Risk and Resilience Factors for Depression and Suicidal Ideation in Mongolian College Students

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1. INTRODUCTION

More than 350 million people suffer from depression worldwide (WHO, 2012). Among younger adults, depression has been identified as the second leading cause of disability globally, accounting for 8.2% of disability adjusted life years (WHO, 2012; Ferrari et al., 2013). Additionally, risk of mortality has been shown to increase by 40% among those with depression when compared to others with somatic ailments such as cancer (WHO, 2011).

In 2012, there were approximately 804,000 suicide deaths worldwide, an estimated one suicide every 40 seconds (WHO, 2014). The likelihood that many of these individuals were also experiencing symptoms of depression is high, as depression is one of the strongest predictors for suicidal ideation and behaviors (WHO, 2012) and is present in up to 70% of those who die by suicide (NIMH, 2013). College students are a particularly vulnerable population, as 75% of mental health issues begin before age 24 (NIMH, 2005), and one in every four young adults will specifically suffer from depression (American College Association, 2012).

Demographic factors

Risks of depression and suicidal behavior among college students may differ by sex, age, living situation, and geographic location of residency. Female college students are more likely to be diagnosed with depression (Devonport & Lane, 2006; Silverstein, 2002; Misra et a., 2003; Grant et al., 2002; Silverman et al., 1997; Baca-Garcia et al., 2002) and attempt suicide (Wilcox et al., 2010; Li, 2012). In addition, a study found that students who were older than 25 years of age had higher suicide rates than younger students. For example, the suicide rate was 3.2 per 100,000 for female students who were under 25 and 9.4 per 100,000

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for those over 25 (Silverman et al., 1997). College students who currently resided in a dormitory, social services facility, or with relatives other than their biological parents had higher risk for suicide (Ozel et al., 2015; Heydarabadi et al., 2015; Groholt et al., 2000). Moreover, students who were raised in urban areas also reported higher depressive symptoms and suicidal behaviors in both developed and developing countries (Li, 2015; Albers & Evans, 1994; Hidaka et al., 2008; Middleton et al., 2003).

Risk factors

Among Western countries, a number of other factors have been identified as significant predictors of depression and suicidal behavior, including alcohol use, disability, and familial, academic, and community responsibilities. Alcohol abuse and disability have consistently been identified as significant predictors of depression among college students (Campbell, 1976, Erikson, 1994, Frisch, 2006) with alcohol use representing one of the strongest predictors of depression among young adults (Martens, 2008; Li et al., 2013; Weitzman, 2004; Adewuya, 2005; Harrel & Karim, 2008; Esposito-Smythers & Sprito, 2004; Garlow et al., 2005). Disabilities, understood within the context of both cognitive (Bonner & Rich, 1988; Abramson et al., 1998; Ludi et al., 2013) and physical (Blum et al., 2001) realms, have also been identified as predictors of suicidal behavior. Lastly, stressors associated with household, academic, and community responsibilities have also shown to predict depression and suicidal behavior in college students (Byrd & McKinney, 2012).

Resilience factors

Previous studies have also revealed a number of resilience factors especially important when coping with depression and suicidality (Harris & Molock, 2000; Bouteyre et al., 2006; Misra et al., 2003; Hefner & Eisenberg, 2009; Rajapaksa & Dundes, 2002; Wethington & Kessler, 1986; Yeh & Inose, 2003; Brassai et al., 2010). Such factors included perceived social support, endorsements of high life satisfaction, and positive expectations for the future.

