The Maldives National Journal of Research
Vol. 6, No. 1, June 2018, pp. 31- 46

Prevalence and Socio Demographic Correlations of Anxiety, Stress and Depression among Undergraduate Students of the Maldives National University

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ABSTRACT *Early adulthood is a transitional period of life and is associated with the onset of a substantial amount of mental health issues and the continuation of these issues across life span. A large proportion of this population are students who have to deal with the societal and academic demands on a daily basis and hence are more susceptible to develop mental health issues than the non-student population. The high prevalence of psychological issues, specifically, depression, anxiety and stress among the student population is a major concern worldwide as it results in many negative consequences such as poor academic performance, increased rates of substance use, and even suicide. Thus, this study was aimed to find out the prevalence of these mental health issues; stress, depression and anxiety among the student population of Maldives National University (MNU) in relation to socio-demographic factors such as gender, year of study and location of study (Campus). A cross-sectional, questionnaire-based descriptive survey was conducted among 932 students of 4 different campuses of MNU. The questionnaire used to collect data included demographic information and DASS-42. The findings of this study suggest that whilst the majority of the student population has normal levels of depression, and stress, a considerable proportion of the student population are experiencing moderate to extremely severe levels of, depression and stress. More than 58% of the students were found to be experiencing moderate to severe level of anxiety. The findings also suggest that female students have higher prevalence of depression, anxiety and stress. A significant proportion of MNU students are suffering from stress, depression and anxiety. The study suggests the importance of conducting awareness programs of mental illness and treatment, with a particular focus on prevention and control of stress, depression and anxiety.*

Keywords: Depression, Anxiety, Stress, University students

Introduction

The burden of mental health issues is on the rise globally. According to the report by World Health organization (2017), 322 million people are living with depression and 264 million people are living with anxiety. The number of people living with depression and anxiety has increased across the world from 2005 to 2015. The same trend is reflected in the population of the Maldives.

Although, there is limited data in the field of mental health in Maldives, the few survey reports published from various national and international organizations estimating the mental health situation of Maldives implies that mental health issues are on the rise in Maldives. A survey conducted by the Ministry of Health in 2003 to assess the magnitude of mental and neurological disorders revealed that 5% of the population suffered from depression and anxiety (Niyaz & Naz, 2003). According to United Nations Office for Drugs and Crime (2012), this rate

ISSN 2308-5959/21030101

has increased over the years. Additionally, this report revealed a notable amount of drug users (6.64% of Male' and 2.02% of Atolls) in Maldives and indicates that mental health problems are common among this population. Data on mental health problems among the drug users showed that 15% of drug users in Male' and 9% of drug users in atolls had been diagnosed with a psychological disorder. Also, more than a third of drug users in Male' reported of having a mental health issue (United Nations Office for Drugs and Crime, 2012).

Furthermore, WHO-AIMS report on mental health systems in Maldives, reported that there was only one outpatient mental health facility available at the time and in the year (2006) of data collection, the facility treated 1275.73 users per 100,000. 40% of these users were diagnosed primarily with neurotic, stress related and somatoform disorders. The report also highlighted the mental health activities in the criminal justice system and stated that once a month at least one prisoner contacts a mental health professional for treatment. These data do not give a complete picture of the recent mental health situation of the country but signifies that mental health problems are prevalent in the country and is on the rise. Also, despite the limited availability of recent mental health data, the number of people seeking help for depression and anxiety has increased over the years and people are becoming more aware of mental illnesses, especially, depression and anxiety in Maldives. Even though, recent research on mental health of university students is non-existent, the increase in number of mental health problems of the country is observed in the student population as a growing concern. A global based student health survey done in Maldives showed that a considerable amount of students (15.8%) felt lonely always or most of the time for the past 12 months and a substantial amount of students (14.8%) felt so worried about something always or most of the time that they could not sleep during the night for the past 12 months. In addition to this, a significant amount of school going students (19.9%) have thought seriously about attempting suicide in the past 12 months at the time of the study (Ministry of Education, 2009). Moreover, over the years it has been found that, many students have sought help from student support to deal with varieties of mental issues including stress, depression and anxiety.

