* refer to Appendix C, p. 84 for SPSS output.

Linearity, normality, and homoscedasticity. Besides, assumptions for multiple

linear regression required linearity, normality residual, and homoscedasticity. Based on

Figure 4.1, the assumptions were met.
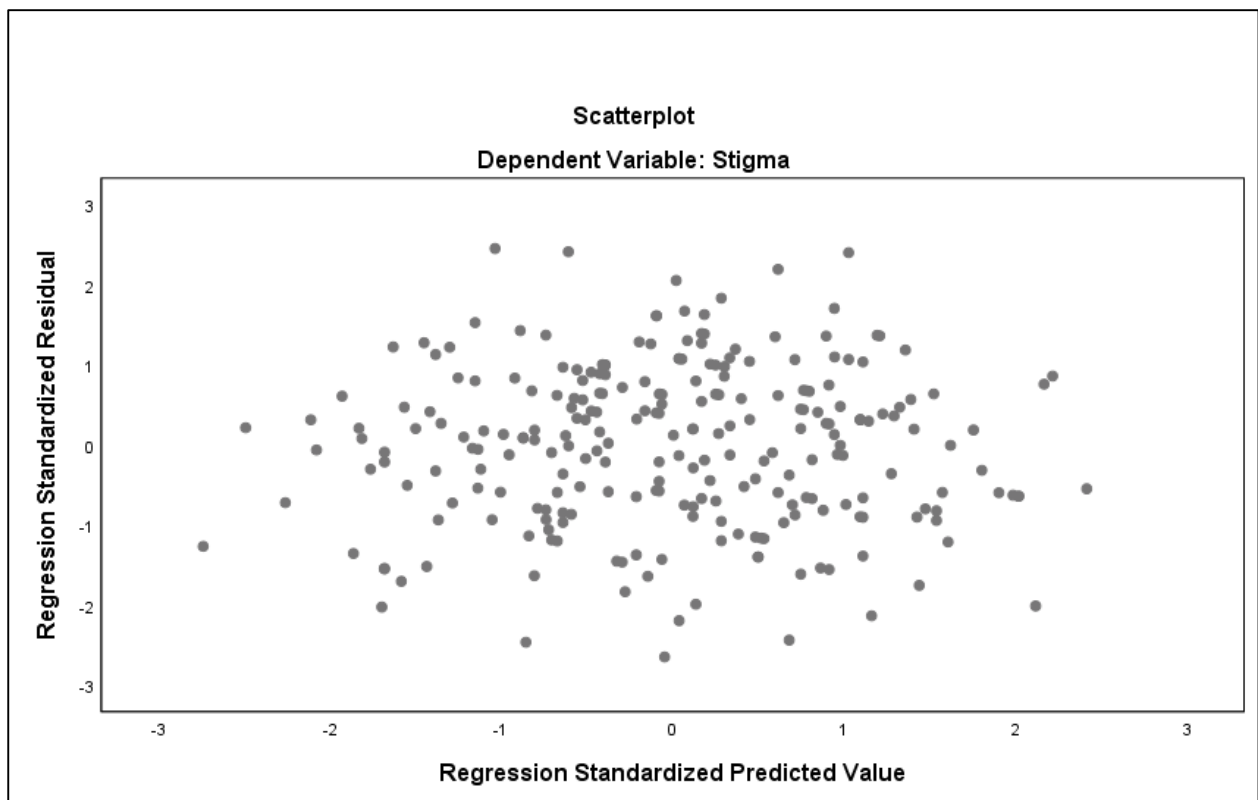
Figure 4.1. Scatterplot that showed assumptions for linearity, residual normality and homoscedasticity were met.

Influential cases. Moreover, influential cases were to identify multivariate outliers and then remove it. To test the multivariate outliers, Mahalanobis distance, Cook's distance, and Centered Leverage distance was used. By using two standard deviation, 12 cases exceed it and being labelled as potential multivariate outliers. Following the benchmark of Mahalanobis Distance (Barnett & Lewis, 1978), Cook's Distance (Cook & Weisberg, 1982), and Centered Leverage distance (Hoaglin & Welsch, 1978), it was found that only Centered Leverage distance with the benchmark of .012 were violated by two cases. Yet, they were not removed as the other two distances shown no violation.

Table 4.5

Tests of Multivariate Outliers

		Case Number	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
Group_IC	1	16	2.46723	0.3375	.00999
	2	39	.58034	.01037	.00235
	3	147	1.95857	.02482	.00793
	4	163	.34863	.00775	.00141
	5	206	2.55453	.02847	.01034
	6	217	4.35036	.03093	.01761
	7	219	2.13585	.02527	.00865
	8	230	2.63929	.02305	.01069
	9	231	2.62475	.02428	.01063
	10	234	4.50622	.03145	.01824
	11	242	2.69832	.03095	.01092
	12	243	2.16857	.02607	.00878
	Total N		12	12	12

Multiple Linear Regression Analysis

Multiple linear regression was used to test whether knowledge and empathy predict stigmatization toward people with schizophrenia. The model was statistically significant as R^2 = .119, F (2, 245) = 17.645, $p < .001$ and accounted for 11.9% of variance. The results showed that knowledge about schizophrenia significantly and negatively predicted stigmatization toward people with schizophrenia (β = -.327, $p < .001$) whereas empathy was found as a non-significant predictor of stigmatization (β = -.111, p = .066; Table 4.7 and 4.8).

Table 4.7

Regression Model Result

	df	*F*	*p*	Adj. R^2
Regression	2	17.645	.000	.119
Residual	245			
Total	247			

Note. Dependent variable: stigma. Predictors = knowledge, empathy

* refer to Appendix C, p. 84 for SPSS output

Table 4.8

Regression Coefficient Result

	t	Std. β	*p*
Knowledge	-5.458	-.327	.000
Empathy	-1.850	-.111	.066

Note. Dependent variable: Stigma

*refer to Appendix C, p. 84 for SPSS output

Moderation Models

Moderation analysis was used to test the hypotheses that contact (with/without) moderates relationship between knowledge and stigmatization toward people with schizophrenia as well as for empathy and stigmatization toward people with schizophrenia.

The model for whether contact (with/without) moderates the relationship between knowledge and stigmatization toward people with schizophrenia was statistically significant, $R^2 = .133$, $F (3, 244) = 12.447$, $p < .001$ and accounted for 13.3% of variance (Appendix C).

Knowledge, contact, and stigmatization. It was found that contact (with or without) significantly and negatively moderated the association between knowledge and stigmatization toward people with schizophrenia ($\beta = -.750$, $p < .05$). Among people who have contact with

schizophrenia, knowledge predicted stigmatization more negatively ($\beta = -.1.207$, $p < .001$) than the predictive effect of knowledge itself on stigmatization towards people with schizophrenia ($\beta = -.327$, $p < .001$). It showed that contact had an enhancing moderation effect, where contact with schizophrenia has increased the effects of knowledge on stigmatization toward people with schizophrenia. For no contact, no significant moderating effect was found on knowledge and stigmatization toward people with schizophrenia ($\beta = -.457$, $p = .069$; Table 4.9).

In addition, based on Figure 4.2, the line graph indicated that when there was contact with schizophrenia, higher knowledge would have more enhancing effect in decreasing stigmatization toward people with schizophrenia. However, among people who had contact with schizophrenia, those who had relatively low knowledge about schizophrenia showed slightly higher stigmatization than people without relevant contact.

Table 4.9

Moderation Coefficient Results of Contact toward Knowledge and Stigmatization

	t	β	p
Knowledge	-5.349	-.865	.000
Contact	-.389	-.414	.697
Int_1	-2.294	-.750	.023

Note. Dependent variable: stigma. Int_1: interaction between knowledge and contact
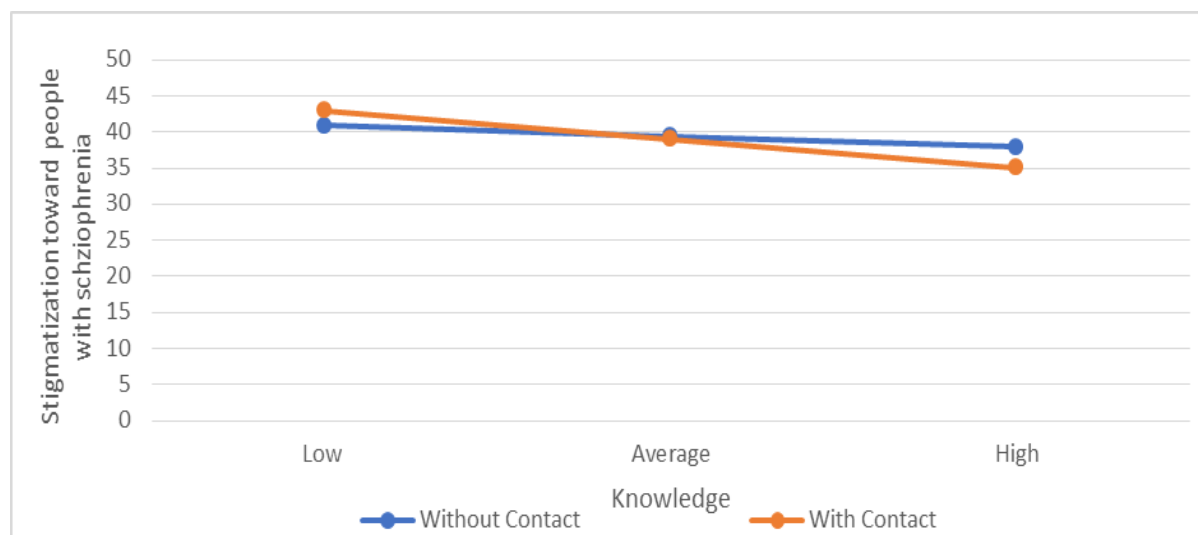
Figure 4.2. Line graph that showed the moderation effect of contact between knowledge and stigmatization toward people with schizophrenia

Empathy, contact, and stigmatization. In contrast, the model for contact (with or without) moderates the association between empathy and stigmatization toward people with schizophrenia was not significant, $R^2 = .025$, $F(3, 244) = 2.096$, $p = .101$ (Appendix C). The result showed that contact was not a significant moderator for the relationship between empathy and stigmatization toward people with schizophrenia ($\beta = -.015$, $p = .896$). The result also indicated that for both with contact ($\beta = -.140$, $p = .141$) and without contact ($\beta = -.457$, $p = .090$), no significant moderating effects were found between empathy and stigmatization toward people with schizophrenia (Table 4.10). This indicated that whether with or without contact have no effect on empathy and stigmatization toward people with schizophrenia.