Country Background

Mongolia is a land locked country between China and Russia. With a population of 3 million, 44.6% percent of its population is under the age of 24. Little is known about mental health among young people in Mongolia or the population at large. The few studies that have been conducted on mental health in the country have primarily focused on depression among older adults (Pollok et al., 2009), school children (Altangerel et al, 2014), pregnant women (Aira et al., 2013) and sex workers (Witte et al., 2010). The Mongolian Ministry of Health reported 411 suicides in 2012 equating to 17 deaths per 100,000 persons (Health Indicator, 2012). This estimate is much higher estimate than the world average of 11.4 per 100,000 (WHO, 2014). In accordance with the worldwide incidence, suicide is the second leading cause of mortality among young people in Mongolia (Health Indicator, 2013). To date, no research has specifically examined depressive symptoms and suicidal ideation among college students in Mongolia. The purpose of the study is twofold: first to examine the prevalence of depression and suicidal ideation among college students, and second to examine associated risk and resilience factors for these mental health issues. We examine two main hypotheses based on previous literature as it relates to Mongolian culture: (1) female college students will present with a higher rate of depression and suicidal ideation

when compared to their male counterparts; and (2) perceived social support from families, high life satisfaction and positive future expectations will act as significant resilience factors for both depression and suicidal ideation.

2. METHODS

Participants

There were 16 state and 84 private universities in Mongolian and 67% of high school graduates were enrolled in higher levels of education in 2014 (Ministry of education, 2015). Over 67% of total students who enrolled in the higher levels of education were females (Ministry of Education, 2015). This cross-sectional study is a secondary analysis of data from a research project originally designed to describe the overall health and wellness of college students at a technical college in Ulaanbaatar, Mongolia. This is one of the larger state universities with several campuses around the country. The study was approved by the Ethical Committee at the National University of Mongolia. We examined prevalence and risk factors of depression and suicidal ideation among university students in the fall of 2013. Of 3,742 total enrolled students, a list of 405 was generated randomly by college staff and shared with investigators, who sent emails to students inviting them to participate in the study. The content of the email included all relevant information relating to participation in the study as well as a document of informed consent. Participants completing the survey were considered as having consented to the research. Reminder emails were sent to those who were selected twice in a two-week time period requesting participation. Out of those invited, 117 students (29%) completed the questionnaires and were included in the study. There were no statistically significant differences between students who completed (n=117) the survey and those who did not (n=288), in terms of age, gender, geographic origin, or current residential situation.

Measures

Demographics—All participants were asked to report their age, gender, year in college, geographic origin (urban or rural), and whether they currently lived with parents, friends , family, or in a dormitory. Among the other health data gathered in the original study, several standardized questionnaires were used to examine depression, suicidal ideation, and their subsequent predictors (disability and alcohol use) and resilience (social support) factors. There were no missing values in the responses.

Risk factors—Alcohol use was measured with the Alcohol Use Disorders Identification Test (AUDIT-10) (Babor et al., 2001). The AUDIT 10 has total of 10 questions about alcohol use, dependence symptoms and alcohol related issues. Each item was scored from 0–4, with a total score range of 0–40. The recommended cutoff score denoting hazardous alcohol use is 8 but other studies examining alcohol among college students adjusted this number based on factors of the study population such as age, gender, and culture (Babor et al., 2001). For example, a validation study on Nigerian college students recommended a cutoff score of 5 for hazardous alcohol consumption (Adewuya, 2005), while a US validation study suggested a cutoff score of 6 among college students (Kokotailo, 2004). We have chosen a cutoff score of 5 due to the relatively young age of the sample (mean age of 18 +1.74). A dichotomous

variable was created using this cutoff score denoting probable hazardous alcohol or nonhazardous alcohol use.

Disability was measured by the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0), 12-item version. The WHODAS 2.0 is a self-administered questionnaire with responses ranging from 0="None" to 6="Extreme or cannot do". The instrument covers 6 domains of functioning including cognition, mobility, self-care, interpersonal interactions, daily activities (both occupational and leisure) and community participation. Item scores were summed within each domain to examine each individual domain and its relationship to the outcome variables. The summed scores were grouped as follows: 0="none", 1="mild", 2="moderate", 3="severe" and 4–6="extreme". Individual domain scores were utilized in the analyses because they provided more detailed information about disability than the overall summary score of the WHODAS 2.0.