While, increasing mental health issues in university students is a global issue (Aldiabat, Matani, & Navenec, 2014), very little is done in most universities to help reduce mental health issues of students and more focus is given to their academic activities. High rates of depression, anxiety and stress among university students have major implications not only with psychological morbidity such as poor academic performance, increased rates of substance use, and even suicide (De Man, 1999; Viñas Poch et al., 2004). This will in turn have adverse effects on students' health and their quality of life but also the deteriorating influence it has on their families, institutions and even on other people's lives. The question is how long should the mental health of students especially the alarming minor signs of depression, anxiety and stress remain as a neglected health problem in universities? Like many other universities, Maldives National University has not yet been able to look into this. It is important to identify mental health issues of students as the solution lies in being aware of it, intervening earlier and providing support with adequate and appropriate services. Hence, the aim of this study is to identify the prevalence of stress, anxiety and depression among undergraduate students of the university and to identify the correlation between the prevalence of stress, anxiety

adequate and appropriate services. Hence, the aim of this study is to identify the prevalence of stress, anxiety and depression among undergraduate students of the university and to identify the correlation between the prevalence of stress, anxiety and depression and socio demographic factors such as gender, year of study and location of the study.Literature review

Prevalence

Common mental health issues such as depression, anxiety and stress is highly prevalent in the student population across the world (Talwar, Othman, Othman, Mustaffa, & Mughal, 2017). A study done byBayram and Bilgel (2008) in a sample of 1617 Turkish university students found that moderate severity and above symptom levels of depression, anxiety and stress were observed in 27.1%, 47.1% and 27.0 of students respectively. A similar study in a sample of 506 Malaysian students reported that 37.2 % had moderate to severe and above levels of depression, 63% had moderate to severe and above levels of anxiety and 23.7% had moderate to severe and above levels of stress (Shamsuddin et al., 2013). Likewise, a study conducted on a sample of 508 full-time undergraduate students in USA aged 18–24 years showed that 29% of the students were depressed, 27% were anxious, and 24% were stressed (Mahmoud, Staten, Hall, & Lennie, 2012). In the same way, a study examining the relationship between depression, anxiety and stress and socio-demographic characteristics of university students in India, estimated that 48.4 % of students were experiencing moderate to severe and above levels of depression, 73.4 % were experiencing moderate to severe and above levels of anxiety and 47.6% were experiencing moderate to severe and above levels of stress (ul Haq, Dar, Aslam, & Mahmood, 2018). This implies that a significant amount of student population is experiencing depression, anxiety and stress and is a major concern worldwide.

Moreover, other studies carried out across the world substantiate the increasing evidence that depression and anxiety are high among the university students (Beiter et al., 2015). A cross-sectional survey done at the Yale University among 130 Chinese international students revealed that 45% of the students had depression symptoms and 29 % of the students had anxiety symptoms (Han, Han, Luo, Jacobs, & Jean-Baptiste, 2013). Similar web-based survey conducted among randomly selected, 2843 graduate and undergraduate students at a Midwestern public university in US concluded that the percentage of undergraduate students screened positive for major or other depression is 13.8 while the percentage for panic disorder or generalized anxiety disorder is 4.2 (Eisenberg, Gollust, Golberstein, & Hefner, 2007).

In addition to this, the prevalence of depression, anxiety and stress is estimated to be high in specific student population, such as the medical students. Iqbal, Gupta, and Venkatarao (2015), assessed the presence of depression, anxiety and stress among medical undergraduate students and identified their associations with their socio-demographic and personal characteristics. They concluded that a considerable proportion of medical undergraduate students were found to be depressed, anxious and stressed (More than half of the respondents were affected by depression, 51.3%; anxiety, 66.9%; and stress 53%).Correspondingly, Fawzy and Hamed (2017), studied the prevalence of psychosocial stress, depression and anxiety among Egyptian medical students. This cross-sectional study of 700 students reported a high prevalence of psychosocial stress (59.9%), depression (65%) and anxiety (73%) among the medical students. This proves that depression, anxiety

ISSN 2308-5959/21030101 (c) 2013 The Maldives National University

and stress can be highly pervasive among specific student population.