Table 4.10

Moderation Coefficient Results of Contact toward Empathy and Stigmatization

	t	β	p
Empathy	-2.256	-.133	.025
Contact	-1.165	-1.296	.245

Note. Dependent variable: stigma. Int_1: interaction between empathy and contact

Table 4.10 (Continued)

Moderation Coefficient Results of Contact toward Empathy and Stigmatization

	t	β	p
Int_1	-131	-.016	.896

Note. Dependent variable: stigma. Int_1: interaction between empathy and contact

Summary of results

The results for current study were shown in table below which could be concluded that H1 and H3 were supported while H2 and H4 were not supported.

Table 4.11

Results Summary

Hypotheses	Std. β	β	p	Decision
H1: Knowledge about schizophrenia negatively predicts stigmatization toward people with schizophrenia among university students	-.327		.000	Supported
H2: Empathy negatively predicts stigmatization toward people with schizophrenia among university students	-.111		.066	Not Supported
H3: Contact (with or without) moderates the association between knowledge about schizophrenia and stigmatization toward people with schizophrenia among university students		-.750	.023	Supported
H4: Contact (with or without) moderates the association between empathy and stigmatization toward people with schizophrenia among university students.		-.016	.896	Not Supported

Chapter V

Discussion & Conclusion

Present study aimed to investigate whether knowledge about schizophrenia and empathy negatively predict stigmatization towards people with schizophrenia as well as to determine whether contact acts as a significant moderator on the association between knowledge, empathy, and stigmatization. The result generated from regression analyses indicated that knowledge about schizophrenia was a significant negative predictor of stigmatization whereas empathy was a non-significant predictor of stigmatization towards people who have schizophrenia. Moderated regression analyses have also revealed that contact was a significant moderator in the association between knowledge and stigmatization, but it showed a not significant moderating effect in predicting stigmatization from empathy.

H1 Knowledge about schizophrenia negatively predicts stigmatization towards people with schizophrenia among university students

Present study has found that knowledge about schizophrenia significantly and negatively predicted stigmatization towards people with schizophrenia among university students in Malaysia. In simplest words, the higher the knowledge about schizophrenia, the lower the stigmatization towards people who are diagnosed with the disorder, which has supported the first hypothesis of current study. It was in consistent with several past studies which found that good knowledge about schizophrenia predicted more positive attitudes and lesser stigma toward people with schizophrenia (Rüsch et al., 2005; Smith et al., 2011; Stuart & Arboleda-Florez, 2001) and education predicted lowered stigma due to the gain of related knowledge (Filipcic et al., 2003; Naylor et al., 2009).

The possible reasons and explanations are personal knowledge often shapes a person's beliefs and attitudes (Thornicroft et al., 2007) and inadequate societal understanding about the illness leads to mental illness stigma (Rüsch et al., 2005). There were some

common misconceptions that mental illness was a type of suffering associated with supernatural forces (Hanafiah & Van Bortel, 2015; Khan, Hassali, Tahir, & Khan, 2011) or was predestinated by the nature (Choudhry, Mani, Ming, & Khan, 2016). Hence, most of the people tend to perceive those who have mental disorder as unpredictable in nature, dangerous, and aggressive, especially those with schizophrenia were consistently being viewed as most dangerous or unpredictable (Angermeyer & Dietrich, 2006; Hanafiah & Van Bortel, 2015) and the inference that schizophrenia as a split personality further amplified the stereotype (O'Keeffe et al., 2016; Stuart & Arboleda-Florez, 2001). Some even misapprehended mental disorder as personal weakness and people with psychiatric problems held responsibility for their disorder due to an immoral lifestyle (Angermeyer & Matschinger, 2003), which eventually led to less pity, more fear, anger, and desire of social avoidance, in another word, high stigmatization among general public towards the population (Hanafiah & Van Bortel, 2015; O'Keeffe et al., 2016).

These faulty attributions of dangerousness or unpredictability on people with schizophrenia, which act as the main trigger of stigma against schizophrenia, were greatly originated from the lack of knowledge about the disorder. In fact, most of the people with schizophrenia would not behave violently. This has been evidenced by Brekke, Prindle, Bae, and Long (2001) that people with psychiatric disorder such as schizophrenia are 14 times more likely to be the victim of violence instead of the perpetrator. However, publics who are lack of accurate knowledge about schizophrenia have overestimated about the risk of violence due to the exaggerated symptoms of schizophrenia portrayed by the media, particularly in Malaysia (Hanafiah & Van Bortel, 2015).

As stigmatization usually rooted from perceived dangerousness and personal responsibility about the disorder, the gain of accurate knowledge about schizophrenia is essential for individuals to recognize previous faulty perceptions and replace them with more

positive feelings, which in turn reducing stigmatizing attitudes. Once public viewed people with schizophrenia more positively, these patients are less likely to conceal about their disorder and more willingly seeking for appropriate treatment. Eventually, this can ensure improvement of symptoms among people with schizophrenia and further reduce public stigma against the population. In a nutshell, the gain of good knowledge about schizophrenia is an important element to ensure positive changes in stigmatizing attitudes among university students in Malaysia.

H2 Empathy negatively predicts stigmatization toward people with schizophrenia among university students

Present study has found that empathy did not significantly predict stigmatization toward people with schizophrenia, which did not support the second hypothesis of current study. Present finding is consistent with a study conducted in Iran which investigated the relationship between empathy and stigma against psychiatric disorder among nursing students, as shown by Vagheei et al. (2018), who discovered that there were no significant correlation between empathy and stigmatization towards people with mental illness. Nevertheless, current finding is inconsistent with several past studies which found that empathy significantly reduce mental illness stigma (McFarland, 2010; Webb et al., 2016; Rattu, 2017).

The possible explanations for these incongruities across findings could be due to the dissimilarity in terms of cultural practices across different contexts. First of all, people in collectivist cultures such as Malaysia and Iran, emphasize more about the appropriateness of behaviours and the deviation from norms are usually more visible because of the high surveillance level in the society whereas individualist culture (e.g., United States, Ireland, and Germany) tolerates diversity and focuses more on uniqueness (Papadopoulos et al., 2013). Therefore, it is not surprising for university students in Malaysia to perceive people with mental disorder, such as schizophrenia, as behaving in the ways that are violating the society

norms, thus these negative beliefs might have override the effects of empathy in reducing

stigma towards people who have schizophrenia.

Another possible explanation might be that empathy can sometimes, bring negative

consequences. It is undeniable that people who are high in empathy, in general, which is the

ability to put oneself into another's shoes, tend to have more pity towards those who have

psychiatric disorders and willing to provide help or care. However, those who are having

higher level of interpersonal empathy, which was defined as having the ability to understand

the internal states of another and provide with more sensitive care which is most beneficial to

that individual (Segal et al., 2013), could be potentially exert stigmatizing attitudes such as

benevolence (e.g., treated the patients like a children) and authoritarian (e.g., force treatment

decisions which are considered to be the most beneficial to the patients) (Corrigan, Edwards,

et al., 2001), thus leading to patients' reduced self-esteem as they were being treated

differently from others (O'Rourke, 2001). It was evidenced by Corrigan (2006) that mental

health professionals sometimes might show higher levels of stigma towards their clients, due

to their authoritarian attitudes. Hence, in current study, empathy was not a significant

predictor of reduced stigmatization towards people who have schizophrenia.

H3 Contact (with or without) moderates the association between knowledge about

schizophrenia and stigmatization toward people with schizophrenia among university

students

Present finding has revealed that contact significantly moderated the association

between knowledge about and stigmatization towards people who have schizophrenia, which

has supported the third hypothesis of current study. Interestingly, it was discovered that, in

the presence of contact, more knowledge about schizophrenia predicted lesser stigmatization

than those who have totally no contact. However, for those who have relatively low

knowledge about schizophrenia meanwhile having contact with that population, they showed

a slightly higher stigma compared to those who have totally no contact. In other words, knowledge could reduce stigma better with contact than when it was alone, but contact might bring more stigma if a person is having a poor knowledge about stigma. Present finding is similar to a study done by Chan et al. (2009) who discovered that educating people about knowledge of schizophrenia before applying relevant video-based contact showed more effectiveness in changing social distance and attitude toward people with schizophrenia. Consistent findings were also found across several prior studies (Altindag et al., 2006; Ritterfeld & Jin, 2006).

The possible reason to explain why contact strengthen more negative association between knowledge and stigma could be that stigma's intensity is influenced by familiarity with those stigmatized individuals (Knolhoff, 2018) and increase in familiarity able to combat stigmatization (Corrigan, 2002). By considering attribution theory in explaining the effects of familiarity on attitudes, Angermeyer, Matschinger, and Corrigan (2004) have discovered that, with increasing familiarity, people are less likely to consider mentally ill persons as unpredictable and dangerous, which result in less fear and avoidance. Other than the gain of knowledge about schizophrenia, familiarity could also be enhanced through contact with people who have schizophrenia (Sousa et al., 2012). According to Allport's contact hypothesis, direct contact and actual exposure to individuals from other group could influence in-group attitudes toward that group as what the knowledge did and it was believed that at least some of the information gained was stemmed from personal contact with that particular group of people (Eack & Newhill, 2008). Through frequent contact, more knowledge about schizophrenia would be acquired. In this case, it has no doubt that people who have both knowledge and contacts (direct and indirect) about schizophrenia are more familiar to the disorder, thus they are showing less stigmatization towards people who have schizophrenia. Hence, in current study, it was demonstrated that contact about schizophrenia

(direct or indirect) able to reduce more stigma than by knowledge itself among university students in Malaysia.