Resilience factors—Current life satisfaction and future expectations for life satisfaction were measured using Cantril's self-anchoring ladder scale. This Likert style questionnaire uses a single question asking participants to select at what level they feel they are satisfied for each of two categories measuring current life satisfaction and expectations of future life satisfaction. The scale is presented as a ladder with (0) representing the bottom rung and (10) representing the top rung. A score of (0) denotes no life satisfaction at all while a score of (10) denotes the best possible life. A dichotomous variable was created for both current and future satisfaction categories: "not satisfied" (0–5 scores) and "satisfied" (6–10 scores) for life satisfaction and "no good expectations" (0–5 scores) and "good expectations (6–10 scores) for the future expectations variable. Even though life satisfaction and future expectation may serve as risk factors, we classified them as resilience factors due to the majority of students reporting high current and future life satisfaction scores.

Social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS). This 12-item self-report measure assesses perceptions of social support from three specific sources (family, friends and significant others). Each item is rated on 7-point rating scale ranging from "very strongly disagree" to "very strongly agree". The lowest score for each of the domains is 4 and the highest is 28. Each domain consists of four items; for example, items for the family support domain were: "My family really tries to help me", "I get the emotional help and support I need from my family", "I can talk about my problems with my family", and "My family is willing to help me make decisions." Raw scores for all four questions were summed to obtain aggregate scores for each domain.

Depression and Suicidal Ideation—The outcome measure for depression was taken from the depression subscale of the Brief Symptom Inventory (BSI). The BSI is a self-report questionnaire for depression, anxiety and somatization symptoms (Derogatis, 2000). The depression subscale consists of six questions regarding suicidal thoughts, hopelessness, worthlessness, loneliness, anhedonia, and feeling blue. Each item was measured on a Likert scale from 0= "not at all" to 4="extremely". The variable 'depression' consisted of summing the score of each of the six items. The raw scores were transformed to standard z scores then the z scores were converted to t-scores to obtain depression prevalence (Derogatis, 1993). A score of 63 or higher represented clinically significant depressive symptoms (Derogatis,

1993). Therefore, the outcome variable for depression severity was grouped as "clinically depressed" if the scores were higher than 63 and "not depressed" if the scores were lower than 63.

For the second outcome variable, suicidal ideation, a dichotomous variable was also created from a single item of the depression subscale. In response to the question of "having thoughts of ending your life" in the past 7 days, "extremely", "quite a bit", "moderately and "a little bit" were coded as "yes" and "not at all" coded as "no".

All instruments were translated into Mongolian and back-translated into English by independent translators for quality assurance. Although these measures have not been formally validated in Mongolia, users report good face validity and they have good demonstrated reliability (Cronbach's alpha levels > .7) in prior trials in Mongolia with sex workers and male and female factory workers (Witte, et al., 2011, Witte et al., 2010, Aira et al., 2013).

Data Preparation and Analysis

Frequencies, means and associations were computed to describe demographics of participants. Chi-square for categorical variables and independent sample T-tests were appropriately employed to determine if there were any associations or differences between depressed and not depressed; and having suicidal ideation and not having suicidal ideation groups with demographic variables, and risk and resilience factors. In addition, two logistic regression analyses separately investigated clinical depression and suicidal ideation among college students in Mongolia within the contexts of socio-demographic, risk (alcohol use, disability variables) and resilience factors (life satisfaction, future expectations, and perceived social support). Prior to running analyses, we examined all assumptions for the chi-square, independent t-test and binary logistic regression analyses. There were multi-collinearity issues between "age" and "school year" (.63). However, neither age nor college year was dropped from the overall model due to the relevance of these variables to the overall goals of the study. Both predictors were included to examine differences among age groups and college years. Assumptions for outliers were examined through Mahalanobi's distance (37 for N=117 with 15 predictors), Cook's distance (no case greater than 1) and Leverage values (no case greater than 1.05). No outliers were identified. In addition, linearity of the logit assumption was examined for continuous variables (MSPSS and WHODAS predictors). No significant interactions were observed. SPSS version 22 (Armonk, NY: IBM Corp.) was used for all analyses.