Socio demographic factors play an important role in the development and maintenance of mental health problems in the general, as well as the student population. Previous studies have identified the relationship between mental health issues such as depression, anxiety and stress and various sociodemographic factors such as gender (Bayram & Bilgel, 2008; Mahmoud et al., 2012) academic stress and social support (Macgeorge, Samter, & Gillihan, 2005), levels of study, socio-economic status and academic performance, relationship status, employment status, faculties enrolled in (Khawaja & Duncanson, 2008), etc.

Depression and anxiety prevails more among females compared to their male counterparts in general population (WHO, 2017). In a study aiming to explore gender based violence in the Maldives, Fulu (2004) reported frequent anxiety and depression cases among women compared to men. However, the prevalence rate of depression and anxiety varies among the student population. A cross-sectional study of 408 undergraduate students from both public and private universities in Karachi; Pakistan revealed that females had higher rates of depression compared to males (Ghayas, Shamim, Anjum, & Hussain, 2014). Similarly, a study by Khawaja and Duncanson (2008) investigating the effect of demographic factors on student depression using University Student Depression Inventory on a sample of 287 Australian university students found that female students experience significantly higher levels of depression than male students. Furthermore, Alansari (2006) explored gender differences in depression among 8538 volunteer undergraduates from 17 countries using BDI. The results suggested that the female groups had higher mean depression scores in 9 countries compare to males. (Iraq, Syria, Egypt, Pakistan, Algeria, Oman, Qatar, Morocco, and Kuwait). However, higher rates of depression were found in males in Saudi Arabia while there were no significant difference between the genders in the level of depression in 7 countries (Lebanon, Tunisia, Palestine, U.A. Emirates, Yemen, Jordan, and Sudan). Hence, although the prevalence rate of depression and anxiety varies among the student population, depression is more prevalent among the female student population.
Conversely, some of the previous studies yielded different results in the study of gender differences in relation to depression, anxiety and stress. ul Haq et al. (2018), in their study of depression, stress and anxiety among Indian university students concluded that male students are more stressed, depressed and anxious. Othieno, Okoth, Peltzer, Pengpid, and Malla (2014), investigated the prevalence and sociodemographic correlates of depression among university students in Kenya. They assessed 923 Nairobi University students (525 males and 365 females) and found no difference with respect to gender. Similar results were obtained by Bayram and Bilgel (2008); Chen et al. (2013) and Mahmoud et al. (2012).

Moreover, consistant with the results of high prevalence rate of depression in females, anxiety and stress were also found to be high in female student population. Alansari (2006), examined gender differences in anxiety among undergraduates from 16 Islamic countries using Kuwait University Anxiety Scale. The results indicated that females had higher anxiety scores in 11 countries (Egypt, Iraq, Morocco, Kuwait, Oman, Qatar, Lebanon, Pakistan, Algiers, Yemen and Syria) while no gender differences were found in 5 countries (Saudi Arabia, Jordan, Sudan, Emirates and Palestine). Correspondingly, a web based survey of depression, anxiety and stress among first year university students of Hong Kong (Wong, Cheung,

Chan, Ma, & Wa Tang, 2006) revealed indistinguishable results. A total of 7915 were assessed using DASS-42 and the results indicated that female first-year students have considerably higher stress and anxiety scores. Gender differences in anxiety scores is explained in most of the studies as related to social status of both the genders, the absence of job opportunities or equal chances of these for both genders, their culture, gender roles and socialization process and to other similar social factors. The higher rates of anxiety specific to Islamic countries were explained by the authors as due to the favorism of conservative socialization process, using more traditional gender roles based on more conservative gender typing, sex-role stereotyping of women as helpless and dependent, the impact of both child-rearing practices and orthodox Arab traditions. Thus, more female university students are living with anxiety and stress compared to male students due to various social, cultural, biological and psychological factors.

The prevalence of depression, stress and anxiety also depends on the study year. Previous studies have examined this relation in an attempt to better understand the effect of such variables on the student mental health. Othieno et al. (2014) found that depression is more common among first year students. However, Chen et al. (2013) in a study among Chinese university students revealed that depression is more common among senior students compared to the first year students. Likewise, Simić-Vukomanović et al. (2016) studied 1940 Serbian University students for prevalence and sociodemographic correlation of anxiety and depression. They found a significant correlation between the study year and higher level of depressive and anxiety symptoms in which senior students had higher level of depression compared to freshman students. This increased level of depression in senior students in these studies were explained by study workload, the demand for employment or the unemployment situation in the country. Hence, the level of study is a significant factor that has an impact on students' mental health.