The possible explanation for why contact brought more stigma than no contact among people who have poor knowledge about schizophrenia could be that inadequate understanding about schizophrenia might cause a person to be more easily affected by negative schizophrenia-related information (Ritterfeld & Jin, 2006), as people often gain knowledge about behaviours from sources of mass media such as television (Srivastava, Chaudhury, Bhat, & Mujawar, 2018), where the information portrayed are often lack of reliability. For instance, when exposing to media that have exaggerated the symptoms of schizophrenic, people who have poor knowledge tend to believe about the myths and take media as a source of reference, thus exerting more fear, perceived dangerous, and unpredictability towards the patients (Angermeyer & Dietrich, 2006), which indicating more stigmatization. When they understand more about schizophrenia, contact with schizophrenic allows them to become more familiar with the population and thus change their misconceptions toward people with schizophrenia through real-life interaction with the patients, which eventually reduce stigma.

H4 Contact (with or without) moderates the association between empathy and stigmatization toward people with schizophrenia among university students.

Present findings have revealed that contact with schizophrenia (with or without) did not significantly moderate the association between empathy and stigmatization towards people with schizophrenia, which did not support the fourth hypothesis of the study. Besides, discrepancies were found between current and previous findings which stated that contact helps to enhance empathy and reduce stigma against schizophrenia (Hackler, 2011; Pettigrew et al., 2011).

The possible reasons and explanations to explain dissimilar findings might be due to the lack of quality contact with schizophrenia patients among university students in current study, as evidenced by Christ et al. (2014) that positive experience is the most effective strategy in reducing stigma such as prejudice. Moreover, Allport's contact hypothesis has proposed that empathy was able to reduce stereotypes from in-group to out-group members through quality contact only (Johnston & Glasford, 2018; Vagheei et al., 2018). Due to the lack of mental health literacy, which was defined as knowledge about mental illness and the treatment options that are available (Choudhry et al., 2016), mental illness stigmatization had become a common phenomenon in Malaysia. In particular, Chinese community in Malaysia was ashamed of having a relative or family member with mental illness, thus they tend to avoid talking about related topic to prevent social embarrassment towards the entire household (Chang & Horrocks, 2006). This showed that the society in Malaysia was having less opportunity to have quality contact with people who have psychiatric disorder such as schizophrenia, primarily because the patients were not given chance to communicate understanding with the society due to public stigma, thus leading to misunderstanding once people have contact with the patients. Other than that, most of the university students in current study were reported to have indirect contact rather than direct contact with schizophrenia. This showed that their sources of contact with this group of people were largely originated from the mass media, where negative information about schizophrenia were usually being disseminated (Hanafiah & Van Bortel, 2015) and negative impression towards schizophrenic could be shaped due to the poor experiences of indirect contact with the population through media. All of these have provided evidences that a lack of quality contact brought no additional value for empathy in reducing stigma in current study.

Another possible explanation for the finding could be due to the lack of intensity of contact, more specifically, frequency and degree of contact with people who have

schizophrenia. As evidenced in a study conducted by Eack and Newhill (2008), knowledge about schizophrenia was accompanied with more positive general attitudes and attitudes toward working with that population for those who have a higher degree of personal contact with schizophrenia patients. A higher degree of intergroup contact is important as it might challenge inconsistencies of implicit prejudice and help in recognizing false beliefs about this population, which was found to be beneficial in reducing stigma (Henry & Hardin, 2006; Knolhoff, 2008). Up to date in developing country, such as Malaysia, mental health was considered as a field that has been neglected (Choudhry, Mani, Ming, & Khan, 2016). To our knowledge, the syllabus of universities in Malaysia was emphasized more on theory rather than practice, especially in the fields related to mental health. Therefore, university students in Malaysia might have superficial contact about mental illness.

Besides, most of the university students in current study are Bachelor's Degree holder, who are considered as educated non-professional, from different fields of study, thus they may have totally no or inadequate exposure in term of contact with people who have mental illness, especially schizophrenia, during their course of study. Hence, in current study, the degree of contact they had is limited and not significant enough to generate sufficient amount of positive feeling (i.e., empathy) in reducing stigma against this group of patients. In a nutshell, the contact with schizophrenia is insufficient to stimulate significant moderating effect on the relationship between empathy and stigmatization towards people with schizophrenia among university students in Malaysia. This might be largely due to the lack of quality and intensity of contact with the population, which then cause empathy not to be aroused in order to reduce stigma.

Implications

      Theoretical implications. There are some contributions in this study. Firstly, it allows society to be aware of and concern about the issue of stigmatization towards mental

illness such as schizophrenia, and investigating the factors underlying the issue is important to combat related stigma. Besides that, current study had contribute valuable information about the importance of knowledge in predicting lower stigmatization towards people with schizophrenia and it had resolved past mixed findings by providing supporting evidence that contact able to moderate the association between knowledge and stigmatization against schizophrenia. Besides, more researches are needed to confirm current finding that contact brought positive effects only when a person is having more knowledge about schizophrenia and contact with schizophrenic. Hence, these findings may offered a new reference for future researchers to further understand about the mechanism underlying knowledge and contact in reducing stigmatization, specifically in Malaysia context, by investigating possible mediators. This is to ensure the comprehensiveness and concreteness in studying stigmatization against schizophrenia so that proper interventions could be implemented for better effectiveness in combating mental illness stigma in Malaysia. In addition, current study also found that empathy did not significantly predict stigmatization towards people who have schizophrenia. It has provided new direction for future studies to investigate about other possible factors that may reduce stigma towards schizophrenic in Malaysia. Furthermore, present finding has offered an opportunity for future researchers to examine about the appropriateness of including empathy in anti-stigma programs, and to explore under what conditions (i.e., possible moderator), empathy could bring positive effects in combating stigma against schizophrenia, especially in the Malaysia context.

   Practical implications. Current study increases public awareness about the importance of acquiring knowledge of schizophrenia in order to reduce public stigma towards the population. Besides that, current study has also indicated that knowledge reduces stigma better with the presence of contact, and has also emphasized that contact only provided with effective results only when people having more knowledge about schizophrenia. These

findings may serve as a source of reference or guideline for general public and government to contribute efforts to deal with public stigma against mental disorder, in particular schizophrenia, by increasing public knowledge and contact with that population. For instance, more seminars will be conducted to deliver knowledge about mental illness such as schizophrenia to school teachers, lecturers, and other educators in Malaysia. The next generations will be taught about mental health knowledge since young, so that when they are exposing to related information, they are less likely to be affected by the negative information in media and definitely will have lesser fear and lower desire of social distance toward the stigmatized group. In order to increase related contact, government can offer various job opportunities to the patients who show improvement of symptoms and are capable to work. In such, public will have more chance to be in contact with them and increase social inclusion and acceptance. In addition, anti-stigma interventions can include knowledge and contact elements to ensure effectiveness. In particular, offer someone who was previously diagnosed with schizophrenia sharing about his or her experience with the disorder while teaching participants accurate knowledge about schizophrenia, which may be effective in changing their initial false beliefs about mentally-ill person. Hopefully, in coming future, the issue of stigmatization against mental disorder could be dealt with effectively.

Limitations of Study

First of all, present study only focused on investigating whether participants with or without contact about schizophrenia, instead of further explore about the degree and frequency of contact, which might affect the findings.

Besides, present study did not consider about the differences that might have in term of the level of English language proficiency between university students from public and private universities. This might cause a problem for participants to understanding meaning of the questions, especially for those whose mother tongue is not English language. Hence, they

might have answered the questions simply by guessing and the outcomes might not depend on the precision.

Another limitation of current study was the potential bias that might be encountered by participants while filling in the self-report questionnaire such as social desirability bias, which was defined as the tendency of a person to present in the way they think to be more socially acceptable instead of responding based on their true feelings (King & Bruner, 2000). Participants might want themselves to be look good in the eyes of others, especially in sensitive issue such as mental illness stigma, thus they might have provided responses which are not genuine.

Lastly, participants had internet accessibility while answering the online distributed questionnaire. As current study focused on general university students, some participants have totally no knowledge about schizophrenia might search the answers through online. They might gain the knowledge about schizophrenia temporarily instead of having depth understanding on it, and might lead to inaccurate results.

Recommendations of Study

First and foremost, current study suggests that, in future, researchers should further investigate whether higher level of contact in terms of intensity and quality lead to lesser stigmatization towards people who have schizophrenia. This is to ensure more effective interventions can be designed and implemented.

Besides, we suggest that future researchers should prepare questionnaires of different versions such as English, Malay, and Chinese version. Otherwise, future researchers should examine participants' English level before participating. These can ensure more accurate results in Malaysia context.

Another recommendation for future researchers to solve the social desirability bias is the use of social desirability scale such as validated Marlowe-Crowne Social Desirability Scale (MCSDS) to detect possible bias and help justifying the information reliability.

Last but not least, future responses should be collected using hardcopy and ensure that participants could not access to the internet while doing the questionnaire Besides, it is recommended that future study about mental illness such as schizophrenia should target on university students from mental health related fields (e.g., psychology students and social worker students) as they are having more related exposure and knowledge, which can avoid bias while answering the questions and ensure result accuracy.

Conclusion

In conclusion, knowledge was identified as a significant and negative predictor of stigmatization towards people with schizophrenia whereas empathy was examined to be non-significant predictor of stigmatization. Moreover, contact showed significant moderating effects for knowledge in predicting stigmatization but not in that case for empathy. In short, present study not only increases the awareness about the importance of incorporating knowledge and contact elements in stigma reduction interventions, it also provided a new perspective for future studies to explore other potential predictors of stigmatization against stigma to ensure more effective interventions that are suitable in Malaysia context. Other than that, it allowed future researchers to further explore whether increasing frequencies and degree of contact with schizophrenia contribute changes of stigmatizing attitudes and ensure the whether it is appropriate to increase empathy to reduce stigma against schizophrenia among university students in Malaysia context.

