

Protective and risk factors of a wish to die in Japanese young adults

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<https://doi.org/10.15017/1866243>

出版情報 : 九州大学, 2017, 博士 (人間環境学), 課程博士
バージョン :
権利関係 :

Doctoral Dissertation

**PROTECTIVE AND RISK FACTORS OF A WISH TO DIE
IN JAPANESE YOUNG ADULTS**

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A Dissertation Submitted to Graduate School of Human-Environment Studies

Kyushu University

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

Department of Behavior and Health Sciences

Graduate School of Human-Environment Studies

Kyushu University

2017

Abstract

Suicide is the leading cause of death among adolescents and young adults in Japan (Japanese Ministry of Health, Labor and Welfare, 2016). Young people who display suicidal behavior often share similar patterns of characteristics, such as having low sense of coherence, poor relationships with parents and friends, and are overweight. This dissertation builds on existing research by examining the associations of sense of coherence, relationship with parents and friends, body weight and perception of being overweight with a wish to die in a large sample of young adults in Japan.

The sample is taken from a baseline data of first-year students in a prospective mental health study called the EQU SITE Study (Enhancement of Q-University students intelligence study) conducted in a national Japanese university. The data were collected between May and June 2010. Multiple logistic regression analyses were used to examine the contributions of sense of coherence, relationships with parents and friends, body weight and perceived overweight with a wish to die among the students controlling for relevant confounding factors.

Results indicated that a high sense of coherence and having good relationships with parents were associated with lower odds of having a wish to die whilst the absence of close friends and perceived overweight were associated with higher odds of having a wish to die after

controlling for important confounding factors. Body weight was not significantly associated with a wish to die.

The findings yielded from two studies as described in this dissertation provided an improved understanding on the modifiable psycho-social correlates of a wish to die in order to tackle suicide at its earliest stage of existence. For mental health professionals working with young adults such as university clinicians, the results suggest that absence of close friends and perceiving oneself as overweight are risk factors to look out for in identifying students at risk of suicide. Conversely, fostering a strong sense of coherence and good relationships with parents and peers can be used for suicide prevention programming alongside education about a healthy body image. It is hoped that with these insights, current suicide preventive interventions can be improved to reduce the desire to die among young adults and to prevent them from entering into later stages of the suicidal spectrum.

Acknowledgement

First and foremost, I am forever grateful for the blessings from the Most Gracious, the Most Merciful, for making all this possible.

To Professor Shuzo Kumagai, for his guidance, encouragement, insightful contribution and unfailing support throughout my doctoral study.

To Professor Satoshi Muraki and Dr. Wakaki Uchida for their advice and valuable feedback.

To Professor Yuko Hirano for her constructive comments and continuous encouragement.

To seniors and colleagues in my laboratory, especially Mrs. Omagari, Mrs. Atin, Dr. Honda, Dr. Mei and Dr. Tao, for their guidance and feedback throughout my study. To Dr. Tanaka Akari, my first Japanese friend, your kindness to help me adjust in Japan is deeply appreciated.

To Mrs. Kuroda and Ms. Kuga for their continuous assistance throughout my time in Laboratory of Health and Exercise Epidemiology.

And most importantly, to my mother, Mrs. Noraeni Mohamed for her continuous prayers, endless sacrifices and unwavering assistance to care for me and my sons when we most need it.

My husband, Nik Mohd Izual for his love, prayers, positivity, and immeasurable wisdom, I pray that you will be given the best reward from Allah for all your sacrifices.

My sons, Nik Ahmad Rayyan, Nik Zuhayr Rayhan, Nik Muhammad Mus'ab and Nik Ahmad Suhayb for their patience and sacrifices throughout all these years. I thought of you in my most difficult moments, and it was this thought that pulled me up and pushed me forward. May the sacrifices you had to make in early moments of your life shape you to become strong-willed Muslims.

To friends, whose prayers, love and support made this study possible, I am forever indebted. May Allah grants His blessings unto you and guide us all onto the straight path.

Funding agency for this research project

This study was supported by a research grant from Kyushu University Interdisciplinary Programs in Education and Projects in Research Development (P&P) to Professor Shuzo Kumagai.

Scholarships and funds awarded during my studies in Kyushu University

Scholarship from Malaysian Ministry of Education under their SLAB/SLAI scholarship scheme for Malaysian scholars.

Family allowance and academic trainee allowance from International Islamic University Malaysia.

International Conference Fund from Kyushu University in 2016.

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Abbreviations

95% CI = 95% Confidence interval

BMI = Body mass index

CES-D = Centre for epidemiologic studies- depression scale

EQUISITE = Enhancement of Q-university students' intelligence study

IPTS = Interpersonal psychological theory of suicide

OR = Odds ratio

PSQI = Pittsburgh sleep quality index

SD = Standard deviation

SOC = Sense of coherence

USA = United States of America

Chapter 1: Introduction

Suicidal behavior is a major health concern in many countries, developed and developing alike. According to the World Health Organization (2017), worldwide, approximately over 800,000 people die from suicide every year which led to millions of people affected such as experiencing suicide bereavement. Among 15-29 year olds, suicide was the second leading cause of death globally.

In the United States of America (USA), the rate of suicide among adolescents and young adults aged between 15-24 years was 11.6 deaths per 100,000 U.S. Americans in 2014 (American Foundation for Suicide Prevention, 2016). Suicide attempts and suicide ideation are much more prevalent than completed suicides and it has been estimated that there are as many as 200-400 attempts for every suicide completion (Dave & Rashad, 2009). The issue of suicidality among the young extends beyond the USA. Japan's national suicide rate has consistently been among the highest in the world. And among 15–24 year olds, suicide is the leading cause of death in Japan (Japanese Ministry of Health, Labor and Welfare, 2016).

With so many teens and young adults affected, examining protective and risk factors of suicide are vital in combating the crisis of suicide in young people. In the past, prevention of suicide efforts have been focused on identifying and reducing risk factors, but in recent

years, the focus has shifted towards identifying protective factors of suicide and promoting resilience and coping. A detailed review listed many resilience factors (Johnson, Wood, Gooding, Taylor, & Tarrrier, 2011), suggesting that clinicians should screen and target them to prevent and reduce and suicide risk.

A wide range of protective and risk factors have been associated with suicide ideation and behavior in the literature. High sense of coherence (SOC) has emerged as a protective factor of suicide in university students (Drum et al., 2016). Studies have also shown that having good relationships with parents may lower the likelihood of suicide among young people. Conversely, dissociated and poor relationship with parents, as well as poor communication with parents emerged as early risk factors for suicide (Hedeland et al., 2016; Kandel, Raveis, & Davies, 1991; Gould et al., 1996). Studies have also shown that having good relationships with friends will lower the risk of suicide (Cui, Cheng, Xu, Chen & Wang, 2010). Body weight (Kinoshita et al., 2012; Swahn et al., 2009) as well as the perception of being overweight (Dave & Rashad, 2009; Swahn et al., 2009; Lee & Seo, 2013) have also emerged as significant risk factors to consider in the development of suicidal thoughts and behaviors among youth.

In trying to understand the relationships between the various psycho-social correlates with suicide, there are several theoretical models presented in the literature that shed light to these complex relationships. For example, both the interpersonal theory of suicide and

suicide as escape from self theory provide unique theoretical underpinnings regarding the development of suicidal thoughts and behaviors in young people (Joiner, 2005; Van Orden et al., 2010; Baumeister, 1990). Despite the large amount of research on the topic of suicide and its protective and risk factors, more research is warranted about how these factors are associated with suicidal ideation among young adults in Japan, a society with relatively high suicidal rate among young people. Most studies on this topic so far have been examined extensively in USA and European countries which have different cultural and belief systems. Examining suicidal ideation and protective and risk factors in Japanese young adults may provide important information about this population. Therefore, the aim of this dissertation is to examine the relationship between several psycho-social correlates, namely sense of coherence, relationship with parents and friends, body weight and perceived overweight with a wish to die among a sample of university freshmen in a public Japanese university.

1.1 Overview of dissertation

This dissertation begins with the definition of the suicide concept, followed by statistics and prevalence of suicide, and a review of the literature in the whole suicide spectrum including wish to die, suicidal ideation, attempts, and suicide deaths focusing on the psychological factors as mentioned above. Next, relevant theoretical explanations are presented, along with cultural factors associated with suicide and an overview of suicide prevention efforts in Japanese universities. This is followed by the problem statement leading to the current study, then specific research questions and hypotheses are proposed. The

following two chapters presented two studies that were conducted to find answers to these research questions. Both studies have been accepted for publications in peer-reviewed journals. In each study, the introduction, methods, results, discussion and conclusion will be presented. The dissertation concludes with a discussion chapter addressing the research questions and hypotheses proposed in the introduction, followed by discussion of the findings in relation with theories and Japanese culture. It then elaborates on implications of the study along with the strengths and limitations to the study, and concludes with a wrap up of the contributions of the study.

1.2 Wish to die: defining the concept

Suicide should be regarded as the end result of a long process. The term suicide encompasses a broad spectrum of suicidality, ranging from wish to die, suicidal ideation, suicidal plans, suicide attempts, and suicide death (Bakhiyi, Calati, Guillaume, & Courtet, 2016). Figure 1 illustrates the continuum of suicidality. It can be seen that suicide is at the extreme end of the suicidal behavior continuum.

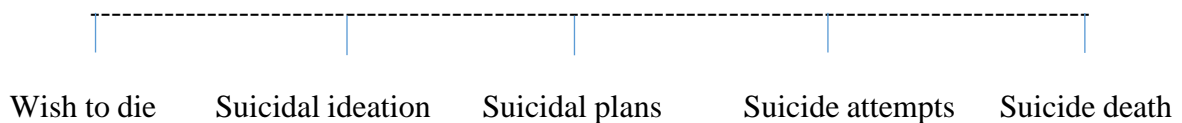


Figure 1. The suicidal behavior continuum

This dissertation focuses on the earliest stage of the spectrum of suicidality, a wish to die; which specifies a strong desire or wish to die or a belief that life is not worth living. This is differentiated from the next stage in the spectrum; suicidal ideation which includes thoughts of harming or killing oneself (Institute of Medicine, 2002). Despite this, some researchers consider suicide ideation as the first step, contending that suicide ideation ranges from thoughts that life is not worth living to intense, delusional preoccupation (Gili-Planas et al., 2001; Kinoshita et al., 2012). However, for the purpose of this dissertation, the author proposed that it is important to examine these two constructs separately because the two constructs connote different meanings which have different implications.

This study focuses on a wish to die as it is proposed that by examining the protective and risk factors associated with the lowest end of suicidal continuum, there is a better chance to earlier prevent suicide in its early stage of existence. This is because a wish to die could signal a cry for help, a warning in disguise or a strong predictor of a more serious suicide intent (Muhammad, 2007), which if identified and intervened earlier, may prevent an individual from progressing on to later stages in the suicidal continuum for which interventions may be too late. Furthermore, although a wish to die has been described as passive suicidal ideation, it should never be regarded as being lower in risk than active suicidal ideation, for it can suddenly turn active (Simon, 2014).

In the literature, the term ‘wish to die’ has been described in several different ways. Firstly, it has been described as a preliminary step to a pathway to suicide (Lester, 2013) which often precedes suicide attempts (Gupta, Schork, Gupta, Kirkby, & Ellis, 1993). Secondly, the wish to die has been used alongside the wish to live in encompassing an internal struggle in suicidal individuals. For example, among psychiatric patients it was found that when the wish to die was greater than the wish to live, the degree of suicidal intent during the suicide attempt was found to be more severe (Kovacs & Beck, 1977) and there would be a higher risk for suicide to occur (Brown et al., 2005). Thirdly, the wish to die is used interchangeably with ‘the wish to hasten death’ to further understand and assist patients in therapies with a terminal illness (Kelly et al., 2003). For the purpose of this dissertation, the concept of a wish to die is defined as a strong desire to die; it is at the earliest stage in the suicide behavioral spectrum, which is consistent with the concept used by Bakhiyi et al., (2016), Lester (2013) and Gupta et al. (1993).