Methodology

A cross-sectional, questionnaire-based descriptive survey was conducted to achieve the study objectives. The survey took place among the undergraduate students of The Maldives National University (MNU). A total of 932 participants (male = 248 ; females = 684; male to female ratio =1: 2.7) from 4 different campuses of MNU; Male, Thinadhoo, Hithadhoo and, Kulhudhufushi campus which comprised of 9 different faculties; Faculty of Education (FE), Faculty of Arts (FA), Faculty of Science (FS), Faculty of Hospitality and Tourism Studies (FHTS), Faculty of Health Sciences (FHS), Faculty of (FET), Faculty of Sharia and Law (FSL), and stress, among undergraduate students of MNU. The scoring of DASS 42 to Faculty of Islamic Studies (FIS) and Business School of MNU participated in the study.

The sample population for this study were all under graduate students (1st year – 4th year) enrolled in different programs and studying at different campuses of The Maldives National University. A proportional stratified sampling techniques was used to derive the sample for the study. The target population was subdivided into subgroups on the basis of the faculty and the programme students were enrolled in and their year of study. The proportion of number of students to be selected from different subgroups were calculated based on the percentage of student enrolment

of the subgroups. A total of 932 students were randomly selected (random classes). The sample consisted of 759 students from Male' campus, 73 students from Kulhudhufushi Campus, 59 from Thinadhoo campus, and 41 from Hithadhoo Campus.

A self-administered questionnaire which consist of socio-demographic information and the Depression, Anxiety and Stress Scale-42 (DASS-42) were used to obtain data. Ethical approval was obtained from the ethics committee of the Faculty of Arts of MNU prior to data collection. Participation in the study was voluntary and informed consent was obtained before filling the questionnaire. Confidentiality and anonymity of the participants' responses was guaranteed as well. Clear instructions on how to fill the questionnaire were given to the participants at the beginning by the researcher. Permission was obtained from the relevant faculty to enter the classrooms during class hours. Researchers entered the classes during session times and the questionnaires were filled in class rooms at the presence of either the researcher or the research assistant who was briefed and trained prior to data collection. Any student who were absent from the class at the point of data collection were not included in the study.

Demographic information of the participants were collected using a questionnaire developed by the researchers. Questions include: gender, year of study, faculty the students were enrolled in, campus at which the classes were held at and academic satisfaction level. Depression, anxiety and stress were measured using Depression, Anxiety and Stress Scale-42 (DASS-42). It is a self-report questionnaire which assess the level of depression, anxiety and stress. This scale has well-founded psychometric properties both in clinical and non-clinical samples and is found to discriminate between the three related negative emotional states of depression, anxiety and stress. The depression scale of DASS-42 measures dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, and anhedonia and inertia. The Anxiety scale of DASS-42 measures autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect. The stress scale of DASS-42 measures difficulty in relaxing, nervous arousal, being easily upset/agitated, irritable/overactive and impatient (Lovibond & Lovibond, 1995).

Students were asked to rate their personal experiences for the past one week and how much they can relate to the statements given on a 4-point scale (0= Did not apply to me at all; 1=Applied to me to some degree, or some of the time; 2=Applied to me a considerable degree, or a good part of the time and 3= Applied to me very much, or most of the time).

The collected data was analyzed using IBM SPSS version 23 program. For the purposes of analysis, the scores of the following variables were coded; gender, depression, anxiety and stress. Data cleaning was carried out to detect missing variables, and coding errors. Any missing variables were replaced by the median and mean of the variable. Mean values of depression, anxiety and stress score were calculated and frequency tables and graphs were generated. Tests were run for normal distribution and homogeneity. Since the sample was found to be non-homogenous, nonparametric tests were run.

Results

The total number of participants in the study was 932. Of these 74% were females and 26% were males. 89.4% were from Male' campus, 7.8% are from Kulhudhufushi campus, 6.3% are from Thinadhoo campus and 4.4% are from Hithadhoo campus.