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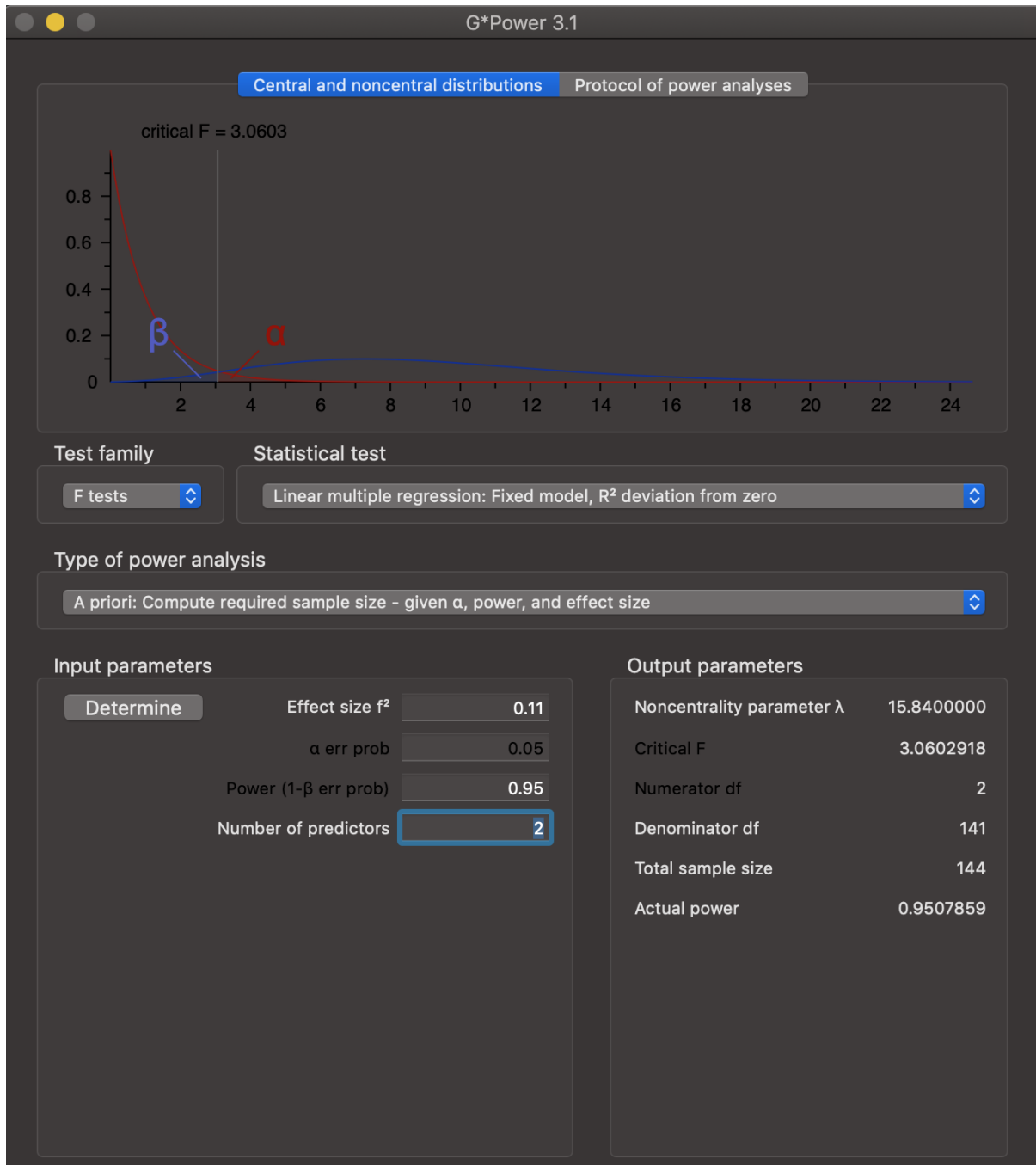**Appendix A**

Sample Size Calculation

TABLE 1. Relationships Among Social Work Students' Knowledge About, Contact With, and Attitudes Toward Individuals With Schizophrenia

Measure	1	2	3	4	5
General attitudes	—				
Attitudes toward working	.58**	—			
Knowledge	.31**	.36**	—		
Frequency of contact	.21**	.27**	.16*	—	
Degree of contact	.25**	.29**	.31**	.59**	—
M	4.45	4.47	.82	1.30	4.43
SD	.73	1.00	.15	1.27	2.61

Note. Because of missing data, N ranges from 114 to 118 depending on the analysis.
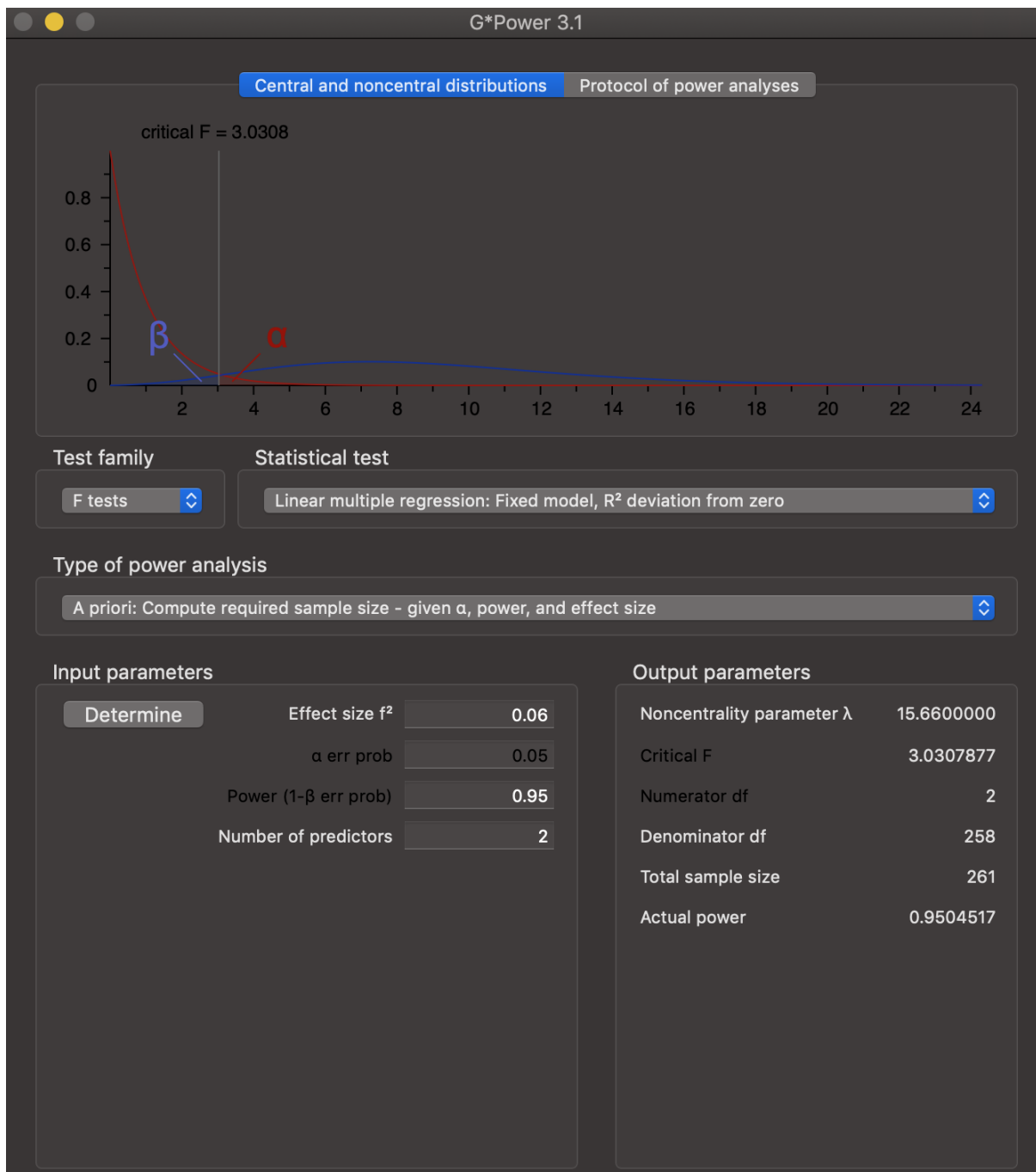
*$p<.10$. **$p<.05$.

Table 3. The Relationship between Empathy and Stigma towards Psychiatric Disorders among Nursing Students

	View adaptation	Empathic care	Putting themselves instead of patient	Total Empathy
Social distance	r=0.85 p=0.29	r =-0.14 p =0.09	r=-0.13 p=0.10	r=-0.14 p=0.08
Diagnostic overshadowing	r=-0.07 p=0.41	r=-0.06 p=0.45	r=-0.04 p=0.60	r=-0.08 p=0.34
Disclosure	r=-0.11 p=0.16	r=-0.11 p=0.19	r=-0.15 p=0.06	r=-0.15 p=0.09
Recovery	r=0.02 p=0.78	r=-0.003 p=0.97	r=-0.005 p=0.95	r=-0.01 p=0.85
Social responsibility	r=-0.27 p<0.001	r=-0.27 p<0.001	r=-0.21 p<0.007	r=-0.29 p<0.001
Total stigma	r=-0.16 p=0.04	r=-0.22 p=0.006	r=-0.17 p=0.03	r=-0.23 p=0.004

Appendix B

Questionnaire

Informed Consent

UNIVERSITY TUNKU ABDUL RAHMAN
FACULTY OF ARTS AND SOCIAL SCIENCE
BACHELOR OF SOCIAL SCIENCE (HONS) PSYCHOLOGY
UAPZ 3013 FINAL YEAR PROJECT
UAPZ 3023 FINAL YEAR PROJECT

Participation Information Sheet

Research Title: Knowledge, Empathy, Contact, and Stigmatization toward People with Schizophrenia

INFORMED CONSENT FOR PARTICIPATION

Voluntary Participation
This study is conducted in order to fulfill the criteria of our Final Year Project. You understand that participation in this study is voluntary and that if you decide not to participate, you will experience no penalty or loss of benefits to which you would otherwise be entitled. If you decide to participate, you may subsequently change your mind about being in the study and may stop participating at any time. The study will take around 8 to 13 minutes to complete. This survey consist of 4 sections which are demographic and 3 different questionnaires.

There are no known risk associated with this research.

Confidentiality
All information and responses given by you in the research will be kept confidential by the researcher and will not made available to the public unless disclosure is required by court. Data and information obtained from this study will not identify you individually.

Contact information
If you have any questions or concerns, please feel free to contact our groups member at jiahao19971@1utar.my, phoonkahkei@1utar.my or 1600850@1utar.my.

Declaration
I have read, or have had read to me, all pages of this consent form. I voluntarily consent and offer to take part in this study. By agreeing to this consent form, I certify that all information I have given is true and correct to the best of my knowledge. I will not hold UTAR or the research team responsible for any consequences and/or liability whatsoever arising from my participation in this study.