3. RESULTS

Table 1 provides descriptive statistics of demographic and clinical characteristics of the sample. The majority of students were female $M = 18.49$ ($SD = 1.70$) who were attending their first or second year of college. Although the university is in the capital city of Ulaanbaatar, a majority of the respondents originated from rural areas and most of the rural students resided either in the school dormitory or with relatives/friends. More than 14% of the students reported clinically significant scores of depression while almost half of the students endorsed having suicidal thoughts. In addition univariate chi-square analyses were

employed to examine differences between sex and place of origin in the sample. Only current living situation significantly differed between the groups where most of the female students resided in a school dormitory or relatives/friends. Moreover, almost all students with rural geographic origins resided either at a dormitory or with relatives/friends while the majority of urban students lived with their parents.

Table 2 displays the differences and associations between depressed and not depressed groups and groups with and without suicidal ideation within the context of demographic characteristics, risk and resilience factors. **Clinical Depression:** There were no demographic characteristics found to vary with statistical significance between depressed and not depressed groups. However, risk factors such as hazardous alcohol consumption, difficulties with managing life activities and in community related activities were significantly associated with depression among the students. Perceived support from family, friends, and significant others were also related to depression at significant levels. **Suicidal Ideation:** Somewhat similar results were observed for differences between the groups with and without suicidal ideation. Again, perceived support from family, friends and significant others were significantly associated with suicidal ideation. Difficulties managing life activities and community related activities also remained significant in this analysis. In addition, cognitive disabilities, and interpersonal stressors were significantly associated with suicidal ideation

Table 3 shows predictive factors for depression and suicidal ideation among Mongolian college students. **Clinical Depression:** female students were more likely to be depressed than their male counterparts. Students who reported that they consumed alcohol at hazardous levels were also more likely to be depressed. Both cognitive and mobility disabilities as well as difficulties with community involvement were associated with depression at significant levels. Interestingly friend- not family support - was significantly associated with depression. Students who perceived that they got support from their friends were less likely to report clinical depression than those perceived that they did not have any such support. High future expectation was revealed to be one of the strongest resilience factors for depression. Those students who were expecting good things to happen in the future were 18 times less likely to report depression than those who were pessimistic about their future. **Suicidal ideation:** Female students and students who originated from urban areas were more likely to have suicidal ideation. Students who reported difficulties with life activities such as handling household, leisure, work and school responsibilities were more likely to report suicidal ideation. In contrast, students who perceived that they received support from their families were less likely to endorse suicidal ideation than those perceived that they did not have family support.

Taken together, this analysis provides full support to hypothesis 1; female students were more likely to report depression and suicidal ideation compared to male students. However, hypothesis 2 was only partially supported. Perceived future life satisfaction significantly predicted depression but current life satisfaction and family support were not significant. Suicidal ideation was significantly predicted by a lack of family support but not current life satisfaction or perceived future life satisfaction.

4. DISCUSSION

This study is the first to examine risk and resilience factors of depression and suicidal ideation among college students in Mongolia. Findings demonstrate that rates of clinically significant depression among the respondents (14.5%) observed by this study are comparable to Japan, Spain and the U.S. where studies reported 7–20% prevalence rate of major depressive disorder among college students (Tomoda et al., 2000, Vazquez et al., 2010 & Eisenberg et al., 2007). While females were more likely to report depression compared to males, this finding is inconsistent in the literature with some studies reporting similar findings - where females reported disproportionately higher rates of depression, but others where no such differences were found (Eisenberg et al., 2007). Given the complex nature of depression and suicidal behavior these results are not surprising. Taken together, the gender difference in Mongolia should be examined in more detail.

Alcohol was identified as a significant factor for both depression and suicidal ideation where more males consumed alcohol at hazardous levels compared to females. This association has been replicated in numerous studies examining college students across multiple countries (Lamis & Bagge, 2011; Archie et al., 2012; and Weitzman, 2004). The motivation for alcohol consumption in this study is unclear. Males may consume alcohol as a way to cope with depressive symptoms. Alternatively, hazardous alcohol consumption may trigger onset of depression. Alcohol consumption is a particularly important factor to examine in Mongolia as Mongolian culture widely accepts the consumption of alcohol, especially among males. While there is a minimum age in which alcohol can be legally consumed, there is no requirement to ask for age verification. Thus, those underage have easy access to alcohol. These factors may make alcohol a preferred coping mechanism for those seeking to self-medicate.