1.3 Statistics and prevalence of suicide among adolescents and young adults

The rates of youth and young adults who attempt suicide are quite alarming in Japan. The Japanese Ministry of Health, Labor and Welfare (2016) reported that suicide is the leading cause of death with suicide among 15–24 year olds, with a rate of 7.3 deaths by suicide per 100,000 for youth aged 15-19, and 19.7 per 100,000 for young adults aged 20-24. Meanwhile, a study noted that according to the nationwide survey of the national university

students in Japan, the annual suicide rate in 2012 was 15.7 per 100,000 undergraduate students (Ohnishi, Koyama, Senoo, Kawahara & Shimuzu, 2016).

In a large study on 8, 262, 314 Japanese students in Japanese public universities from the 1989 to 1990 academic year through the 2011-2012 academic year, it was found that suicide rates increased throughout the 23 years, and suicide was the leading cause of death every year from 1996 onward. Suicide also accounted for 42.4% of all deaths that happened in the 23 years (Uchida & Uchida, 2017).

In another study with 18, 104 Japanese adolescents aged 12-18, findings indicated that there were 11.8% (n=2,135) of current suicidal ideation (in the previous month) and 3.7% (n=672) acts of self-harm (Kinoshita et al., 2012). In a study among university students, 55.2% (n=106) were reported to have experienced suicidal ideation at least once in their lifetime (Sugioka & Wakabayashi, 2012). Meanwhile in a report by Supartini et al. (2016), 5.8% (n=115) of university freshmen in a national Japanese university endorsed suicidal ideation. The huge difference in percentages between these two data in university students could be attributed to the limited number of students (n=192) in the study by Sugioka and Wakabayashi compared to Supartini et al.'s subjects (n=1,992). A retrospective study involving incoming freshmen in Hokkaido University reported of those who were enrolled in the university in eight consecutive years from 1999-2002 and 2004-2007, 20 of them were

reported to have completed suicide up to March 2011, all of whom were Japanese (Mitsui et al., 2013).

1.3.1 Patterns of suicide in Japan

Studies in Japan have indicated several patterns of suicide among those who committed suicide. This include gender effects, educational levels and time and seasonal patterns. A study covering suicide data in 1947-2010 in Japan showed that suicide mortality rate is higher among males (“U” shape) than females (“J” shape), with male suicide mortality reaching a peak at around 1955, dropped quickly afterwards until the 1970s; and increased in the 1980s with another peak in 2003. For females, an overall decreasing trend was seen with a peak during the 1950s, then it dropped gradually afterwards with small variations in 1970s and 80s and was stabilized after 1995. This is illustrated in Figure 2. For males, the unemployment rate was attributed to the suicide rate while for females, the total fertility rate and divorce rate were significantly associated positively and negatively with females’ suicide, respectively (Liu et al., 2013).

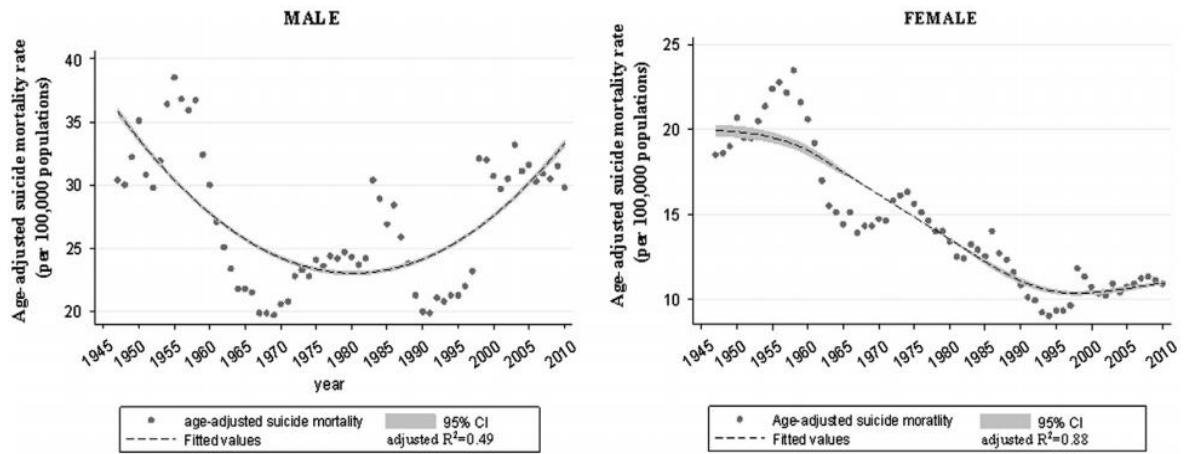


Figure 2. Age-adjusted suicide mortality rate in Japan for male and female in 1947 to 2010.

Adapted from “Gender differences of suicide in Japan, 1947-2010” by Y. Liu, Y. Zhang, Y.T. Cho, Y. Obayashi, A. Arai and H. Tamashiro, 2013. *Journal of Affective Disorders* 151(1), p. 325-330.

In another study which used the risk factors of suicide in Japan in 2007 to predict the suicide rate in 2008, male suicide were found to be accounted to older age, complete unemployment rate, less marriage rate and less annual postal savings whereas female suicide were to be accounted for by more complete unemployment rate and lower annual mean temperature (Ishii et al., 2013). Meanwhile, high educational levels were associated with a reduced risk of suicide in a prospective study especially in men, whereby male university graduates or those with higher education had lower risk of suicide than male junior high school graduates (Kimura et al., 2016).

An examination of 108,968 suicides by individuals who died at 6-26 years of age between 1974 and 2014 in Japan revealed that the frequencies of suicide by middle school students (ages 12-15 years) and high school students (ages 15-18 years) sharply increased around the dates when a school session began in April and September. These tended to be low during school breaks. However, no such trends were found among young adults aged 18-26 years. This strongly indicates that the cyclical pattern of youth suicide is closely related to the school calendar (Matsubayashi, Ueda & Yoshikawa, 2016).

Additionally, birthdays have also been associated with an increased risk of suicide. An examination of suicide data of 27,007 individuals who committed suicide in Tokyo between 2001 to 2010 revealed that males were more likely to commit suicide before the birthday and the week after the birthday, while females were more likely to commit suicide 7-11 days before the birthday (Stickley et al., 2016). This information is important for health professionals who work with individuals at risk of suicide to be aware that for youths, school session is associated with elevated suicide risk among youth, while for the general population, birthdays are associated with increasing risk of suicide.

1.4 Correlates associated with adolescents and young adults' suicidal behavior

1.4.1 Sense of Coherence

The SOC scale developed by Antonovsky (1987), assesses the way individuals perceive life and its challenges that lead to increased coping and resiliency from stress. It is a global orientation that reflects a person's coherent understanding of the world which comprises of three components: the ability for people to understand what happens around them (comprehensibility), to what extent they were able to manage the situation on their own or through significant others in their social network (manageability), and the ability to find meaning in the situation (meaningfulness). SOC is assumed to gradually stabilize during adolescence but only after having grown strong and having gone through various dynamic life events.

According to Antonovsky (1987), it is only after one reaches their 30th age, that their SOC will become more or less fixed, because at around this age, one will already have made major commitments in his/her life, such as work, lifestyle, set of social roles and marriage. Also, at around this age, one has been exposed to a pattern of life experiences for some years and have portrayed an image of their world as more or less comprehensible, manageable and meaningful (Antonovsky, 1987). If the theory that SOC is still being developed during adolescence holds true, then supporting adolescents and young adults with a low sense of coherence and equipping them with coping and problem-solving skills may be useful for them especially in trying times.

Threats to university students' sense of having a coherent self in relationship to the world have been postulated to play an important role in the development of suicidal thoughts and behaviors (Drum et al., 2016). A significant number of students began their university experience with preexisting vulnerabilities that have the potential to intersect with stressful life events to trigger or accelerate pathogenic processes. Students with low SOC were at higher risks to enter into suicidality because SOC was a protective quality that could decrease the risk of students to enter the continuum of suicidality. Since SOC has been shown to have protective properties capable of moderating the effects of vulnerability and distress on stimulating suicide, SOC was suggested to be included in future suicide prevention resilience models (Drum et al., 2016).

The SOC has also been demonstrated to buffer the associations among coping style, suicide ideation, self-reported suicide attempts, and self-reported likelihood of future suicidal behavior among university students. The findings were contended to be due to the high meaningfulness attributed to events and stressors viewed by students with high SOC (Edwards & Holden, 2001). Previous studies have also showed associations between low SOC with increased risk of suicidal ideation (Mehlum, 1998; Giotakos, 2003; Sjöström, 2009) and SOC's ability to predict suicidal ideation and future attempts (Sjöström, 2009). SOC also has the potential to be a marker of risk for high suicidality in the aftermath of a suicide attempt (Sjöström, Hetta, & Waern, 2012).

Despite the accumulating studies on SOC and suicidality, most of the studies on SOC in Japanese young adults have not been targeted at understanding the suicidal problem. Instead, many studies on SOC among university students in Japan have focused on health (Togari, Yamazaki, Takayama, Yamaki, & Nakayama, 2008) and depression (Sakano & Yajima, 2005; Koyama, Matsushita, Ushijima, Jono & Ikeda, 2014). Therefore currently, there is limited data on SOC and suicidality among Japanese students.

1.4.2 Relationships with parents

Previous evidence have shown that dissociated relationship with parents was an early risk factor for suicide with significantly more adolescents who characterized their parental relationship as dissociated stated that they ‘wanted to die’, compared with both the entire study group and the subgroup with close parental relationships (Hedeland, Teilmann, Jørgensen, Thiesen, & Andersen, 2016) whilst suicidal adolescents showed less close relationships to their parents (Kandel, Raveis, & Davies, 1991). Another study suggested that poor communication with parents is a risk factor for future suicide attempts (Gould, Fisher, Parides, Flory, & Shaffer, 1996). Randell et al. (2006) reported in their study of 1,083 high school students who were identified at being at risk for dropping out of high school, that students who had increased levels of suicide risk were associated with perceived conflict with parents, unmet family goals and family depression.

1.4.3 Relationships with friends

Studies have demonstrated the likelihood of a lower risk of suicidal ideation for individuals with more friends. Among Japanese adults, having four or more friends is associated with a lower risk of suicide (Poudel-Tandukar et al., 2011) and loneliness was found to moderate the relationship between peer relationship and suicide ideation and attempt (Cui, Cheng, Xu, Chen, & Wang, 2010), signifying that occasional peer relationship (i.e. less intimate relationship) would lead to loneliness. Additionally, Brenner et al. (1999) found that students living with a spouse or partner were less likely to report suicidal ideation than those living alone, which lends support to the idea that the absence of a close partner or friend is a risk factor for suicidal ideation.

In a study on 26,742 undergraduate and graduate university students in the USA, it was demonstrated that social connectedness is a protective factor for suicide ideation and behaviors among the student sample (Drum et al., 2016). The study defined connectedness as the degree to which an individual feels he or she is meaningfully connected to others and belongs with other individuals, groups or institutions such as schools. This could include the meaningful connection a student has with his/her peers, although it is not constrained to only student-peer relationships. It has been found that interpersonal difficulties play a pivotal role in the development of suicidal behavior in late adolescence and early adulthood (Johnson, Cohen, Gould, Kasen, Brown & Brook, 2002).