Consent
By agreeing to this form, I am stating that I am at least 18 years old and that I understand the above information and consent to participate in this study

Yes

No

Demographic Section

Section A:
Demographic

Gender

Male

Female

Age

Race

Malay

Chinese

Indian

Other

Current Qualification

Foundation/Diploma/Matriculation/etc

Bachelor's Degree

Master

PhD

Course of Study (e.g. Foundation in Science/Arts, Degree in accounting, etc.)

University (e.g. University Tunku Abdul Rahman)

Are you having/had contact with people with schizophrenia ? (Multiple answer can be selected)

Yes, I have direct contact (Family members, neighbor, providing services, having brief contact with people with schizophrenia OR any relevant). With who?

Yes, I have indirect contact [Watching/listening to information about schizophrenia through media (e.g., Youtube, TV, Radio) OR any relevant]

No (Totally no contact)

Knowledge about Schizophrenia Test (KAST)

1. Schizophrenia is most likely caused by:
   A. Brain problem
   B. Drug use
   C. Evil spirits
   D. Pollution
   E. Stress
2. A common symptom of schizophrenia is:
   A. Being overly happy and having extra energy
   B. Overeating and weight gain
   C. Sudden anxiety attacks
   D. Thinking that others are watching or following
   E. Violence, theft, or physical attacks toward others
3. The best person to decide if someone has schizophrenia is a(n):
   A. Emergency room doctor
   B. Family member
   C. Preacher or Minister
   D. Psychiatrist
   E. School teacher
4. With treatment, the most common long-term outcome for schizophrenia is:
   A. Complete cure
   B. Dementia
   C. Mild to moderate mental retardation
   D. Relief of symptoms, with possibility of relapse
   E. Severe mental deterioration
5. Medicines that are used for hearing voices are called:
   A. Antibiotics
   B. Anti-depressants
   C. Anti-psychotics
   D. Sedatives
   E. Tranquilizers
6. The best place to get information about schizophrenia is from:
   A. Books or websites
   B. Friends
   C. Neighbors
   D. Newspapers
   E. Preachers or ministers
7. To help deal with stress, most patients with schizophrenia benefit from:
   A. Alcohol use
   B. Counseling or psychotherapy
   C. Cutting back on social activities
   D. Pain-relief medications
   E. Physical therapy

8. The cause of schizophrenia is most likely related to:
   A. Biology
   B. Environment
   C. Family
   D. Personality
   E. Society
9. A person strongly believes that the FBI has put a computer chip in his/her body. This symptom is called a:
   A. Daydream
   B. Delusion
   C. Hallucination
   D. Phobia
   E. Worry
10. A doctor usually makes a diagnosis of schizophrenia by a(n):
    A. Blood test
    B. CAT scan
    C. Interview
    D. Reading test
    E. Urine test
11. Most people who have schizophrenia need to be in some sort of treatment for:
    A. Days
    B. Weeks
    C. Months
    D. Years
    E. Not at all
12. The best treatment for the symptoms of schizophrenia is:
    A. Medicine
    B. Operation
    C. Relaxation
    D. Strict diet
    E. Vitamins
13. People with schizophrenia benefit most from:
    A. Being put into a hospital for years
    B. Having fun or exercising
    C. Strict schedules with full-time employment
    D. Support from family/friends and low stress
    E. Vitamins, minerals, or herbs
15. A 19-year-old begins to hear voices and act paranoid several months after graduating from high school. The most likely cause of his symptoms is:
    A. Drinking alcohol
    B. Genetic tendency toward developing an illness
    C. Graduating high school
    D. Personality weakness
    E. Puberty and adolescence

18. The symptoms of schizophrenia usually begin in which stage of life?
    A. As a baby
    B. Elementary school years
    C. Late teen-age years or young adulthood
    D. 40–50 years old
    E. 60–70 years old
19. Which of the following is one of the new "atypical" medicines for schizophrenia?
    A. Chlorpromazine (Thorazine)
    B. Haloperidol (Haldol)
    C. Fluphenazine (Prolixin)
    D. Trifluoperazine (Stelazine)
    E. Quetiapine (Seroquel)
20. Which group is the best source of information and support for family members of people with schizophrenia?
    A. American Medical Association (AMA)
    B. Association of Psychologists and Psychiatrists (APAP)
    C. Centers for Disease Control and Prevention (CDC)
    D. National Alliance for the Mentally Ill (NAMI)
    E. Schizophrenia Family Association (SFA)
21. After hospitalization, a patient with schizophrenia would benefit most from:
    A. Constant observation by family
    B. Eating more meats and breads
    C. Follow-up with a preacher or minister
    D. Follow-up with an outpatient psychiatrist
    E. Getting a full-time job and staying busy

Interpersonal and Social Empathy Index (ISEI)

Final 15-items of the ISEI and Respective Components

Factor	Item #	Question
MPT	Q1	I take action to help others even if it does not personally benefit me.
	Q2	I am comfortable helping a person of a different race or ethnicity than my own.
	Q3	I feel it is important to understand the political perspectives of people I don't agree with.
	Q4	I believe that people who face discrimination have added stress that negatively impacts their lives.
	Q5	I believe government should protect the rights of minorities.
COG	Q6	I can consider my point of view and another person's point of view at the same time.
	Q7	I am good at understanding other people's emotions.
	Q8	When I see a person experiencing a strong emotion I can accurately assess what that person is feeling.
	Q9	I can tell the difference between someone else's feelings and my own.
SOA	Q10	I am aware of what other people think of me.
	Q11	I am aware of other people's emotions.
	Q12	I can explain to others how I am feeling.
AR	Q13	When I see someone receive a gift that makes them happy, I feel happy myself.
	Q14	When I am with someone who gets sad news, I feel sad for a moment too.
	Q15	Hearing laughter makes me smile.

Note: **MPT=** Macro perspective-taking, **COG** = Cognitive empathy, **SOA** = Self–other awareness; **AR=** Affective response

Attributional Questionnaire 9 (AQ-9)

AQ-9

Name or ID Number_____ Date _____

Harry is a 30 year-old single man with schizophrenia. Sometimes he hears voices and becomes upset. He lives alone in an apartment and works as a clerk at a large law firm. He had been hospitalized six times because of his illness.

CIRCLE THE NUMBER OF THE BEST ANSWER TO EACH QUESTION.

1. I would feel pity for Harry.

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
none at all   very much

2. How dangerous would you feel Harry is?

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
none at all   very much

3. How scared of Harry would you feel?

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
none at all   very much

4. I would think that it was Harry's own fault that he is in the present condition.

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
none at all   very much

5. I think it would be best for Harry's community if he were put away in a psychiatric hospital.

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
none at all   very much

6. How angry would you feel at Harry?

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
none at all   very much

7. How likely is it that you would help Harry?

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
definitely   definitely
would not help   would help