The current study found that friend support demonstrated significance as a resilience mechanism against depression. Surprisingly, significance was not found regarding the resilience effect of support from significant others or family. Globally, social support has been found to be a resilience factor against depression. Studies that were conducted in the U.S. and France found that higher levels of social support were associated with lower levels of depression and fewer experiences of suicidal ideation (Harris & Molock, 2000; Bouteyre et al., 2006; Misra et al., 2003). Furthermore, Misra et al. (2003) found that having social support was an important buffer against depressive symptoms, interpersonal, emotional, behavioral and academic problems in students' lives especially for first year students who left their hometown to study. Given Mongolian culture is heavily rooted in family dynamics, we are surprised not to have found significance regarding family support. Our findings may have failed to detect significant differences due to the relatively small sample size. Future research with larger sample sizes may obtain a more representative sample and help illuminate these findings further.

In addition, one of the resilience factors against depression was high future expectations. One possible underlying explanation of this result is that students who have high future expectations may believe or perceive in their ability to handle and cope with adverse life events and difficult situations. Negative relationships between high future expectations and

depressive symptoms among college students have not been studied thoroughly. Therefore, future studies may investigate if there are influencing relationships between high future expectations and depression among college students.

Lastly, depressed students indicated that they had challenges with activities such as cognition (understanding and communicating), mobility (moving and getting around), and participating in community based activities. The directional nature of these findings is unclear. It may be that student disabilities promote depression or that depression contributes to cognitive, mobility and participatory activities. Future studies should include a longitudinal design to enable temporal relationships between these factors.

Study findings illustrate a high rate of suicidal ideation (47%) among the college students, a rate that falls within a range found in previous studies (32–70%) among college students in other countries (Gutierrez et al., 2000; Toprak et al., 2010). Consistent with some previous studies, results indicate that women were more likely to report suicidal ideation (Albers & Evans, 1994; Altangerel et al., 2014). Students from urban areas had higher suicidal thoughts than their rural counterparts. This finding has also been mixed in other studies. One study conducted in Poland reported that 8.1% of students from rural towns and 4.6% of students from urban areas reported depressive symptoms (Mojs et al., 2012). However, many other studies that conducted especially in Eastern countries found that students from urban areas had higher level of suicidal ideation. For example, a study conducted in China found that college students from urban areas were much more accepting of suicide as a response to life stressors (Li et al., 2010). Higher rates of suicidal ideation in urban areas may stem from stressors caused by familial and household responsibilities coupled with managing academic responsibilities since most students live with their parents while they are in college in urban areas. However, students who are from the rural areas living in dormitories or with someone other than family members may be less likely to have household or other responsibilities. Future studies are needed to better understand the unique stressors of rural to urban contexts on suicidal ideation in Mongolian college students. Social support, specifically low levels of family support, was one of the strongest predictors of suicidal ideation in this sample. It appears that family support may play an important role in buffering the experience of suicidal ideation. While it was expected that support from friends would also act as a buffer against suicidal ideation, it was not found to be significant.

The WHODAS 2.0 revealed that students who endorsed suicidal ideation also reported difficulties with life activities (domestic, leisure, work and school related responsibilities). As reported above regarding depression, the cross sectional design limits our ability to interpret the temporal nature of these relationships. Suicidal ideation may either lead or follow difficulties with life activities, cognition, mobility, community interaction. These disabilities may exacerbate or stem from depression, which may then also increase the probability of onset of suicidal ideation. Studies with longitudinal design will help to more clearly examine these relationships and inform potential interventive or prevention approaches.