1.4.4 Body weight and perceived overweight

In recent years, obesity among youth has become a serious public health issue and studies have reported a significant association of body mass index (BMI) with suicidal ideation and suicide attempts (Kinoshita et al., 2012; Swahn et al., 2009). However, recent studies showed that perceived overweight has a larger role than actual body weight or BMI does in suicidal ideation and attempts; in both cross-sectional studies (Dave & Rashad, 2009; Swahn et al., 2009) as well as longitudinal studies (Lee & Seo, 2013).

Research also demonstrated that body image distortion were found to be significantly associated with sadness and suicidal ideation. Among a sample of adolescents, those who over-estimate their body-weight were more likely to have a sadness and suicidal ideation compared to their counterparts who underestimate their body weight (Lee & Lee, 2016). Research also suggested that being dissatisfied with one's body weight yielded significant relationships with suicidal ideation throughout all body mass index ranges, including adolescents with normal body mass index (Kim, 2009). Additionally, the effects of perceived overweight on psychological distress were also found to substantially stronger than weight status (Atlantis & Ball, 2008), which lends support that perceived overweight has a relationship with poor psychological health, more than actual weight does.

1.5 Theoretical explanations

Several theoretical models have been presented in the literature that may help to understand the complex relationship between many of the aforementioned correlates of suicide (sense of coherence, relationships with parents and peers, body weight and perceived overweight). For example, both the interpersonal psychological theory of suicide (Joiner, 2005; Van Orden et al., 2008) and the escape theory (Baumeister, 1990) provide unique theoretical underpinnings regarding the development of suicidality in young people.

1.5.1 Interpersonal psychological theory of suicide (IPTS)

One of the most comprehensive theory explaining the relationship between social support and belongingness and suicide is the IPTS (Joiner, 2005; Van Orden et al, 2010). The IPTS was proposed by Joiner (2005) and expanded by Van Orden and colleagues (2010). It consolidates a broad range of suicide risk factors, and from these, predicts who will develop desire for suicide, and who will go on to attempt. The theory provides a better understanding on how certain suicide risk factors interact, and where prevention and intervention efforts may be best focused (Ma, Batterham, Calear, & Han, 2016). Another advantage of the IPTS is that it is the first to distinguish individuals who think about suicide without acting on those thoughts from individuals who translate suicidal ideation into action (Barzilay & Apter, 2014).

According to the IPTS, suicidal desire is caused by the simultaneous presence of two causal risk factors: (1) thwarted belongingness and (2) perceived burdensomeness, and hopelessness (Joiner, 2005; Van Orden et al, 2010). It has been hypothesized that experiencing either perceived burdensomeness or thwarted belongingness alone will elicit passive suicidal ideation (or a wish to die; in this study); however it is their interaction, coupled with the view that they are stable and unchanging (i.e., hopelessness) that will cause active suicidal desire (Ma, Batterham, Calear, & Han, 2016).

Thwarted belongingness is defined as the experience that one is alienated from friends, family, or other valued social circles. It comprises of two components, loneliness (i.e., “I feel disconnected from others”) and the absence of reciprocal care (i.e., “I have no one to turn to and I don't support others”). It is a dynamic cognitive-affective state that is influenced by inter and intrapersonal factors such as experiencing family conflict, living alone, possessing few social supports, and being prone to interpret others' behavior as rejection (Van Orden et al, 2010). The relationship with parents and peers that are of interest in this study can be included in this component.

Perceived burdensomeness is defined as the view that one's existence is a burden on friends, family members, and/or society, and comprises of two components, self-hate (i.e., “I hate myself”) and feelings of liability (i.e., “my death is worth more than my life to others”). Similarly like thwarted belongingness, perceived burdensomeness is viewed as a dynamic

cognitive affect state, where risk factors such as homelessness, unemployment, physical illness, and feelings of low-self-esteem and being unwanted are said to contribute to its development (Van Orden et al, 2010).

The IPTS predicted that the development from active suicidal desire to suicidal intent could only result through the presence of an additional third construct: (3) acquired capability. Acquired capability is defined as one's ability to overcome the inherent drive for self-preservation and engage in lethal self-injury (Joiner, 2005). This is possible due to a lowered fear of death resulting from repeated exposure and habituation to physically painful and/or fear-inducing experiences, and an elevated tolerance of physical pain. It is seen as a continuous construct that accumulates over time, with risk factors such as family history of suicide and previous suicide attempt contributing to its development (Van Orden et al, 2010).

Thus, according to the IPTS; individuals who have high levels of all three constructs, thwarted belongingness, perceived burdensomeness, and acquired capability, are predicted to be at most risk for suicidal behavior, as they possess both the desire for and capability to attempt suicide. IPTS model is illustrated in Figure 3.

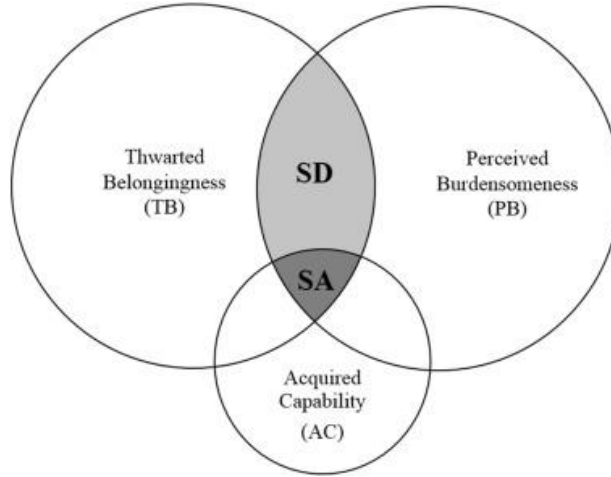


Figure 3. The interpersonal psychological theory of suicide.

Adapted from “A systematic review of the predictions of the interpersonal-psychological theory of suicidal behavior,” by J. Ma, P.J. Batterham, A.L. Calear and J. Han, 2016.

Clinical Psychology Review, 46, p. 34-45.

Note: SD = suicide desire, SA = suicide attempt

A study among undergraduate students examined the hypothesis of IPTS about perceived belongingness and thwarted belongingness. The results were that both depressive symptoms and suicidal ideation were associated with changes in beliefs that one is a burden on others and lacks belonging (Kleiman, Liu & Riskind, 2014). This study is one of many others which supported the IPTS in young adults’ population.

1.5.2 Suicide as escape from self theory

The theory of suicide as escape from self was proposed by Baumeister (1990) which argued that suicide is an escape from aversive self-awareness. The causal chain begins with events that did not meet standards and expectations. These led to attribution of the failures internally, which makes self-awareness painful, and which then generates negative affect. This theory proposed that as the individual desires to escape from self-awareness and the associated affect, he enters into a state of cognitive deconstruction which helps prevent meaningful self-awareness and emotion. This brings irrationality and disinhibition, making suicide to be acceptable in the effort to escape from self and the world (Baumeister, 1990). This theory of self-destructive behaviors is rooted in cognitive distortion or faulty logic (Barzilay-Levkowitz & Apter, 2014). According to the theory, there are six steps leading to suicidality (Barzilay-Levkowitz & Apter, 2014).

1. The discrepancy between expected standards and perceived reality. Personal failure would take place when there are too-high expectations or setbacks which frustrate goals.
2. The interpretation of failure as a function of an individual's own characteristics, qualities, or skills, which lead to self-blame.
3. An aversive state of distorted self-awareness leading to unforgiving comparison of the self with unachieved standards.
4. The distorted self-awareness evokes painful negative emotions.

5. An attempt to escape into a relatively numb state of cognitive deconstruction, characterized by his/her focusing on concrete sensations and movements and targeting immediate goals.
6. The cognitive deconstruction leads to reduced behavioral inhibition with emergence of suicide and other life-threatening behaviors. It is this final step which separates suicidal ideation from actual suicide, with the behavioral disinhibition overcoming the fear of causing oneself pain through death.

Consistent with this theory, studies have shown that suicidal people tend to be cognitively rigid or inflexible, leading to the conclusion that suicide is the only option (O'Connor & Nock, 2014). The distorted and inflexible cognition could be a factor that contributed towards young adults perceiving themselves as overweight even though in actuality they may not be overweight and inability to see their stressors as manageable, comprehensive and meaningful; leading to a low sense of coherence.

1.6 Cultural factors associated with suicide

Understanding cultural factors is paramount in understanding the suicide epidemic in a certain country and culture. In Japanese society, the group takes precedent as the most important social unit over the individual. Therefore maintaining group harmony is considered more of a priority even at the expense of personal freedom, and restoring one's social standing is seen as a responsibility to family and friends as well as to oneself. Historically,

the most extreme form of restoring social order has been suicide, the ultimate form of self-sacrifice, which is seen as a morally virtuous act because it is the logical outcome of a desire to fulfill one's duty to others (Young, 2002).

In relation to this, the concept of *kakugo no jisatsu*, which conceived suicide as a rational act and a form of self-determination has been used by many Japanese and is even used by psychiatrists to understand some cases of suicide. The media and literature were contended to play a huge role in romanticizing suicide, which contributed towards permissive attitudes towards suicide even among modern Japanese (Russell, Metraux, & Tohen, 2016).

Indeed, a number of studies have reported the prevalence of such permissive attitudes towards suicide among young Japanese. For example, Japanese college students were found to have higher levels of accepting suicide as a natural way of to end one's life compared to their counterparts in the US, the reasons of which the authors attributed to the cultural ideal of *kakugo no jisatsu* and glamorization of suicide in the media (Saito, Klibert, & Langhinrichsen-Rohling, 2013). Consistently, a survey conducted among university students in 12 countries to measure attitude towards suicide reported that the highest suicide acceptance scores were observed in Japanese students, among four other countries (Eskin et al., 2016). This suggested that the Japanese culture views suicide as a rational act, a form of self-determination and responsibility which were glamorized by the media and the literature.

Therefore, cultural influence such as these have to be taken into consideration when trying to understand the causes and contributions of suicide in different cultures.

1.7 Suicide prevention efforts in Japanese universities

In 2012, a nationwide survey of the national university students in Japan reported an annual suicide rate of 15.7 per 100,000 undergraduate students (Ohnishi et al., 2016). An investigation on the measure for suicide prevention in Japanese national universities led to a “College students’ suicide prevention measures guidelines”, published in 2010. The contents of the guideline include the basic philosophy of suicide prevention, risk factors for suicide and systems and activities for suicide prevention (Ohnishi et al., 2016).

The high report on suicide rate among undergraduate students have encouraged many universities in Japan to actively examine about suicide prevention in their respective universities. Research have shown that school-based awareness programs have been effective in reducing suicide ideation and attempts (Zalsman et al., 2016). One of the universities which are actively playing a central role in suicide prevention is Okayama University. Through its health service center, university clinicians conducted primary intervention which includes a mini-lecture on mental health, classes on mental health, and periodic workshops and lectures for freshmen. Secondary preventive measures includes interviews with students with mental health disorders by a psychiatrist during periodic health check-ups and introducing them to a hospital outside the university they can seek help from.

Tertiary preventive measures includes providing support to students who took a leave of absence to return to university, periodic consultations with students with mental disorders, and post-intervention following a suicide (Ohnishi et al., 2016).

However, in a recent large study on Japanese college students, it was found that only 16% of those who had committed suicide had received services through the university health center prior to the suicides (Uchida & Uchida, 2017). This indicated that university health centers were underutilized. There have also been reports contending that despite the availability of school counselling and health services in Japanese universities for students in need of mental health support, there were few preventive mental health approaches and they were not built into the university curriculum (Ando, 2011). With many rooms still left for improvement, it is thus very crucial that clinicians in each university efficiently make use of limited resources available in conducting suicide preventive measures in their universities as these efforts will eventually lead to suicide prevention among Japanese university students (Ohnishi et al., 2016).