8. I would try to stay away from Harry.

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
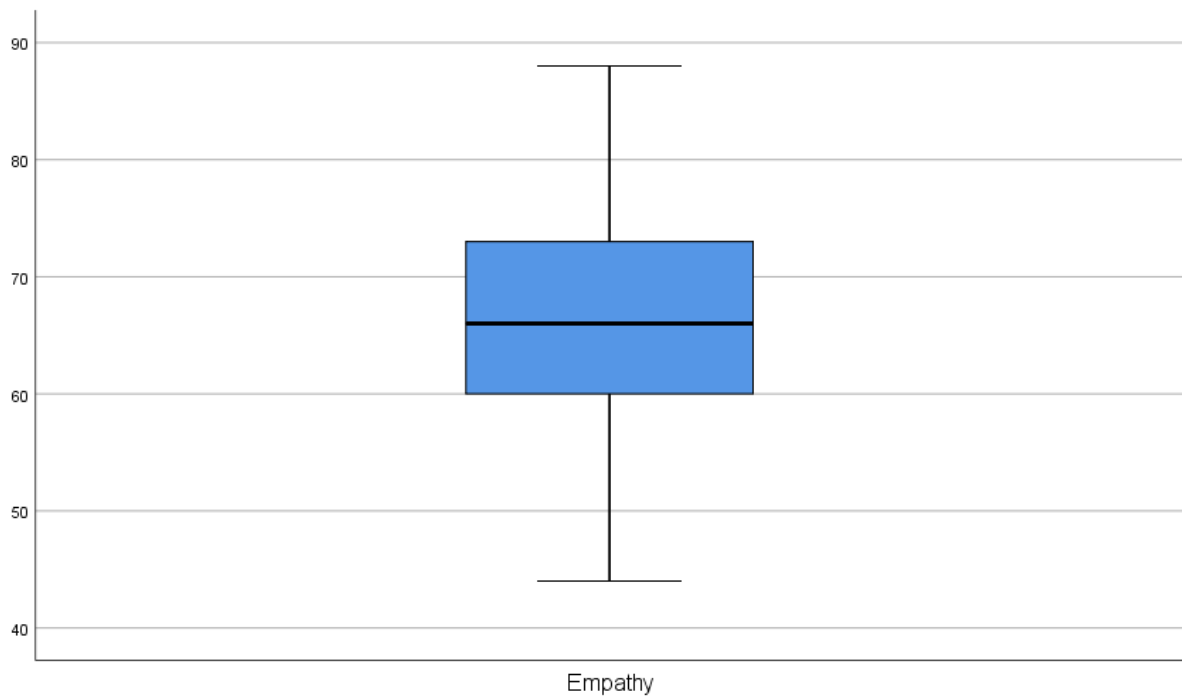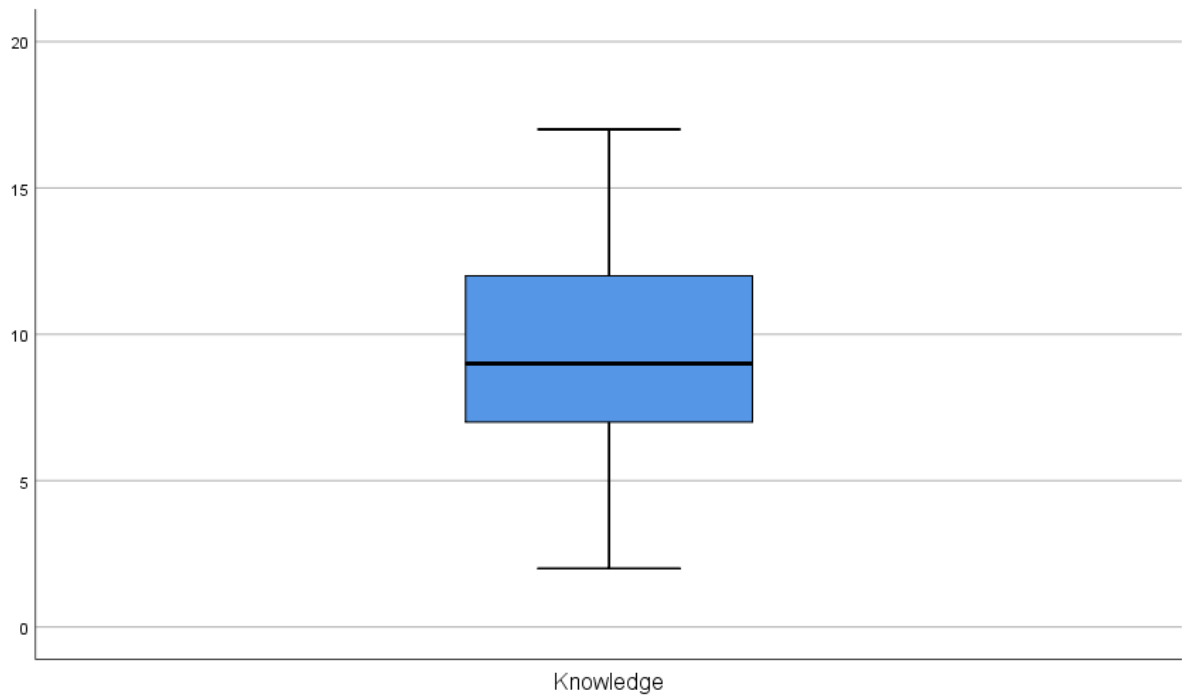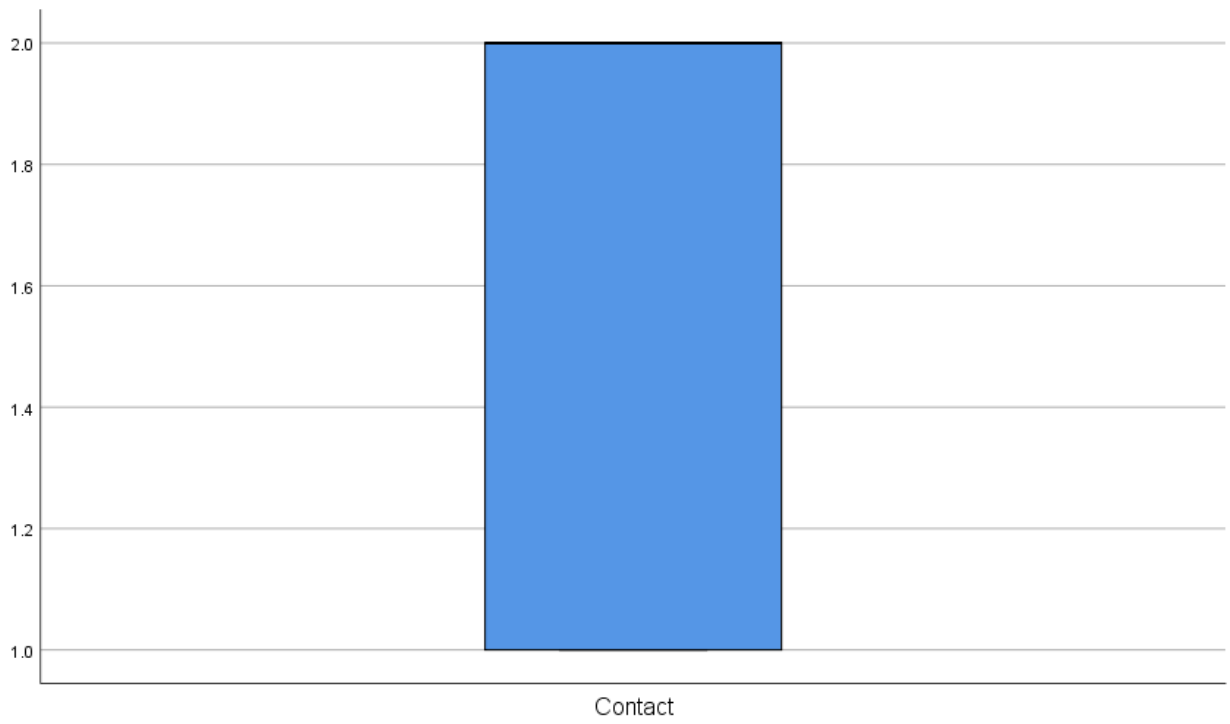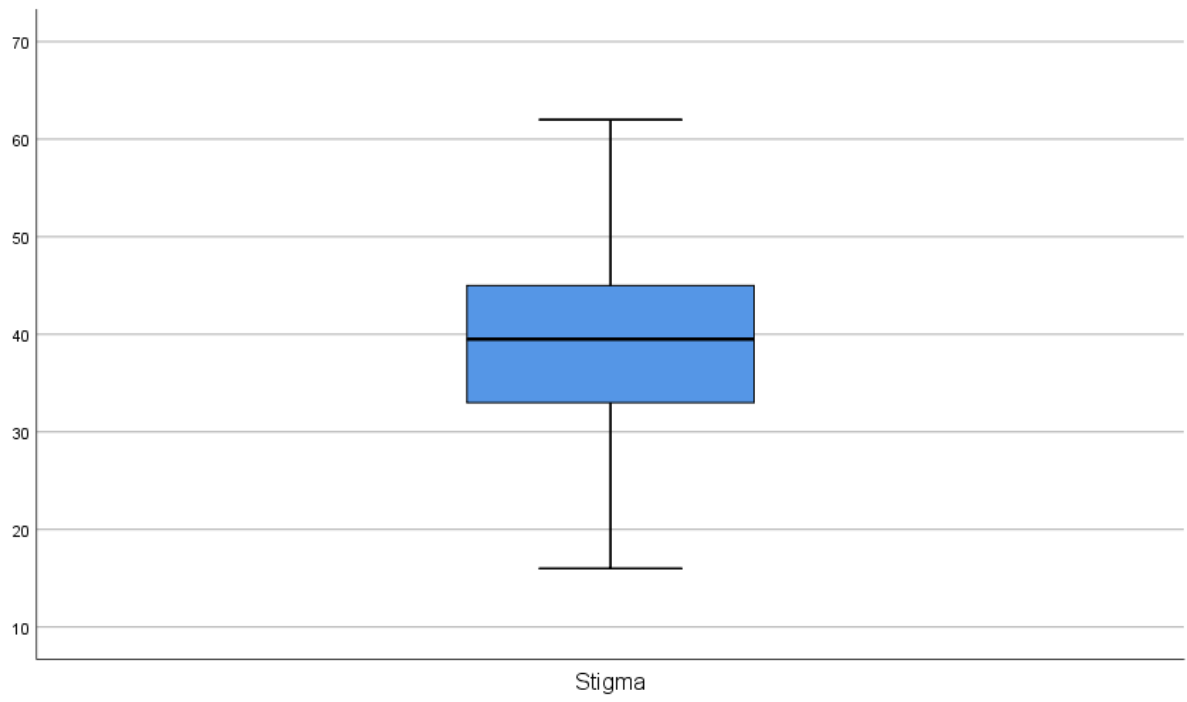none at all   very much