To date no evidence-based and culturally relevant preventative measures or interventions have been developed to address depression and suicidal behavior among high-risk

Mongolian college students. Community based mental health care, and training for doctors, law enforcement, and other professionals are almost non-existent. Moreover, lack of public understanding, education, services, and stigma act as significant barriers to effectively addressing depression and suicidal ideation in Mongolia currently. Public understanding of depression and suicide is very limited and most people do not believe that suicidal behaviors are related to mental illness such as depression. Stigma and discrimination against patients and families prevent many from seeking mental health care (Corrigan et al., 2014). Furthermore, the mental health infrastructure in Mongolia is underdeveloped as quality of care does not meet international standards. Critically, there are also no psychiatrists or other healthcare professionals that specialize in child/adolescent mental health. Findings from this study provide public policy makers and health professionals with information regarding mental health issues among young people that may guide them in developing suitable and sustainable policies to prevent and to reduce prevalence of depression and suicidal behaviors among Mongolian youth.

5. LIMITATIONS

Findings of this study should be considered in light of several limitations. Data were collected at only one college at a single point in time. As a cross-sectional study, only associations between depressive symptoms, suicidal ideation and several different factors were examined, rather than causal relationships. In addition, the sample consisted of 117 students from one college limiting generalizability of the results. Moreover, data were based upon a self-report web-based survey, indicating a possible social desirability bias. The data analyses used single items (suicidal ideation) or scale components rather than complete scales, which may limit interpretability of findings. In addition, clinical characteristics of depression cannot be assessed solely through the BSI. The diagnosis of depression should be confirmed by other assessments such as ICD-10 or DSM-V. Finally, the survey did not include some important factors such as income, parental education, socioeconomic levels, or family history of depression and suicidal behaviors, which may have further elucidated the interpretation of findings.

6. CONCLUSIONS

Despite noted limitations, this study makes an important contribution to a growing set of studies related to mental health in Mongolia, offering new insights regarding mental health needs. The study results on depressive symptoms and suicidal ideation among college students were consistent with results of other studies globally and reinforce a need for further examination. These findings occur at a time when suicide prevention is receiving global attention. Part of its first-ever mental health action plan on suicide, the WHO recently called for a global reduction in suicide by 10% by 2020 (WHO, 2014). Included in this action plan, the WHO suggested all countries develop national strategies such as stigma reduction, restrictions to suicide means, public education, and training public health professionals to prevent suicide (WHO, 2014). In order to achieve these goals, significant resources and political support will be needed in Mongolia to strengthen access to mental health services provided by professionals.

As mentioned earlier, the results of this study begin to illuminate the complex factors which may influence depressive symptoms and suicidal ideation among college students. In light of the current findings and dearth of professionals who may provide mental health services in Mongolia (e.g. 0.5 psychiatrists per 100,000) (WHO, 2012); it is imperative that global, governmental, and NGO communities begin to notice and address these issues.

The risk and resilience factors identified in this study may serve to guide government officials in creating policy to reduce prevalence of depression and suicidal behavior among Mongolian youth, while health professionals begin to routinely target these factors. Based on the study results, it may be prudent to include familial and community based, interventions as well as to revisit alcohol consumption policies. Finally, mental health policy and services need to support culturally appropriate efforts that are both evidence based and scalable to reduce stressors related to adjusting to the urban settings as well as with demands of changes in everyday life activities among college students. These include psycho-education, prevention, and diagnostic and treatment efforts that would decrease depression and suicidal ideation. Future research efforts should include examination of a broader spectrum of potential individual, family and community level factors that may be associated with depression and suicide. Additionally, research specifically meant to develop and pilot intervention programs responsive to the needs of college students suffering from depressive symptoms and suicidal ideation are needed.