1.8 Current study

1.8.1 Problem statement

The need for future research in the area of suicide is critical. In a study among undergraduates in Emory University in the U.S., 84% of the students with suicidal ideation

were not receiving any form of psychiatric treatment (Garlow et al., 2008). Whereas among a study on college students who died from suicide in Japan, only 16.4% had received an official psychiatric diagnosis and only 16% had received services through the university health center prior to the suicides (Uchida & Uchida, 2017). Clearly, there are many young people at risk for suicide that are not currently receiving the help they need.

Many previous research have been carried out on protective and risk factors for suicidal ideation. Research thus far has demonstrated that sense of coherence is a protective factor against suicidal ideation and behaviors among university students in the U.S. (Drum et al., 2009), among military trainees (Mehlum, 1998; Giotakos, 2003) and psychiatric patients (Petrie & Brook, 1992; Sjöström, Hetta & Waern, 2012). However, despite this growing evidence, research associating sense of coherence with suicidal ideation among Japanese young adults is lacking. In addition to sense of coherence, relationships with parents and friends have also emerged as important factors in the development of suicidal ideation. To the author's knowledge, research has also been few in examining the relationships that Japanese students have with their parents and friends and its associations with suicidal ideation particularly in Japanese freshmen, who have been attributed with a high suicidal rate (Iga, 1981) and high depression (Tomoda, Mori, Kimura, Takahashi, & Kitamura, 2000).

A growing body of literature has demonstrated that perceived overweight has more significance on the development of suicidal ideation than actual weight does, particularly in

adolescents and young adults (Dave & Rashad; Swahn et al., 2009). However, a large study among 18,104 junior and high school students in Japan demonstrated that low body mass index is associated with suicidal ideation even after controlling for body weight perception and other confounding factors (Kinoshita et al., 2012). This raises the question as to whether Japanese students would have different results than students from other countries in regard to weight perception and actual weight with the development of suicidal ideation. This motivates the current study to examine about body weight and perceived overweight among university students.

1.8.2 Purpose of the study

The purpose of this dissertation is to examine the relationships between a wish to die with psycho-social factors of the sense of coherence, relationships with parents and friends and body weight and perceived overweight among a large sample of first-year university students in a national Japanese university. There are seven primary research questions this study aimed to address:

1. *Research question:* What is the relationship between sense of coherence with a wish to die?

Hypothesis: It is hypothesized that students with high sense of coherence score will have lower likelihood for having a wish to die compared with their counterparts with low sense of coherence score. This is based on previous evidence with 26,742

undergraduate and postgraduate students at 74 college and university students in the US which found that sense of coherence was a protective quality that could decrease the risk of students to enter the continuum of suicidality (Drum et al., 2016).

2. *Research question:* What is the relationship between good parental relationship with a wish to die?

Hypothesis: Based on previous research, an inverse association was found between close relationships with parents with suicidal ideation. Suicidal adolescents showed less close relationships to their parents (Kandel, Raveis & Davies, 1991) whilst dissociated relationship with parents was indicated to be an early risk factor for suicide (Hedeland et al., 2016). Therefore it is hypothesized that students with good parental relationship will have lower likelihood of having a wish to die than students with poor parental relationship.

3. *Research question:* What is the relationship between absence of close friends with a wish to die?

Hypothesis: It is hypothesized that the absence of close friends will be a risk factor for a wish to die; i.e. students who do not have a close friend are most likely to have a wish to die compared with their counterparts who has at least one close friend. Previous studies demonstrated that having four or more friends were associated with

a lower risk of suicide in Japanese adults (Poudel-Tandukar et al., 2011) and loneliness was found to moderate the relationship between peer relationship and suicide ideation and attempt (Cui et al., 2010).

4. *Research question:* What is the relationship between actual weight (measured by body mass index) with a wish to die after confounding factors in the study are controlled for?

Hypothesis: It is hypothesized that there is no significant association between actual weight (measured by body mass index) with a wish to die after confounding factors are controlled for. Previous studies on actual overweight and suicidal ideation did not control for self-rated health and relationships with parents and friends so this question was designed to extend this work.

5. *Research question:* What is the relationship between perceived overweight with a wish to die after confounding factors in the study are controlled for?

Hypothesis: It is hypothesized that after controlling for confounding factors, students with perceived overweight will have higher likelihood of having a wish to die compared with their counterparts without perceived overweight. This is based on previous literature (Dave & Rashad, 2009; Lee & Seo, 2013; Swahn et al., 2009).

6. *Research question:* Is there an effect of gender on the relationship between perceived overweight on a wish to die?

Hypothesis: Based on previous studies, we hypothesized that female students with perceived overweight were more likely to have a wish to die compared to males. A large study on adolescents from the Youth Risk Behavioral Surveillance System utilizing data from 1999-2007 indicated that the perception of being overweight has a strong impact on girls on all suicidal behaviors including suicidal ideation, suicide attempt and serious suicide attempt (Dave & Rashad, 2009). Additionally, Seo and Lee (2013) also found that female adolescents with perceived overweight were more likely to have suicidal ideation compared to males.

Chapter 2: Study 1

A wish to die among Japanese university freshmen: its association with the sense of coherence and relationship with parents and close friends.

The following article has been accepted to be published in the Japanese Journal of Health Promotion. It has been adapted and re-formatted to be in line with this dissertation.

Basri, N.A., Honda, T., Chen, S.M., Supartini, A., Hirano, Y.O., Ichimiya, A., & Kumagai, S. (2017). A wish to die among Japanese university freshmen: its association with the sense of coherence and relationship with parents and close friends. *Japanese Journal of Health Promotion* 19(2) (In press).

2.1 Abstract

Background: Suicide is the leading cause of death among adolescents and young adults in Japan. The identification of factors associated with a wish to die may provide insights into the early prevention of suicide.

Objectives: The goals of this study were to examine the association between the SOC, relationship with parents and close friends with a wish to die, independent of depressive symptoms and other confounding factors among Japanese university freshmen.

Methods: The baseline data of freshmen from a mental health study in a Japanese public university (N=2,036) was utilized. Multiple logistic regression analyses were conducted to predict the contribution of the SOC and relationship with parents and close friends to a wish to die among freshmen.

Results: Higher SOC was associated with lower odds of having a wish to die, independent of depressive symptoms and other confounding factors. Having a good relationship with one's parents and the absence of close friends were respectively associated with lower and higher odds of having a wish to die.

Conclusion: These findings provided insights into the importance of the SOC scale that may be used by school clinicians to screen and target students who may be at risk of suicide. The enhancement of interpersonal skills of freshmen and improving relationship with parents is also important to prevent a wish to die among freshmen.

Keywords: Wish to die, suicide, Japanese freshmen, sense of coherence, depressive symptoms

2.2 Introduction

Suicide is a major public health concern in Japan. It was the leading cause of death for youths in the age groups of 15–19 and 20–24 years in the year 2014 (Japanese Ministry of Health, Labor and Welfare, 2016) with 7.3 deaths by suicide per 100,000 for youths aged 15-19, and 19.7 per 100,000 for youths aged 20-24. Meanwhile in the United States, adolescents and young adults aged between 15-24 years had a suicide rate of 11.6 deaths per 100,000 U.S. Americans in 2014 (American Foundation for Suicide Prevention, 2016). The magnitude of the suicidal phenomenon among Japanese youths requires a better understanding of the characteristics of youths with suicidal tendencies, in order to find more effective solutions to prevent and reduce suicidal thoughts and behaviors.

In the literature, the term “wish to die” has been described to be encompassed under the broad spectrum of suicide (ranging from a wish to die, to suicidal ideation, suicidal plans, suicide attempts, and suicide death) (Bakhiyi et al., 2016), as a preliminary step to a pathway toward suicide (Lester, 2013) and often precedes suicide attempts (Gupta et al., 1993). A wish to die differs from suicidal ideation because despite having a strong desire to die, it does not involve thoughts of harming or killing oneself, as suicidal ideation does (Institute of Medicine, 2002). It was contended that a wish to die can lead towards suicidal acts and death behaviors when there is an imbalance between the wish to die and the wish to live with abnormal developmental processes (Manor, Vincent, & Tyano, 2004). Therefore, it is significant to identify and intervene on the wish to die early on; as a simple wish to die may

be a warning in disguise and a strong predictor of a more serious suicide intent (Muhammad, 2007). For the purpose of this study, a wish to die is defined as having thoughts of really wanting to die.

This study focuses on university freshmen, who were mostly going through a significant transition in their lives due to the transition from living at home to living away from home. For many of them, having to independently manage their lives; establish new friends; adjust to new schedules and succeed in academic and athletic pursuits is an overwhelming task. Furthermore in Japan, incoming freshmen had just been through a highly competitive university entrance examination, which was found to have contributed towards a high rate of depression among freshmen (Tomoda et al., 2000) and a high suicide rate among young Japanese (Iga, 1981). Thus, this study intends to explore the characteristics associated with a wish to die among freshmen at the transition of just entering university in order to understand them better.

Threats to university students' sense of having a coherent self in relationship to the world have been postulated to play an important role in the development of suicidal thoughts and behaviors (Drum et al., 2016). The SOC was also found to buffer the associations among coping style, suicide ideation, self-reported suicide attempts, and self-reported likelihood of future suicidal behavior among university students (Edwards & Holden, 2001). According to Anotnovsky (1987), SOC is a global orientation that reflects a person's coherent

understanding of the world which comprises of three components: the ability for people to understand what happens around them (comprehensibility), to what extent they were able to manage the situation on their own or through significant others in their social network (manageability), and the ability to find meaning in the situation (meaningfulness). Therefore it is likely that a student with high SOC has a better ability to understand their situation, use inner and external resources to manage their problems more effectively, and make meaning out of a problem situation, hence lowering the odds of suicidality. SOC is tested and reinforced mainly in childhood and early adulthood; with the years before the age of 30 being the most important period regarding the development of SOC (Antonovsky, 1987; Honkinen et al., 2009). University freshmen belong to this group.

Previous studies have also showed associations between SOC and suicidality among military trainees and parasuicides (Mehlum, 1998; Giotakos, 2003), demonstrating SOC's ability to predict suicidal ideation and future attempts (Petrie & Brook, 1992) and its potential to be a marker of risk for high suicidality in the aftermath of a suicide attempt (Sjöström, Hetta & Waern, 2012). However, despite the accumulating studies on SOC and suicidality, most of the studies on SOC in Japanese youth have not been targeted at understanding the suicidal problem. Instead, studies on SOC among university students in Japan have focused on health (Togari et al., 2008; Mikami et al., 2013), and depression (Sakano & Yajima, 2005; Koyama, Matsuhita, Ushijima, Jono, & Ikeda, 2014). Therefore, this study intends to explore

if similar associations exist between SOC with a wish to die, as it has with suicidal ideation and behaviors.

In addition to SOC, studies have also linked suicidality with relationship with parents and peers. Dissociated relationship with parents was found to be an early risk factor for suicide (Hedeland et al., 2016), whilst suicidal adolescents showed less close relationships to their parents (Kandel, Raveis, & Davies, 1991). Loneliness was found to moderate the relationship between peer relationship and suicide ideation and attempt (Cui et al., 2010) while having four or more friends were associated with a lower risk of suicide in Japanese adults (Poudel-Tandukar et al., 2011). While an inverse association was found between close relationship with parents and peers with suicidality, there has yet to be a study that explores the association with a wish to die. Therefore, as an attempt to fulfil the above mentioned gaps, this study is conducted with the following aims: 1) to examine the association between a wish to die with SOC, 2) to examine the association between a wish to die with relationship with parents, and 3) to examine the association between a wish to die with absence of close friends among Japanese university freshmen. All associations were controlled for age, sex, self-rated health, sleep quality and depressive symptoms. Based on the findings previously reviewed, we hypothesized that: i) higher SOC is associated with lower odds of a wish to die, ii) close relationship with parents is associated with lower odds of a wish to die and iii) absence of close friends is associated with higher odds of a wish to die.