9. How much do you agree that Harry should be forced into treatment with his doctor even if he does not want to?

      1   **2**   **3**   **4**   **5**   **6**   **7**   **8**   **9**
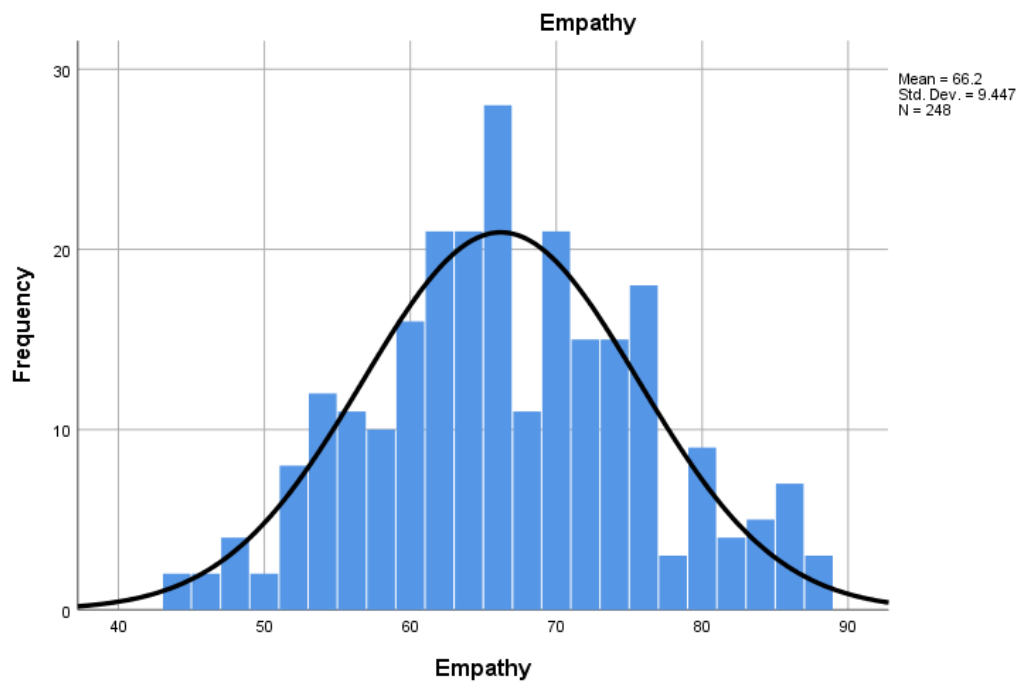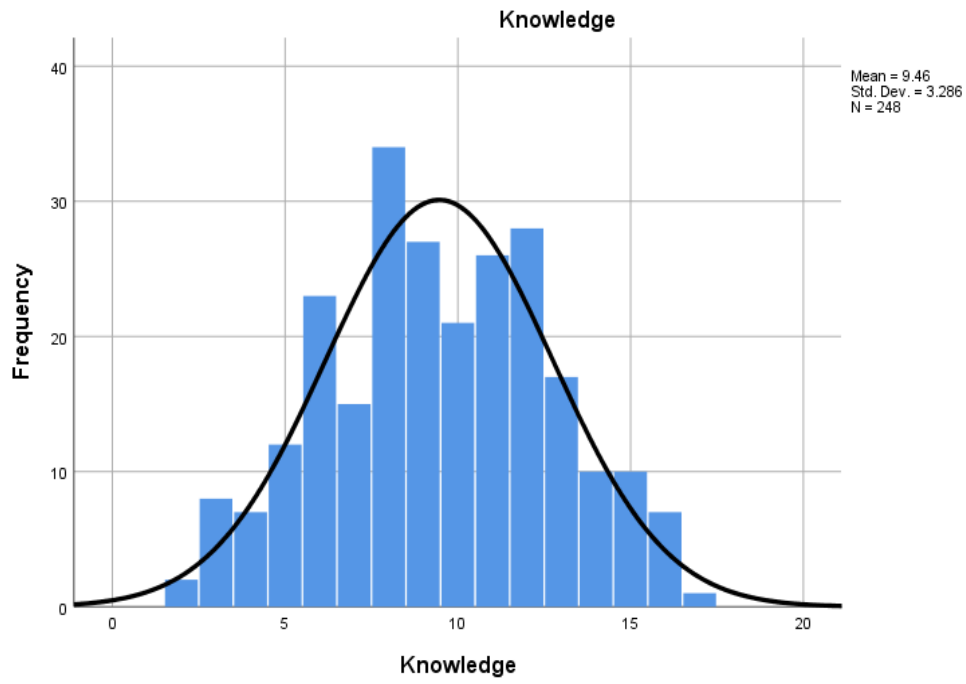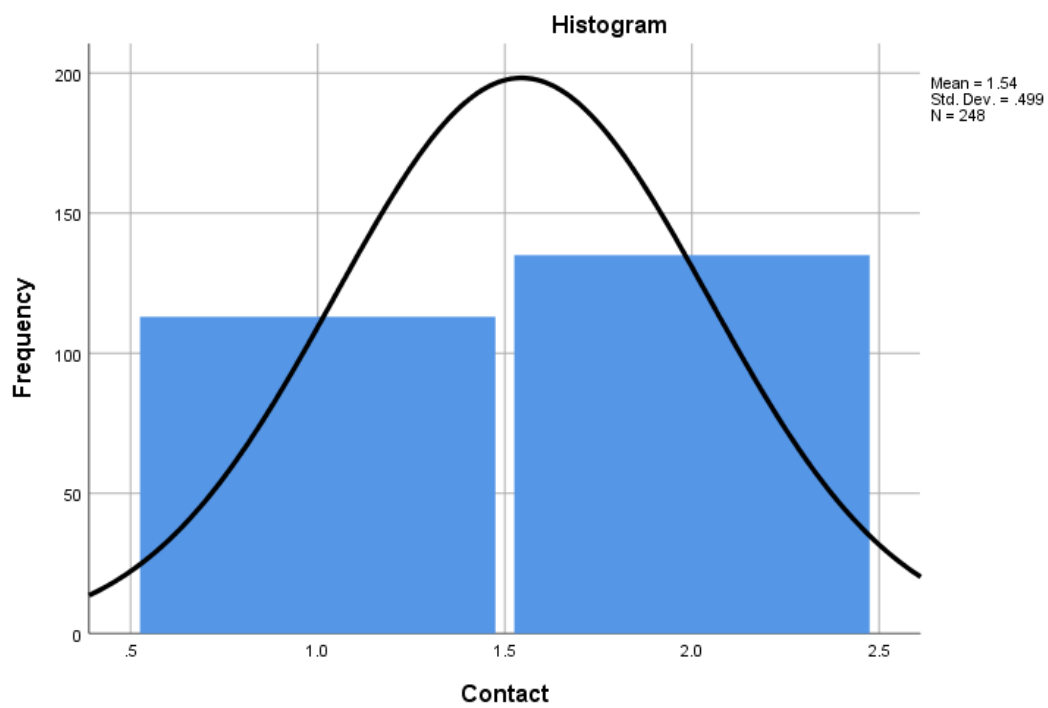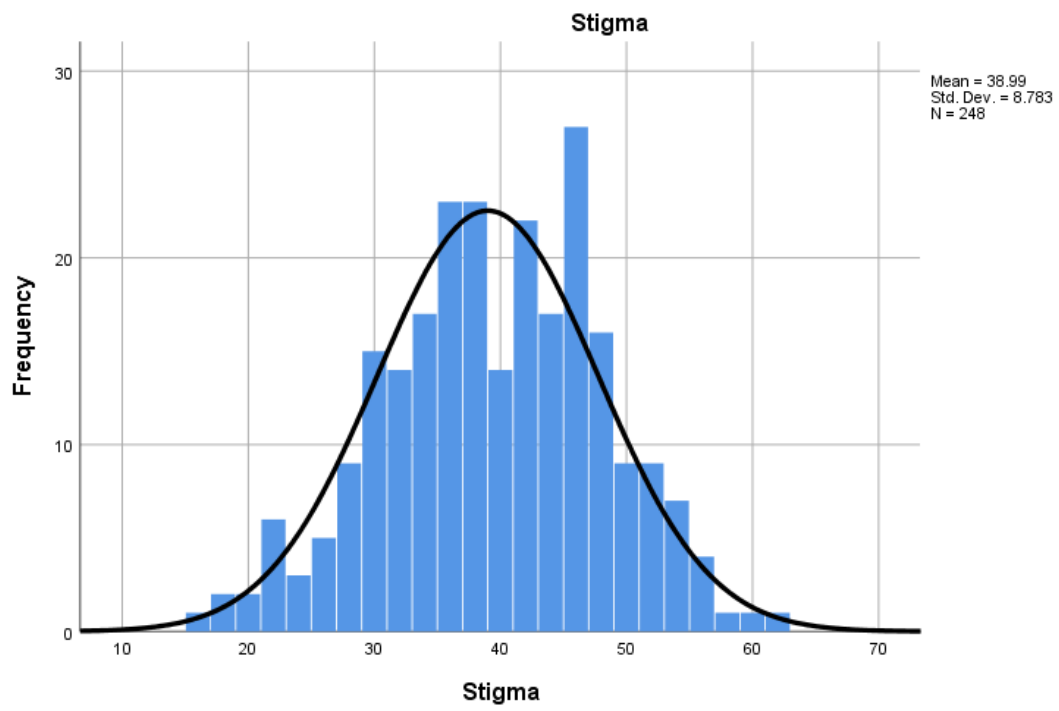none at all   very much