Acknowledgments

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Table 1

Socio-demographic characteristics and outcome variables

		Total N (%)	Female N (%)	Male N (%)	χ^2	df	p-value	Urban N (%)	Rural N (%)	χ^2	df	p-value
				Demographics								
Age group (years)	15–18	69 (59.0)	42 (60.9)	27(39.1)	0.52	1	0.56	29 (42.0)	40 (58.0)	0.07	1	0.85
	19+	48(41.0)	26 (54.2)	22 (45.8)				19(39.6)	29 (60.4)			
Sex	Male	49(41.9)	-	49(41.0)	2.21	1	0.18	24 (49.0)	25(51.0)	2.21	1	0.18
	Female	68(58.1)	69 (59.0)	-				24 (33.3)	44 (64.7)			
College year	First two years	81 (69.2)	46 (56.8)	35 (43.2)	0.19	1	0.69	31 (38.3)	50(61.7)	0.83	1	0.42
	Last two years	36 (30.8)	22(61.1)	14 (38.9)				17(47.2)	19 (52.8)			
Place of Origin	Urban	48(41.0)	24 (50.0)	24 (50.0)	2.21	1	0.18	48(41.0)	-			
	Rural	69 (59.0)	44 (63.8)	25 (36.2)				-	69 (59.0)			
Living Situation	With parents	64 (54.7)	30 (46.9)	34(53.1)	7.34	1	**0.008**	44 (68.8)	20(31.3)	44.9	1	**0.0001**
	Dormitory /friends	53 (45.3)	38(71.7)	15 (28.3)				4(7.5)	49 (92.5)			
				Outcomes								
Depression	Depressed	17(14.5)	11 (64.7)	**6** (35.3)	0.35	1	0.61	7(41.2)	10 (58.8)	0.12	1	1.00
	Not Depressed	100 (85.5)	57 (57.0)	**43** (43.0)				41 (41.0)	59 (59.0)			
Suicidal ideation	Yes	55 (47.0)	34(61.8)	21 (38.2)	0.58	1	0.46	26 (47.3)	29 (52.7)	1.67	1	0.26
	No	62 (53.0)	34 (54.8)	28 (45.2)				22 (35.5)	40 (64.5)			

Table 2

Comparison of **Students** with and without depression and suicidal ideation

		Total	Depression				Suicidal Ideation			
		N	N (%)	χ^2	df	p-value	N (%)	χ^2	df	p-value
Demographics										
Age	15–18	69	12(17.4)	1.11	1	0.43	31 (44.9)	0.29	1	0.70
	19+	48	5 (10.4)				24 (50.0)			
Sex	Male	49	6 (12.2)	0.35	1	0.61	21 (42.9)	0.58	1	0.46
	Female	68	11(16.2)				34 (50.0)			
College year	First two years	81	14(17.3)	1.61	1	0.26	41 (50.6)	1.38	1	0.32
	Last two years	36	3 (8.3)				14 (38.9)			
Place of origin	Urban	48	7(14.6)	.01	1	1.00	26 (54.2)	1.67	1	0.26
	Rural	69	10(14.5)				29 (42.0)			
Living Situation	Home with parents	64	10(15.6)	0.14	1	0.80	33 (51.6)	1.78	1	0.35
	Dormitory /friend	53	7(13.2)				22(41.5)			
Risky and Resilience Factors										
Alcohol use	0–4 score	106	13(12.3)	4.66	1	**0.05**	48 (45.3)	1.35	1	0.34
	5+	11	4 (36.4)				7 (63.6)			
Life Satisfaction	Not Satisfied	46	8 (17.4)	1.18	2	0.59	25 (54.3)	2.57	2	0.26
	Satisfied	71	9(12.7)				30 (42.3)			
Future Expectation	No good expectation	21	2(9.5)	.52	2	0.73	11 (52.4)	1.74	2	0.64
	Good expectation	96	15(15.6)				44 (45.8)			
		M(SD) N=17	M(SD) N=100	t-score df= 115		p-value	M(SD) N=55	M(SD) N=62	t-score df = 115	p-value
WHODAS*	Cognition	3.6(1.8)	3.0(1.3)	1.62		0.11	3.4(1.6)	2.9(1.1)	2.03	**0.04**
	Mobility	3.1(1.1)	3.1 (1.2)	.07		0.94	3.2(1.1)	3.1 (1.2)	0.72	0.47
	Self-care	2.6(1.1)	2.3 (0.9)	1.47		0.15	2.4(1.0)	2.2 (0.8)	1.38	0.17
	Getting along	3.8(1.9)	3.3 (1.5)	1.34		0.18	3.7(1.8)	3.1 (1.3)	1.98	**0.05**
	Life activities	3.8(1.7)	3.0(1.3)	2.25		**0.03**	3.6(1.5)	2.7(1.0)	3.89	**<0.0001**
	Participation	4.7(1.3)	3.7(1.5)	2.61		**0.01**	4.4(1.5)	3.4(1.3)	3.86	**<0.0001**