2.3 Methods

Design

This cross-sectional study was conducted among freshmen who were recruited from a public university in the southeastern part of Japan. The study utilized the data drawn from a baseline study (of an epidemiologic study conducted in the university) of the EQUISITE study; a study originally developed by the university, which aimed to improve the mental health of university students. The baseline study data were collected between May and June 2010. This study was approved by the ethics committee of the university. All participants provided written informed consent.

Participants and Procedures

A set of health questionnaires were distributed to students in Physical Education class, a compulsory subject for incoming freshmen. Explanation about the objectives of the questionnaires was stated at the beginning of the questionnaire, along with informed consent of participation. Participants were informed that their participation was voluntarily and they can withdraw from, or decline their participation at any time with no negative consequences. It was found that 2,631 freshmen were eligible for the study. From these, 81.3% (n=2,139) gave consent to participate. 103 participants were excluded due to incomplete data and finally, a total of 2,036 (77.4%) participants were included in the analyses.

Measures

The Sense of Coherence. The SOC scale was developed by Antonovsky (1987); it assesses the way individuals perceive life and its challenges that lead to increased coping and resiliency from stress. The present study uses the short version of the SOC, the (Japanese) 13-item SOC questionnaire (Yamazaki, 1999) with scores ranging from 13-91 with a higher score indicating a stronger sense of coherence. Validity and reliability of this scale with Japanese university students has been established (Sakano & Yajima, 2005; Togari, Yamazaki, Nakayama, Yamaki, & Sasaki, 2008). In this study, Cronbach's alpha of the SOC scale was .79.

A wish to die. An item from the health questionnaire developed by the university among the students was asked, "Sometimes I have thoughts that I really want to die," (with the answer option of yes or no).

Relationship with parents and absence of close friends. Two items from the communication scale for university students was asked, "The relationship with my parents are going well" and "I have many friends, but I don't have anyone who I can call a close friend" (with the answer option of yes or no).

Confounding variables. *Centre for epidemiologic studies- depression scale (CES-D)* is a 20-item self-administered test of the frequency of depressive symptoms within the previous week (Radloff, 1977). Globally, a cutoff score of 16 is used to indicate the presence of depressive symptoms. The Japanese version of the CES-D (Shima, Shikano, Kitamura, & Asai, 1985) was used in this study. The item on *self-rated health* asked how the participants

would rate their physical health in general. Participants were categorized into two groups: unhealthy and healthy. *The Japanese version of the Pittsburgh sleep quality index (PSQI)* (Doi, Minowa, Uchiyama, & Okawa, 1998) was used to measure sleep quality, with a cutoff point of >5.5 from the global score to signify poor sleep quality (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). They were used as covariates because: i) major depressive disorder have been found to be associated with a high percentage of suicides (John, Apter, & Bertolote, 2005), and depressive symptoms is highly correlated and, they possibly overlap with the SOC (Haukkala et al., 2013) ii) poor self-rated health has been found to be a significant correlate to suicidality (Cheung, Lee, & Yip, 2016) and increased the risk of death wishes and suicidal ideation (Ladwig et al., 2010) and iii) low sleep quality has been associated with suicide ideation among Japanese university students (Supartini et al., 2016). Therefore, by controlling for these possible confounders, it would ensure that the odds ratio for a wish to die explained by SOC and relationship with parents and close friends were not influenced by these possible confounders.

Data analysis

Chi-square tests were performed to assess the associations of demographic, health behavior and psychosocial variables with a wish to die. The effect size was calculated to quantify the size of the difference between the two groups by using Cohen's d (Ferguson, 2009) for continuous variables and Cramer's V for categorical variables (Trusty, Thompson, & Petrocelli, 2004). The multivariate logistic regression analyses were used to evaluate the influence of SOC, relationship with parents and absence of close friends on a wish to die. All

variables were fitted simultaneously in a single model using the forced entry method. Confounders that were associated with a wish to die in the previous bivariate analyses at a p-value cut-off point of <0.20 (Mickey & Greenland, 1989) and in accordance to previous evidence were adjusted. SOC was used as a continuous variable (Antonovsky, 1987). All analyses were performed using SAS version 9.3 (SAS Institute Inc., Cary, N.C., USA), with a significance level of $p=0.05$.

2.4 Results

Characteristics of participants

The mean age of the freshmen was 18.4 (SD=1.1) years (within the age range of 18–32 years). Independent sample t-test indicated that there was no significant difference in wish to die with the age of the freshmen [$t(122.6) = -1.32, p=0.19$], but a significant difference appeared in SOC score between students with and without a wish to die [$t(2034) = 14.09, p<.001$]. The mean SOC score for the sample was 54.7 (SD=10.6). Males made up 69.2% of the participants. Having a wish to die was reported by 5.8% ($n=118$) of the freshmen. Depressive symptoms were observed in 27% ($n=550$) of the freshmen, (CES-D median=11.0, interquartile range= 10.0).

Characteristics of students with a wish to die

Chi-square analyses showed in Table 2.1 indicated that SOC score was found to be significantly lower in students with a wish to die compared to their counterparts without a

wish to die. Students with a wish to die were found to be less close to their parents, and reported a higher tendency to have no close friends. Students with a wish to die reported higher depressive symptoms and poorer health and sleep quality than their counterparts. No significant difference appeared in being absent in lectures and the age of participants among the two groups.

Associations between SOC and a wish to die

In Table 2.2, model 1, age, sex, self-rated health and sleep quality were adjusted for, and it was found that the higher the SOC score (measured by one-unit increment), the lower the odds were of having a wish to die (OR=0.88, 95% CI=0.85–0.90). In model 2, when depressive symptoms was added as a confounder, the SOC score remained significantly associated with a wish to die (OR=0.89, 95% CI=0.87–0.92).

Associations between relationship with parents and absence of close friends

Table 2.2 showed that students with a good relationship with their parents had lower odds of having a wish to die independent of confounding factors and the significance remained when depressive symptoms was confounded for (OR=0.46, 95% CI=0.25-0.82). Students that did not have close friends had higher odds of having a wish to die in both models before and after depressive symptoms were adjusted (OR= 1.72, 95% CI =1.11-2.68).

Table 2.1

Demographic, health and psycho-social characteristics by a wish to die (N=2,036)

Variables ^a	Students with a wish to die (n=118)	Students without a wish to die (n= 1,918)	P value ^b	Effect size ^c
Age, mean (SD)	18.4 (0.6)	18.4 (0.8)	0.41	0.
Sex (male), n (%)	81 (68.6)	1,327 (69.2)	0.90	0.003
SOC score, (continuous measure), mean (SD)	42 (9.5)	55.5 (10.2)	<.001*	1.37
Good relationship with parents (yes), n (%)	93 (78.8)	1,803 (94.0)	<.001*	0.14
Absence of close friends (yes), n (%)	52 (44.1)	354 (18.5)	<.001*	0.15
High depressive symptoms (CES-D \geq 16), n (%)	86 (72.9)	464 (24.2)	<.001*	0.26
Self-rated health, healthy (vs. unhealthy), n (%)	83 (70.3)	1689 (88.1)	<.001*	0.12
Sleep quality, poor (vs. good) (PSQI>5.5), n (%)	68 (57.6)	614 (32.0)	<.001*	0.13
Tend to be absent in lectures (yes), n (%)	9 (7.6)	99 (5.2)	0.25	0.03

^a χ^2 test for proportions and Student t-test for continuous measure.

^b * p<.001

^c Effect size were measured using Cohen's d for continuous variables, and Cramer's v for categorical variables.

SD (Standard deviation); CES-D (Centre for epidemiologic studies- depression scale); PSQI (Pittsburgh sleep index quality)

Table 2.2

Associations between SOC, relationship with parents and absence of close friends with a wish to die according to multiple logistic regression analysis (N=2,036)

	Odds ratio (95% Confidence interval)	
	Model 1	Model 2
SOC score (one unit increment)	0.88 (0.85-0.90)***	0.89 (0.87-0.92)***
Good relationship with parents (reference: no)	0.50 (0.28-0.90)*	0.46 (0.25-0.82)**
Absence of close friends (reference: no)	1.84 (1.19-2.85) **	1.72 (1.11-2.68)*

*p<.05

**p<.01

***p<.001

Model 1: adjusted for age, sex, self-rated health and sleep quality

Model 2: adjusted for co-variates in model 1 plus depressive symptoms

2.5 Discussion

The main aim of this study was to examine whether SOC has an independent effect on a wish to die, beyond significant confounders such as depressive symptoms in incoming freshmen. Accordingly, the results indicate that a high SOC was associated with decreasing odds of having a wish to die, independent of all confounders. The findings indicated that with each unit increase in the SOC score, the odds of having a wish to die decreased by 11%.

Previous reports have also associated low SOC with increased risk of suicidal ideation (Giotakos, 2003; Sjöström, 2009) and low association of SOC with suicidality even after adjusting for major depression during follow-up (Sjöström, Hetta, & Waern, 2012). The results were also consistent with a previous study among university students, which demonstrated that SOC was a protective quality that could decrease the risk of students to enter the continuum of suicidality (Drum et al., 2016). It was postulated that a significant number of students began their university experience with preexisting vulnerabilities that have the potential to intersect with stressful life events to trigger or accelerate pathogenic processes, hence predicting entry onto suicidality particularly for those who are low in SOC and social connectedness (Antonovsky, 1987).

The present results indicated that students with low SOC were also at higher risk for having a wish to die; consistent with previous findings on suicidal ideation and behavior. This could be due to the reason that students with high SOC were less concerned with the feeling that life was not worth living even though they are in a stressful situation, as they view stressors in their lives as manageable and meaningful (Antonovsky, 1987). These results highlight the importance for university clinicians to nurture the seeds of SOC in incoming freshmen with a wish to die and sustain them in the following years to prevent a wish to die from entering into a more severe continuum of suicide. If Antonovsky's theory holds true that the SOC will more or less be stable after one reaches their 30th age (Antonovsky, 1987), it is highly timely that encouragement to foster the sense of coherence into youth be given at around the age of this present study's sample. Furthermore, school-based awareness programs have shown to be effective in reducing suicide ideation and attempts (Zalsman et al., 2016).

The results also supported the second hypothesis; that a close relationship with parents would be associated with decreasing odds of having a wish to die. It was found that having a good relationship with parents decreased the odds of a wish to die by 54% (OR=0.46, 95% CI=0.25-0.82) than having a poor parental relationship. This is consistent with prior evidence among adolescents which demonstrated that suicidal adolescents were less close to their parents (Kandel, Raveis, & Davies, 1991) and that dissociated relationship with parents is an early risk factor for suicide (Hedeland et al, 2016). Findings in a previous study

demonstrated that significantly more adolescents who characterized their parental relationship as dissociated stated that they ‘wanted to die’, compared with both the entire study group and the subgroup with close parental relationships (Hedeland et al., 2016). Another study suggested that poor communication with parents is a risk factor for future suicide attempts (Gould et al., 1996). These previous findings were in line with the present study’s results which indicated the importance of fostering a good relationship with parents which could lower the risk of having a wish to die among the incoming freshmen.

Results also indicated that the third hypothesis was supported. The absence of close friends was found to increase the odds of having a wish to die after adjusting for significant confounders (OR 1.72, 95% CI=1.11-2.68). These findings were consistent with a previous report that demonstrated the significance of peer relationships in preventing against suicide ideation and attempt (Cui et al., 2010) and the findings that dissociated relationship with friends was an early risk factor for suicide (Hedeland et al., 2016). Previous studies have offered possible explanations for the absence of close friends among the Japanese students. It was suggested that Japanese in general have a fear of relationships, regardless of whether they have any cognitive distortions or not, as for most of them, when in a relationship, people are required to pay closer attention to the other person’s thoughts and feelings (Sakurai et al., 2005) and this could bring about elevated fear and anxiety to build close relationships. Japanese students were also suggested to have extremely high communication apprehension

levels (McCroskey, Gudykunst, & Nishida, 1985) particularly classroom communication fear (Keaten, Kelly, & Pribyl, 1997).