Appendix C

Boxplots for Each Distribution without Outliers

Stigma

Contact

Histogram for Each Distribution

Knowledge

Mean = 9.46
Std. Dev. = 3.286
N = 248

Empathy

Mean = 66.2
Std. Dev. = 9.447
N = 248

Stigma

Mean = 38.99
Std. Dev. = 8.783
N = 248

Histogram

Mean = 1.54
Std. Dev. = .499
N = 248

Normal Q-Q Plots of Each Distribution

Normal Q-Q Plot of Knowledge

Normal Q-Q Plot of Empathy

Normal Q-Q Plot of Stigma

Normal Q-Q Plot of Contact
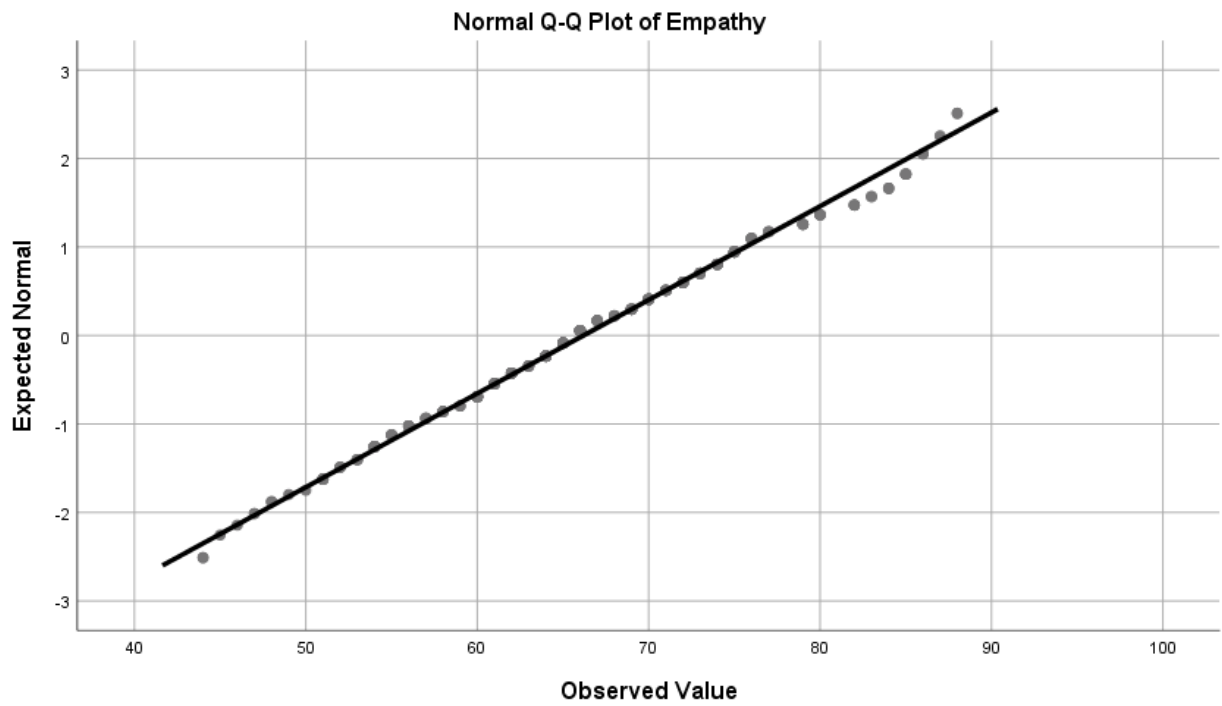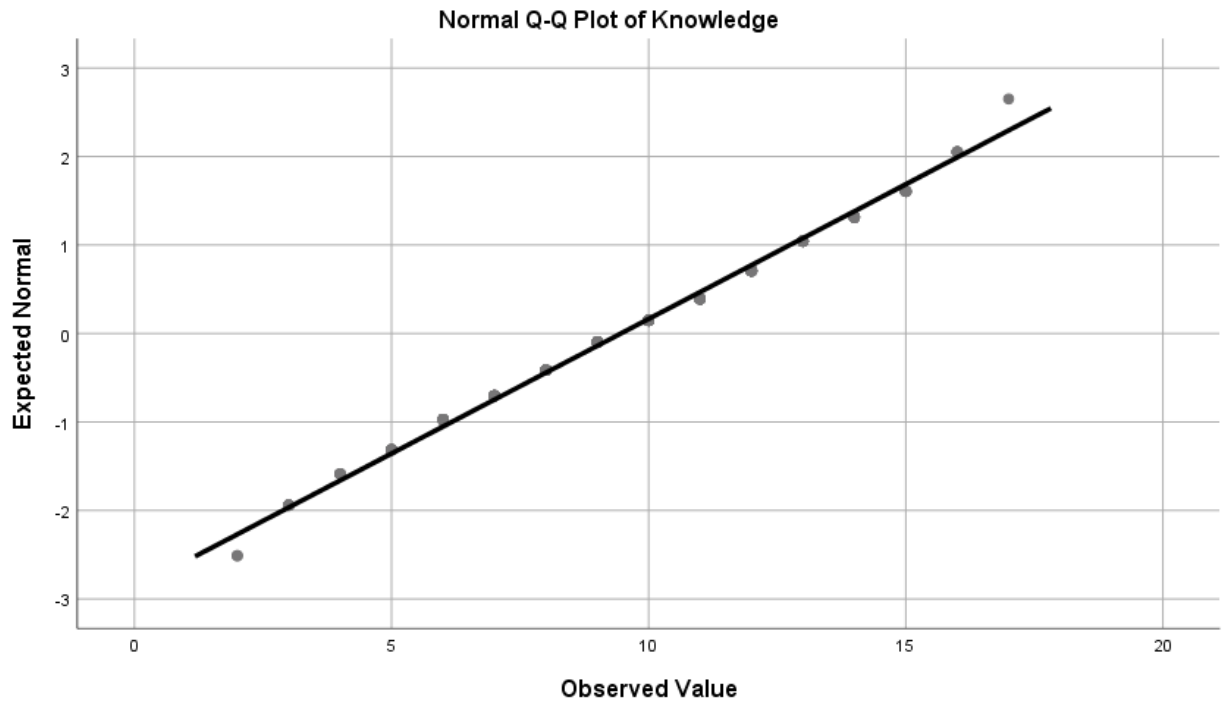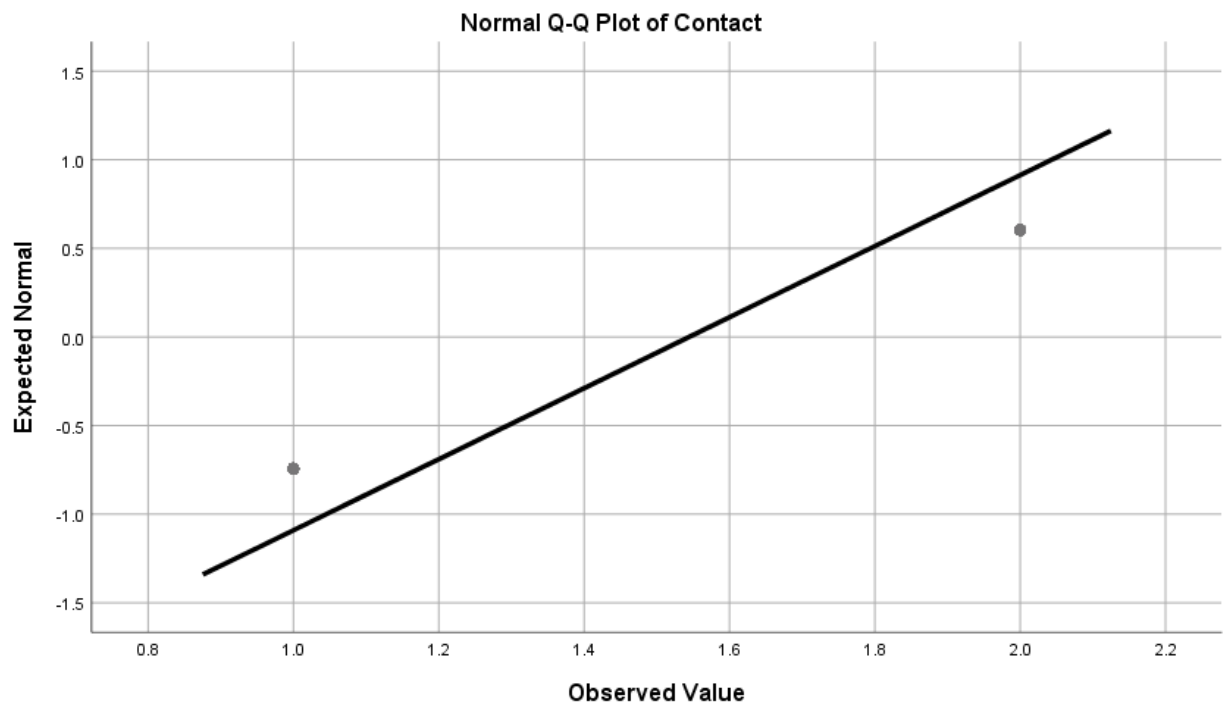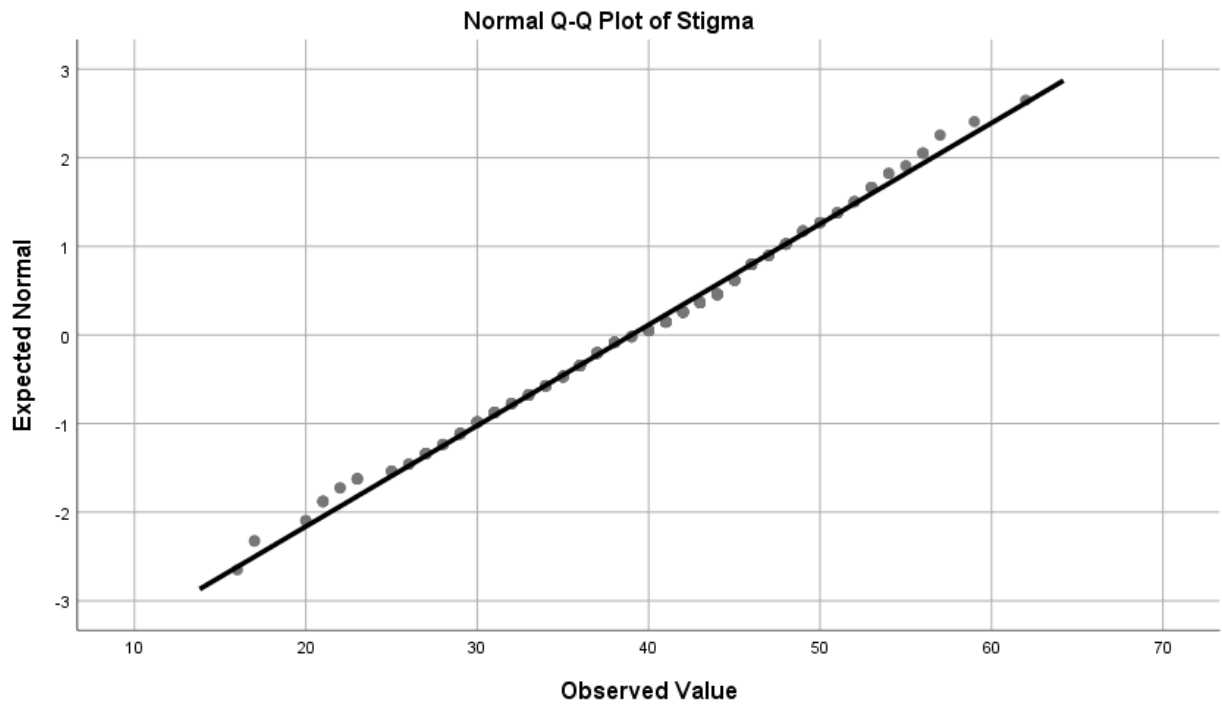
Kolmogorov-Smirnov and Shapiro-Wilk Test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Empathy	.061	248	.027	.991	248	.139
Knowledge	.080	248	.001	.983	248	.004
Stigma	.058	248	.039	.993	248	.276
Contact	.364	248	.000	.634	248	.000

a. Lilliefors Significance Correction

Variance Inflation Factor (VIF) and Tolerance Values

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	54.095	3.899		13.876	.000		
	Empathy	-.103	.056	-.111	-1.850	.066	.992	1.008
	Knowledge	-.875	.160	-.327	-5.458	.000	.992	1.008

a. Dependent Variable: Stigma

Durbin-Watson Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.355[a]	.126	.119	8.245	2.042

a. Predictors: (Constant), Knowledge, Empathy

b. Dependent Variable: Stigma

Moderation Model for Knowledge, Contact and Stigmatization toward people with Schizophrenia

```
Model Summary
          R        R-sq        MSE          F        df1        df2          p
      .3643       .1327    67.7327    12.4470     3.0000   244.0000      .0000




Conditional effects of the focal predictor at values of the moderator(s):

   Contact     Effect         se          t          p        LLCI       ULCI
   -.5444     -.4567      .2496    -1.8295      .0685     -.9483      .0350
    .4556    -1.2069      .2112    -5.7138      .0000    -1.6230     -.7908
```

Moderation Model for Empathy, Contact and Stigmatization toward people with Schizophrenia

```
Model Summary
          R        R-sq        MSE          F        df1        df2          p
      .1585       .0251    76.1363     2.0960     3.0000   244.0000      .1013




Conditional effects of the focal predictor at values of the moderator(s):

   Contact     Effect         se          t          p        LLCI       ULCI
   -.5444     -.1245      .0842    -1.4785      .1406     -.2904      .0414
    .4556     -.1399      .0821    -1.7040      .0897     -.3017      .0218
```