		Total	Depression				Suicidal Ideation			
		N	N (%)	χ^2	df	p-value	N (%)	χ^2	df	p-value
MSPSS [**]	Family	16.4 (7.5)	21.0(6.6)	2.66		**0.009**	18.2(7.1)	22.4 (6.2)	3.41	**<0.001**
	Friend	14.9 (7.9)	21.5(6.7)	3.61		**<0.0001**	18.9(7.5)	21.9(6.8)	2.28	**0.02**
	Significant others	16.2(8.1)	21.1 (6.9)	2.64		**0.009**	19.0(7.2)	21.6(6.8)	1.96	**0.05**

[*]
WHODAS- World Health Organization Disability Assessment Schedule

[**]
MSPSS- Multidimensional Scale of Perceived Social Support

Table 3

Associations between Characteristics of the Students and Depression and Suicidal Ideation

		Depression			Suicidal Ideation		
		OR	95% CI	P-value	OR	95% CI	P-value
Demographics							
Age	15–18	-	-	-	-	-	-
	19+	0.13	0.01–1.40	0.09	2.49	0.53–11.7	0.25
College year	First two years	-	-	-	-	-	-
	Last two years	1.14	0.10–13.34	0.92	0.36	0.07–1.78	0.21
Place of origin	Rural	-	-	-	-	-	-
	Urban	3.72	0.46–30.22	0.22	3.30	0.89–12.66	**0.05**
Sex	Male	-	-	-	-	-	-
	Female	9.10	1.16–71.24	**0.03**	4.20	1.39–12.76	**0.01**
Living situation	Family	-	-	-	-	-	-
	Dormitory /friends	0.49	0.70–3.33	0.46	0.89	0.26–3.06	0.85
Risky Behaviors							
Alcohol Consumption	Not hazardous use	-	-	-	-	-	-
	Hazardous use	17.54	1.48–20.76	**0.02**	1.82	0.25–13.33	0.55
WHODAS *	Cognition	2.23	1.04–4.78	**0.03**	1.08	0.65–1.77	0.77
	Mobility	0.23	0.07–0.79	**0.02**	0.70	0.38–1.26	0.22
	Self-care	1.70	0.63–4.62	0.30	0.58	0.30–1.13	0.11
	Getting along	0.81	0.42–1.57	0.53	1.14	0.77–1.70	0.51
	Life activities	1.54	0.76–3.14	0.23	2.23	1.18–4.20	**0.01**
	Participation	2.42	1.18–4.96	**0.02**	1.32	0.91–1.91	0.15
Resilience Factors							
Life satisfaction	Not Satisfied	-	-	-	-	-	-
	Satisfied	0.31	0.05–1.81	0.19	0.43	0.12–1.48	0.18
Future Expectations	Good Expectations	-	-	-	-	-	-
	No Good Expectations	18.29	1.31–25.54	**0.03**	2.12	0.40–11.21	0.38
MSPSS **	Family	1.19	0.93–1.51	0.17	0.86	0.75–0.99	**0.03**
	Friend	0.70	0.54–0.91	**0.008**	1.06	0.93–1.22	0.39

	Depression			Suicidal Ideation		
	OR	95% CI	P-value	OR	95% CI	P-value
Significant others	1.02	0.77–1.34	0.92	1.01	0.87–1.14	0.94

- Reference group

*
WHODAS- World Health Organization Disability Assessment Schedule

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MSPSS- Multidimensional Scale of Perceived Social Support