These results indicate the significance for faculty members to create opportunities for communication among students, preferably outside the classroom to prevent classroom communication fear. Indeed, interpersonal skills are significant for university students, as interpersonal difficulties have been found to play a pivotal role in the development of suicidal behavior in late adolescence and early adulthood (Johnson et al., 2002). Furthermore, it has been reported that establishing interpersonal relations marked by cooperation would be able to intensify the SOC in young people (Kulik, 2015), and a previous study demonstrated that both SOC and social connectedness are protective factors for suicide ideation and behaviors among university students (Drum et al., 2016).

Other risk factors for a wish to die among the students such as body weight and perceived overweight may be examined in future studies. It is significant that risk factors are identified earlier and educated to the students so they can identify the risk factors within themselves and their peers and seek help earlier before the problem worsens.

2.6 Conclusion

This study indicates that high SOC and good parental relationships are associated with lower odds of having a wish to die, whilst absence of close friends is associated with higher odds of having a wish to die, independent of confounding factors such as depressive symptoms. These findings highlight the importance of enhancing SOC and interpersonal skills among incoming freshmen as well as improving parental relationship that may contribute towards prevention of a wish to die among the students.

Chapter 3: Study 2

Japanese university students' perceived overweight and actual weight: relationship with a wish to die

The following article has been originally published in the Malaysian Journal of Psychology. It has been adapted and re-formatted to be in line with this dissertation.

Basri, N.A., Chen, S.M., Chen, T., & Kumagai, S. (2017). Japanese university students' perceived overweight and actual weight: Relationship with a wish to die. *Malaysian Journal of Psychology* 31(1), 1-8.

3.1 Abstract

Previous studies demonstrated that perceived overweight has a larger role than actual body weight does in suicidal ideation and attempts. Despite high suicidal rate found among university students, studies have been limited in examining the role of perceived overweight in relation to suicidality in this population. This study aims to examine the relationship between a wish to die with perceived overweight and actual weight, measured by body mass index (BMI) in university students. The sample comprised of 2,000 incoming freshmen in a Japanese university. Multivariate logistic regression was used to determine the association

between a wish to die and perceived overweight and actual weight. Results indicated a wish to die prevalence of 5.8% (n=115) and perceived overweight prevalence of 15.8% (n=315) among the freshmen. Perceived overweight significantly increased the odds of a wish to die by two-fold (OR =2.01, 95% CI = 1.20-3.37), in contrast to actual weight which was not significantly associated with a wish to die. Findings implied the necessity to promote healthy attitudes towards body weight and self-acceptance regardless of weight status among university students that could reduce the potential risk of a wish to die from progressing along the continuum of suicidality in later life.

Keywords: Suicidal ideation, wish to die, perceived overweight, BMI, university students

3.2 Introduction

In 2014, suicide has been identified as the leading cause of death among adolescents and young adults aged 15–24 years in Japan (Health, Labor and Welfare Statistics Association of Japan, 2016). The suicidal continuum consists of a broad spectrum of suicidality, ranging from a wish to die, to suicidal ideation, suicidal plans, suicide attempts, and suicide death (Bakhiyi, Calati, Guillaume, & Courtet, 2016). A wish to die is a passive suicidal thinking, which does not involve thoughts of harming or killing oneself, as suicidal ideation does (Institute of Medicine, 2002). It was contended that a wish to die can lead towards suicidal acts and death behaviors when there is an imbalance between the wish to die and the wish to live with abnormal developmental processes (Manor, Vincent, & Tyano, 2004). Identification of factors associated with a wish to die among youth will benefit

intervention to prevent and reduce those with a wish to die from progressing along the continuum of suicidality which could worsen in later life.

Along with the problem of suicide, obesity among youth has also become a serious public health issue and studies have reported a significant association of body mass index (BMI) with suicidal ideation and suicide attempts (Kinoshita et al., 2012; Swahn et al., 2009). However, studies have also shown that perceived overweight has a larger role than actual body weight or BMI does in suicidal ideation and attempts (Dave & Rashad, 2009; Lee & Seo, 2013; Swahn et al., 2009). Despite extensive studies on this however, most studies were conducted among adolescents; i.e. middle and high school students (Dave & Rashad, 2009; Swahn et al., 2009) compared to studies among university students, especially among freshmen. This is despite previous evidence of high suicidal rate among university freshmen, particularly in Japan (Iga, 1981). It is therefore significant to examine the freshmen's perception of being overweight at this stressful time along with how it may contribute towards a wish to die, as had been found in previous studies with suicidal ideation (Dave & Rashad, 2009; Swahn et al., 2009; Lee & Seo, 2013). This information may help university clinicians to identify factors associated with a wish to die among freshmen which may inform early intervention of suicide.

The present study aims: i) to examine the relationship between a wish to die with perceived overweight, and ii) to examine the relationship between a wish to die and actual

weight among Japanese university freshmen while controlling for several important confounders. It was hypothesized that the relationship between a wish to die with perceived overweight is significant but not with actual weight.

3.3 Methods

Participants and procedures

The data presented here is a part of an epidemiological study; the EQU SITE Study, which aimed at improving the mental health of university students in a Japanese public university located in the south-eastern part of Japan. The current study used cross-sectional samples of freshmen who were newly enrolled in the university in 2010 (May to June). The study was approved by the ethics committee of the university. Inclusion criteria included the following parameters: a) participants aged between 18–20 years; and b) first-year students who were enrolled in April 2010.

An amount of 2,658 questionnaires were distributed to all students in Physical Education classes, a compulsory subject for first-year students. Explanation about the objectives of the questionnaires were stated at the beginning of the questionnaire, along with informed consent of participation. Participants were informed that participation in the study was voluntarily, and that they can decline their participation, or withdraw their results from the study at any time without any negative consequences. A number of 2,631 students were

approached and 2,084 students were found to be eligible for the study, and who provided informed written consent. Due to missing data on the key variables used in the study, 84 students were excluded. Finally, a total of 2,000 students were included in the analyses.

Measures

Demographic characteristics. Information about which *school* participants belong to was asked in the questionnaire. Participants were asked about their *living condition*; if they were living alone, in university dormitory or with parents and other people.

A wish to die. The following question was asked, “Sometimes I have thoughts that I really want to die,” with response options of *yes* and *no*.

Perceived overweight. The following item was used: “I think I am overweight,” with response options of *yes* and *no*.

BMI status. In this study, the BMI of the participants were calculated based on the height and weight data retrieved from medical-check-up sessions conducted by the university. The classification of underweight ($BMI < 18.5$), normal weight ($18.5 \leq BMI < 25$) and obese ($BMI \geq 25$) as determined by the Japan Society for the Study of Obesity was used.

Covariates. Based on evidence from previous studies that showed the below covariates in association with a wish to die, these covariates were controlled to ensure that the odds ratio for a wish to die was not due to these covariates. i) *Age and sex*, which were used in most research as covariates. ii) *Self-rated health* was measured by asking how the

participants would rate their physical health in general. Poor self-rated health has been found to be a significant correlate to suicidality (Cheung, Lee, & Yip, 2016) and increasing the risk of death wishes and suicidal ideation (Ladwig et al., 2010). iii) *Relationship with parents*, measured by the item, “The relationship with my parents are going well” (answer option of yes or no). Dissociated relationship with parents was found to be an early risk factor for suicide (Hedeland, Teilmann, Jørgensen, Thiesen, & Anderson, 2016) whilst suicidal adolescents showed less close relationships to their parents (Kandel, Raveis, & Davies, 1991). iv) *Absence of close friends*, measured by the item, “I have many friends, but I don’t have anyone who I can call a close friend” (answer option of yes or no). Loneliness was found to moderate the relationship between peer relationship and suicide ideation and attempt (Cui, Cheng, Xu, Chen, & Wang, 2010) while having four or more friends were associated with a lower risk of suicide in Japanese adults (Poudel-Tandukar et al., 2011).

Statistical analysis

The data on outliers, coding errors, and missing value points on the individual questionnaire items and all key variables were checked with reference to the normal and bivariate assumptions of distribution. Chi-square tests were performed to assess the wish to die, actual weight status and perceived overweight by gender (Table 3.1), to assess the associations between perceived overweight with wish to die and actual weight (Table 3.2), and to assess the association of demographic and key measures of the study with presence and absence of a wish to die (Table 3.3). Student’s t-test was used to assess for continuous

data by expressing the mean and standard deviation (SD) whilst frequency and percentage were expressed for categorical data. Sensitivity analysis was also performed to ensure there was no multicollinearity in the variables used.

The multivariate logistic regression analysis was used to examine the association between a wish to die with perceived overweight and actual weight. Both variables were fitted simultaneously in a single model using the forced entry method. Confounders were adjusted according to previous evidence that associated them with a wish to die. All analyses were performed using SAS version 9.3 (SAS Institute Inc., Cary, N.C., USA), with a significance level of $\alpha=0.05$.

3.4 Results

Distributions for a wish to die, actual weight and perceived overweight and relationships between them

The distributions for a wish to die, actual weight status and perceived overweight are presented in Table 3.1. Among the participants, 5.8% (n=115) reported to have a wish to die with a significant difference in male students but not in females. Based on BMI, 10.6% of the students were obese and 15.8% perceived themselves as overweight. Female students were more likely to be underweight than male students (16.8% vs. 10.2%) while male students were two times more likely to be obese than female students (12.4% vs. 6.4%). Table

3.2 indicated that while 40.6% of normal weight male students perceived themselves as overweight, 75.2% of normal weight female students perceived themselves as overweight. Meanwhile, 59.4% of obese male students perceived themselves as overweight whilst only 24.1% of obese female students perceived themselves as overweight. In this study, it was seen that there was a clear discrepancy between students' actual and perceived overweight, especially among female students. The study demonstrated a high percentage of inaccuracy among female students (75.2%, n=109) who perceived themselves as overweight, whereas in actuality they were of normal weight, compared to only 40.6% (n=69) of male students.

Table 3.1

Distribution of wish to die, actual weight and perceived overweight in Japanese university students (N=2,000)

	Male	Female	Total	P-value
Wish to die (yes, vs. no), n (%)	77 (5.6)	38 (6.1)	115 (5.8)	0.67
Actual weight ^a , n (%)				<.001**
Underweight	140 (10.2)	105 (16.8)	245 (12.3)	
Normal	1064 (77.4)	480 (76.8)	1544 (77.2)	
Obese	171 (12.4)	40 (6.4)	211 (10.6)	
Perceived overweight (yes, vs. no), n (%)	170 (12.3)	145 (23.2)	315 (15.8)	<.001**

*p<.01. **p<.001

^aBased on BMI weight status determined by the Japan Society for the Study of Obesity.

Table 3.2

The relationship between perceived overweight with wish to die and actual weight, by gender (N=2,000)

	Perceived overweight		P-value
	Yes (%)	No (%)	
<hr/>			
Wish to die			
Male (yes, vs. no)	18 (10.6)	59 (4.9)	0.003*
Female (yes, vs. no)	13 (9.0)	25 (5.2)	0.09
<hr/>			
Actual weight ^a			
Male			<.001**
Underweight	0 (0)	140 (11.6)	
Normal	69 (40.6)	995 (82.6)	
Obese	101 (59.4)	70 (5.8)	
Female			<.001**
Underweight	1 (0.7)	104 (21.7)	
Normal	109 (75.2)	371 (77.3)	
Obese	35 (24.1)	5 (1.0)	

*p<.01. **p<.001

^aBased on BMI status determined by the Japan Society for the Study of Obesity.

Characteristics of students with and without a wish to die

Chi-square analyses revealed no significant difference in gender, age, school and living conditions between students with a wish to die and students without a wish to die. Students with a wish to die reported poorer health than their counterparts without a wish to die. While actual weight status (BMI) was not found to be significant, those with a wish to die tend to perceive themselves as overweight significantly more than those without a wish to die. Students with a wish to die tend to have a poorer relationship with their parents and had no close friends compared to students without a wish to die (Table 3.3).

Table 3.3

Demographic characteristics of participants and key variables used in the study, with and without a wish to die (N=2,000)

Variables, n (%)	Students with a wish to die	Students without a wish to die	P value
Gender			0.67
Male	77 (67.0)	1298 (68.9)	
Female	37 (32.5)	585 (31.2)	
Age, mean (SD)	18.4 (0.6)	18.3 (0.5)	0.09
School			0.27
Literature	10 (8.7)	135 (7.2)	

Education	1 (0.9)	47 (2.5)	
Law	15 (13.0)	154 (8.2)	
Economics	10 (8.7)	196 (10.4)	
21 st Century Program	0	12 (0.6)	
Science	8 (7.0)	215 (11.4)	
Medical Sciences	14 (12.2)	199 (10.6)	
Dental Sciences	0	43 (2.3)	
Pharmaceutical Sciences	5 (4.4)	65 (3.5)	
Engineering	31 (27.0)	509 (27.0)	
Art and Design	14 (12.2)	153 (8.2)	
Agriculture	7 (6.1)	153 (8.2)	
Living conditions			0.83
Alone	72 (62.6)	1231 (65.3)	
University dormitory	9 (7.8)	130 (6.9)	
With parents/others	34 (29.6)	524 (27.8)	
Self-rated health			<.001**
Good health (vs. poor health)	82 (71.3)	1665 (88.3)	
BMI weight status			0.88
Underweight	13 (11.3)	232 (12.3)	
Normal	91 (79.1)	1453 (77.1)	
Obese	11 (9.6)	200 (10.6)	
Perceived overweight	31 (27.0)	284 (15.1)	<.001**

Good relationship with parents	90 (78.3)	1776 (94.2)	<.001**
Absence of close friends	52 (45.2)	346 (18.4)	<.001**

*p<.01. **p<.001

Associations between a wish to die with perceived overweight and actual weight

Table 3.4 indicated a significant association between a wish to die and perceived overweight in the multivariate logistic regression analysis after adjusting for age and sex (OR=2.49, 95% CI=1.51-4.11). After further adjusting for self-rated health, the association remained significant (OR=2.23, 95% CI=1.34-3.70). In the third model, relationship with parents and absence of close friends were further adjusted, and it was found that students who perceived themselves as overweight were approximately two times more likely to have a wish to die compared to those who did not perceive themselves as overweight (OR=2.01, 95% CI=1.20-3.37). In contrast, no significant associations were found between a wish to die with actual weight in all three models.

Table 3.4

Associations between a wish to die with perceived overweight and BMI status (N=2,000)

	Odds ratio (95% confidence interval)		
	Model 1	Model 2	Model 3
Perceived overweight	2.49 (1.51-4.11)**	2.23 (1.34-3.70)*	2.01 (1.20-3.37)*
BMI weight status	0.70 (0.46-1.08)	0.72 (0.47-1.10)	0.77 (0.50-1.20)

*p<.01. **p<.001

Model 1: adjusted for age and sex, Model 2: age, sex and self-rated health, Model 3: adjusted for age, sex, self-rated health, relationship with parents and absence of close friends.

3.5 Discussion

This study's main aims were to examine the relationships between a wish to die with perceived overweight and actual weight among Japanese university freshmen. As were hypothesized, perceived overweight significantly increased the odds of a wish to die (by two-fold) compared to those who did not, even after controlling for the influence of several important confounders. Actual weight measured by the BMI did not yield a significant relationship with a wish to die. Although previous evidence indicated that BMI predicted suicidal ideation in high school students (Kinoshita et al., 2012; Swahn et al., 2009), and higher BMI with suicidal ideation and feelings of burdensomeness among university students

(Dutton, Bodell, Smith & Joiner, 2013), the present results as well as other studies that examined both BMI and perceived overweight (e.g. Swahn et al., 2009) indicated that the perception of being overweight is more significant, thus more important than the actual weight itself in the relationship with a wish to die or suicidal ideation. Both longitudinal (Lee & Seo, 2013) and cross-sectional studies (Dave & Rashad, 2009; Minor, Ali & Rizzo, 2016) reported that youth who perceived themselves as overweight were more likely to think about committing suicide than those who had no such perceptions.

The over-estimation of one's own weight was evident in this study. A significant discrepancy was found between the freshmen's actual and perceived overweight, especially among female students; with 75.2% (n=109) of normal weight female students and 40.6% (n=69) of normal weight male students perceiving themselves as overweight. These findings are consistent with previous studies with adolescents, whereby those who overestimated their body weight were more likely to be females (Lee & Lee, 2016) and also among adults, whereby women were more likely than men to have distorted body weight perception (Shin et al., 2015). These findings suggested that thinness is more important for females than males regardless of age and females wanted to be thin more than males do (Ozmen et al., 2007).

The effects of perceived overweight on psychological distress were found to be substantially stronger than weight status (Atlantis & Ball, 2008). This and the above studies' findings suggest that the perception of oneself as overweight may influence one's

psychological health. It could also be that having poor psychological health could bring about assumptions about self that may not reflect reality, including overestimating one's own body weight.

Studies have also shown that adolescents who underestimated and overestimated their body weight were more likely to have suicide ideation (Eaton, Lowry, Brener, Galuska & Crosby, 2005; Lee & Lee, 2016) and a sadness (Lee & Lee, 2016) compared to those who perceived themselves as about the right weight. Additionally, research also demonstrated that being dissatisfied with one's body weight yielded significant relationships with suicidal ideation throughout all body mass index ranges, including among adolescents with normal body mass index, which was again, prominently evident among female adolescents (Kim, 2009).

These past evidence suggest that both perceiving their body weight as underweight or overweight, as well as being dissatisfied with one's own body weight, are significant factors that have been found to contribute towards suicidal ideation more than the actual weight itself. The current study's results were consistent with the previous studies, and it extended current evidence to show a significant association between perceived overweight with a wish to die among Japanese freshmen; a population who had been found to be highly suicidal (Iga, 1981).

Implications for interventions

University health interventions targeting to reduce the potential risk of suicidal ideation in later life among incoming freshmen may need to promote healthy attitudes toward body weight and self-acceptance, regardless of weight status. Clearly, both obesity and underweight are hazardous to health. However, the perception of being overweight has been found to be more significant than actual weight itself in influencing a freshman's wish to die. An early intervention could lend support to students who are at risk of entering and progressing along the continuum of suicidality.

3.6 Conclusion

The present findings demonstrated that perceived overweight was significantly associated with a wish to die among Japanese freshmen more than actual weight itself. The results suggest the necessity of health intervention programs to promote healthy attitudes towards body weight and self-acceptance which is hoped to prevent and reduce the risk of suicidal ideation in students' later life.

Chapter 4: General Discussion

Wish to die is at the earliest stage of the suicidal behavior continuum (Bakhiyi et al., 2016). It is characterized by a strong desire or a wish to die without the thoughts of harming or killing oneself as one would have in suicidal ideation (Institute of Medicine, 2002). It is important that a wish to die is identified at the earliest stage of its existence and help offered among young adults' with a wish to die to prevent them from entering into suicidal ideation. Findings have shown that young adults in late teens and early 20s have the highest risks of having initial suicide ideation, plans and attempts (Kessler, Borges & Walters, 1999) but very few seek help from health centers. Only 16% of Japanese college students who committed suicide sought help from university health centers prior to their death (Uchida & Uchida, 2017). Clearly, there are many young adults who are at risk of suicide but are not receiving the help they need.

The purpose of this dissertation was to examine the correlates of a wish to die in order to gain more insights and enhance the current understanding of the psycho-social factors associated with a wish to die in young adults. Specifically, the relationship of a wish to die was examined with the Sense of Coherence, relationships with parents and friends and body weight and perceived overweight among a large sample of first-year university students in a national Japanese university. In this section, we began with providing answers to the research questions posed earlier based on the findings generated from the two studies conducted. Next,

we discussed further about the two psychological theories we introduced earlier, as well as cultural factors of the Japanese in relation to the findings of this dissertation.

4.1 SOC and wish to die

In regard to the first research question regarding the relationship between sense of coherence with a wish to die, it was hypothesized that students with a high SOC score will have lower likelihood for having a wish to die compared with their counterparts with a low SOC. This is based on previous evidence with university students which demonstrated that SOC was a protective quality that could decrease the risk of students to enter the continuum of suicidality (Drum et al., 2016). Consistently, the results of the first study supported the previous findings. The results can be seen in Table 2.2, Model 2 which indicated that with each unit of increase in the SOC score, the odds of having a wish to die decreased by 11%. This could be attributed to the SOC theory that individuals with high SOC tend to view stressors as manageable, comprehensible and meaningful, thus even though they were in a stressful situation, they were less affected by it as it would affect their counterparts with low SOC score (Antonovsky, 1987).

4.2 Parent-student relationships and wish to die

The second research question asked about the association between parent-student relationships with a wish to die, and it was hypothesized that students with good parental

relationship will have lower likelihood of having a wish to die than students with poor parental relationship. This hypothesis was supported by the results of the current study which demonstrated that having a good relationship with parents decreased the odds of a wish to die by 54% than having a poor parental relationship (Table 2.2, Model 2). This is consistent with previous evidence which indicated that parent-adolescent relationships were a particularly important correlate of suicidal ideation. Suicidal adolescents were found to be less close to their parents (Kandel, Raveis & Davies, 1991), poor communication with parents has been identified as a risk factor for future suicide attempt (Gould et al., 1996) whereas dissociated relationship with parents (Hedeland et al., 2016) has been identified as an early risk factor for suicide ideation. The current findings indicated the importance of fostering a good relationship with parents which could lower the risk of having a wish to die among the students.

4.3 Absence of close friends and wish to die

The third research question asked on the relationship between absence of close friends with a wish to die and consistent with the literature (Poudel-Tandukar et al., 2011), it was hypothesized that students who do not have a close friend are most likely to have a wish to die compared with their counterparts who has one or more close friends. The current study supported this hypothesis. Table 2.2, Model 2 indicated that the absence of close friends was found to increase the odds of having a wish to die after adjusting for significant confounders with an odds ratio of 1.72. Based on previous studies, this study also suggested some possible

explanations regarding the lack of intimacy in Japanese peer relationships. A report suggested that Japanese in general have a fear of relationships regardless of the presence/absence of cognitive distortions, because for most of them, when in a relationship, people are required to pay closer attention to the other person's thoughts and feelings, which could bring about elevated fear and anxiety to build close relationships (Sakurai et al., 2005).

4.4 Actual body weight and wish to die

The fourth research question asked on the relationship between actual body weight with a wish to die after all confounding factors are controlled for. It was hypothesized that there is no significant association between actual weight (measured by body mass index) with a wish to die after confounding factors are controlled for. Previous studies on actual overweight and suicidal ideation did not control for self-rated health and relationships with parents and friends so this question was designed to extend this work. The current findings supported this hypothesis as the results indicate a non-significant association between actual weight with a wish to die. Although previous studies reported a significant association between actual weight and suicidal ideation (Kinoshita et al., 2012; Swahn et al., 2009), this study did not find such an association. This could be probably be explained by the population of the current study which is composed of young adults (i.e. first- year university students) whereas the previous two studies were conducted among adolescents (i.e. junior and high school students) and it could also be due to the difference between suicidal ideation and wish to die. It could be that being at the lower end of the suicide continuum, a wish to die was not

significant when correlated with actual body weight as suicidal ideation would. The result is shown in Table 3.4, Model 3.

4.5 Perceived body weight and wish to die

The fifth research question asked about the relationship between perceived overweight with a wish to die after confounding for all covariates in the study. Based on previous literature (Dave & Rashad, 2009; Lee & Seo, 2013; Swahn et al., 2009), it was hypothesized that students with perceived overweight will have higher likelihood of having a wish to die compared with their counterparts without perceived overweight. The results of the current study supported this hypothesis and findings of the previous studies. It was found that students with perceived overweight were more likely to have a wish to die than their counterparts without a wish to die with an odds ratio of 2.01. The result is presented in Table 3.4, Model 3. The current findings indicated that perceived overweight is a statistically significant risk factor for a wish to die even among those who are not overweight based on their BMI. This result suggests that the perception of oneself as overweight may contribute towards the desire to die, or it could also be that having a desire to die could bring about assumptions about self that may not reflect reality, including overestimating one's own body weight.

4.6 Effect of gender on perceived overweight and wish to die

The final research question asked whether there is an effect of gender on the relationship between perceived overweight on a wish to die. A previous study indicated that female adolescents with perceived overweight were more likely to have suicidal ideation compared to males (Seo & Lee, 2013) and that the perception of being overweight has a strong impact on girls on all suicidal behaviors including suicidal ideation, suicide attempt and serious suicide attempt (Dave & Rashad, 2009). Therefore, it was hypothesized that female students with perceived overweight were more likely to have a wish to die compared to males. However, on the contrary, the current study found that male students with perceived overweight were more likely to have a wish to die than female students. The results are shown in Table 3.2. This inconsistent result with previous studies could be attributed to the smaller population of female students in the sample compared to males which could have led to the insignificance of a wish to die.

4.7 Wish to die and psychological theories

The IPTS makes two predictions: i) that perceptions of burdening others and of low belonging or social alienation combined to instill the desire for death, and ii) that individuals will not act on the desire for death unless they have developed the capability to do so (Joiner et al., 2009). According to Joiner et al. (2009), failed belongingness or social alienation refers to the experience that one is alienated from others, not an integral part of a family, circle of

friends, or other valued group. Therefore, the two correlates in this study, i.e. poor relationship with parents and absence of close friends are closely related with this construct.

The theory suggests that the joint occurrence of perceived burdensomeness and failed belongingness will produce an active suicidal desire, it was suggested that either construct alone is sufficient to elicit passive suicidal ideation (Ma, Batterham, Calear, & Han, 2016). Thus, the findings in the present dissertation which indicated that young adults without close friends have a higher likelihood of having wish to die and those with good relationship with parents have a lower likelihood of a wish to die is in line with this theory. Furthermore, a wish to die has been described as a passive suicidal ideation (Simon, 2014).

The IPTS also provided a better understanding on how certain suicide risk factors interact, and where prevention and intervention may be best focused (Ma, Batterham, Calear & Han, 2016). Since it was postulated that thwarted belongingness, when combined with perceived burdensomeness will cause active suicidal desire, it is important that young adults who reported having family conflict, feeling alienated by friends, and possessing few social supports be given adequate psychological support. This is so that they will not feel they are a burden to others and their life is of no value to others (i.e. perceived burdensomeness). It is thus important that interventions be conducted among these young adults to prevent the activation of suicidal desire.

Another theory; the theory of suicide as escape from self, postulated that thoughts to suicide become more accessible when individuals realize that they fail to attain important standards and expectations and become motivated to escape the self (Baumeister, 1990). This theory could be applicable in understanding the perception of being overweight and the role of the sense of coherence.

According to the theory, in Stage 1, a person becomes acutely aware of his/her shortcomings and failures. This could be translated as the onset of a young adult feeling that he/she is overweight and does not meet the norms of the society. In Stage 2, when the person attributes the failure to the self, resulting from perceived shortcomings, this could be translated as lower self-esteem (not measured in this dissertation). In Stage 3 which is the state of cognitive deconstruction, the person experiences disinhibition and loss of inner restraints, passivity, and loss of emotional tone. This could be translated as confused thinking and helplessness/hopelessness (not measured in this dissertation). In Stage 4, irrationality and disinhibition sets in. This could be translated as a wish to die; which renders the person vulnerable to suicidal thoughts. Although this research did not measure self-esteem and confused thinking and helplessness/hopelessness, these assumptions are made based on a previous study on older adults by Reich, Newsom and Zautra (1996).

Therefore according to this model, it can be understood that a wish to die may be generated from the awareness that one falls short of standards in the society (in this case,

perceive themselves as overweight than the general norm). The person may then attribute this self-awareness to self, i.e. by blaming oneself as the reason for being overweight, and this could very well lead to cognitive dissonance, i.e. believing that he/she is unattractive; not fit to be 'in the group' with others, etc. It can be understood in this model that perceived overweight alone does not directly lead to a wish to die, but it involves both internal self-blame and an error in thinking or cognition, which can be intervened through appropriate psychological support. However, if a person has a strong sense of coherence, the shortcomings that he/she has (perceiving themselves as overweight) may not be attributed to the self, nor render the feeling of hopelessness and helplessness, nor be vulnerable to irrationality. This is because the person sees the overweight problem as a minor problem (comprehensibility), is able to manage the problem from affecting their lives (manageability) and has other things to focus their energy on (meaningfulness). It is postulated that high comprehensibility, manageability and meaningfulness would contribute to a high sense of coherence (Antonovsky, 1987). From this theory, it becomes clear on the role of sense of coherence in protecting against a wish to die.

4.9 Wish to die and Japanese culture

Understanding the Japanese culture is paramount in understanding the wish to die and the factors connected with it. As stated in the introduction section, the Japanese have a permissive attitude towards suicide, and this includes the young generation. This is evidenced through several studies conducted among Japanese college students which found higher

levels of suicide acceptance than students from other countries (Saito, Klibert, & Langhinrichsen-Rohling, 2013; Eskin et al., 2016). With the media and literature playing a huge role in romanticizing suicide (Russell, Metraux & Tohen, 2016), it is of no surprise that Japanese at a very young age would commit suicide. When things don't work out well for the youngsters, suicide may be one of the first things that come to their mind. Furthermore, the feeling of suicide may be further strengthened when there is a low support system such as the absence of supportive family and friends. A low sense of coherence would further expose the youngsters to suicide. It is thus significant that the university help to foster sense of coherence especially in freshmen through the university courses or special programs. This is important as sense of coherence can protect the students from suicide when things don't work out for them.

There is also a deep-seated prejudice against psychiatric illness in Japan (Uchida & Uchida, 2017). The influence of family and community stigma on mental health utilization may contribute to the low utilization of mental health care among the Japanese. This explains why only about 16% college students who committed suicide ever received an official psychiatric diagnosis and received services through the university health center prior to the suicides (Uchida & Uchida, 2017). It was thus suggested that students be able to view university health centers as a safe place where their privacy will be protected, and universities to consider investing in an architectural design of their health centers so students who seek psychiatric help will not be seen by their peers entering the health centers. Additionally,

students should be educated about suicide risk and psychiatric disorders so that they can identify these risk factors in themselves and their peers and intervene when necessary (Uchida & Uchida, 2017).

The Japanese are also known to be private people. In the present study's sample, slightly more than 60% of the students lived alone rather than living with friends and families. A study indicated that the Japanese in general have a fear of relationship, regardless whether they have any cognitive distortions or not, as for most of them, having to pay closer attention to others' thoughts and feelings when in a relationship would bring about elevated fear and anxiety (Sakurai et al., 2005). It was also found that Japanese students have extremely high communication apprehension levels (McCroskey, Gudykunst & Nishida, 1985), particularly classroom communication fear (Keaten, Kelly & Pribyl, 1997). Thus, this explains why most participants in this study lived alone and quite a few of them have no close friends. Having understood the anxiety and apprehension of many Japanese in developing friendships, it is suggested that the university provides a platform for students to work together on class projects outside the class, or arrange fun outdoor activities such as class outings which can provide avenues for friendships to develop.

4.10 Implications of the study

Results from the current study show great promise for clinical applications. As rates of suicidal ideations, attempts and deaths in young adults continue to remain high throughout

the world (WHO, 2017), particularly in Japan (Japanese Ministry of Health, Labor and Welfare), it seems more crucial than ever to understand important modifiable psycho-social correlates to the wish to die, in order to prevent suicide by tackling it at its earliest stage of existence.

For mental health professionals working with young adults, such as university clinicians; the findings from this study suggest the factors to look out for in identifying students at risk of suicide. Furthermore, the findings are relevant for prevention programming. Including skills of problem-solving and coping, discussions about the purpose and meaning of life, as well as introduction to cognitive-behavioral therapy will be helpful in fostering a strong sense of coherence among the students. Additionally, prevention work could include interpersonal skills training, and offering platforms and opportunities for students to develop friendships with their peers. Counseling workshops involving parents and students can be organized by the university to foster good relationships between students and their parents. Furthermore, prevention programs could promote healthy attitudes toward body weight and self-acceptance, regardless of weight status. Interventions that identify and assist these young adults and educate them regarding stress-management, importance of fostering good relationships with parents and peers, and a healthy body image will eventually succeed in reducing the wish to die.

Additionally, there is a high cost associated with youth suicide. In USA alone, the total cost of completed and medically treated youth suicides in 1996 has been estimated to be about \$18.7 billion (Miller, Covington, & Jensen, 1999). Therefore, early detection of risk and protective factors of suicide is paramount to prevent suicide in young people. Special emphasis placed on those with a wish to die with preventive interventions may be effective to reduce the likelihood of progression into later stages of the suicide behavioral continuum, at the same time reduce the huge costs associated with youth suicide.

4.11 Strengths and limitations

There are several strengths in this research. To our knowledge, this is the first study to explore psycho-social correlates of university freshmen with a wish to die. We examined a wide range of potential confounders including psychological and health-related factors that were based on past evidence. This study included a large sample size of university students and a relatively high response rate.

However, this study should also be interpreted with some limitations in mind. A wish to die, relationship with parents and close friends and perceived overweight were only measured by a single dichotomous question which limit the validity and interpretation of the results, while depressive symptoms were measured by self-reported questionnaires rather than by clinical observations. The present results were also not representative of the entire Japanese university freshmen population. The timing of the survey, which was conducted

between one and two months after the participants' enrollment in the university may be a stressful time than others for it is time for new adjustment to a new place and environment and thus may not be able to yield a valid tendency for a wish to die in freshmen. Additionally, cross-sectional survey design did not allow us to establish causal relationships.

4.12 Conclusions

In conclusion, this dissertation serves as an initial step in developing a better understanding of a wish to die during the period of young adulthood. This research suggests several psycho-social modifiable factors that may be used by university clinicians particularly to design suicide prevention programs especially for students who presented with low scores on SOC, have poor relationships with parents and peers and who perceived themselves as overweight; as students with these characteristics were shown to have higher likelihood of having a strong desire to die. Results also suggest the need for a stronger support system for university students. As Uchida and Uchida (2017) pointed out, only 16% of Japanese college students who committed suicide received services through the university health center prior to the suicides. Among areas for improvement they suggested include better advertising for mental health services, student and staff education about suicide risk factors, and mentorship and outreach programs for students identified to be at risk of suicide.

This research also provides a foundation for investigating a wish to die over time to follow those whose wish to die may progress into suicidal ideation and underlines a need to

assess the possible factors that contribute towards such progression. Also supported by the research findings is the understanding that suicidal behavioral continuum is complex and the wish to die is impacted by numerous psycho-social factors including protective factors such as having a high sense of coherence and a good relationship with parents as well as risk factors such as the absence of close friends and having the perception of being overweight. These findings have important implications for mental health professionals treating young adults, prevention programming aimed at reducing the desire to die and reducing progression into suicidal ideation.

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