Table 1

Prevalence and severity distribution of depression, anxiety and stress among undergraduate university students of MNU

	Frequency	Percent
Depression		
Normal levels of depression	438	47.0
Mild levels of depression	225	24.1
Moderate levels of depression	160	17.2
Severe levels of depression	63	6.8
Extremely severe levels of depression	46	4.9
Anxiety		
Normal levels of anxiety	309	33.2
Mild levels of anxiety	75	8.0
Moderate levels of anxiety	255	27.4
Severe levels of anxiety	121	13.0
Extremely severe levels of anxiety	172	18.5
Stress		
Normal levels of stress	541	58
Mild levels of stress	127	13.6
Moderate levels of stress	138	14.8
Severe levels of stress	99	10.6
Extremely severe levels of stress	27	2.9

Table 1 shows the prevalence and severity distribution of depression, anxiety and stress, among undergraduate students of MNU. The scoring of DASS 42 categorizes each participants level of depression, anxiety and stress into either "normal", "mild", "moderate", "severe" and "extremely severe". DASS-42 is not a diagnostic tool but moderate severity and above level of depression, anxiety and stress symptoms can have functional impairment and will require the help of a mental health professional. Hence, symptom level of moderate to severe and above levels are taken into consideration in this study.

The severity distribution shows that the percentage of students with moderate to severe and above levels of anxiety are quite high (moderate levels=27.4%; severe levels = 13.0%; extremely severe levels = 18.5%) compared to depression (moderate levels= 17.2%severe levels = 6.8%; extremely severe levels = 4.9%) and stress (moderate= 14.8% severe levels = 10.6% and extremely severe levels = 2.9%). Hence, a total of 58.9%, 28.3% and 28.9% students report moderate to severe levels of anxiety, stress and depression respectively. The prevalence and

severity distribution are also described in Figure 1, 2 and 3 respectively.

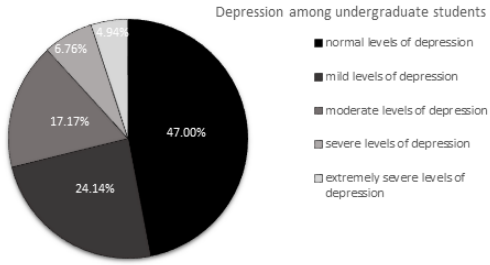

Figure 1. Prevalence and severity distribution of depression undergraduate university students

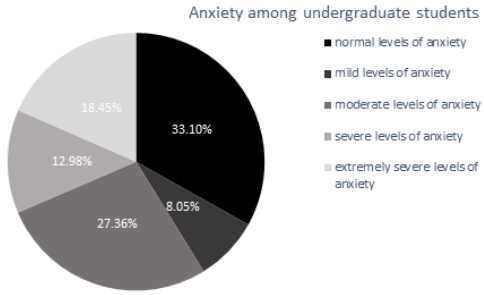

Figure 2. Prevalence and severity distribution of anxiety among undergraduate university students

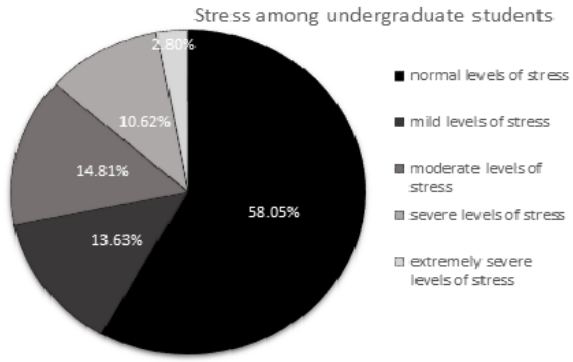

Figure 3. Prevalence and severity distribution of stress among undergraduate university students

Mann-Whitney U test was conducted to test whether there is a significant difference across gender and level of depression, anxiety and stress. The test indicated that, there is a significant difference between gender and the level of depression ($p=0.37$), anxiety ($p=0.000$) and stress ($p=0.01$). According to figure 4, 5 and 6, the level of depression, anxiety and stress percentages are high in female students compared to their male counterparts.

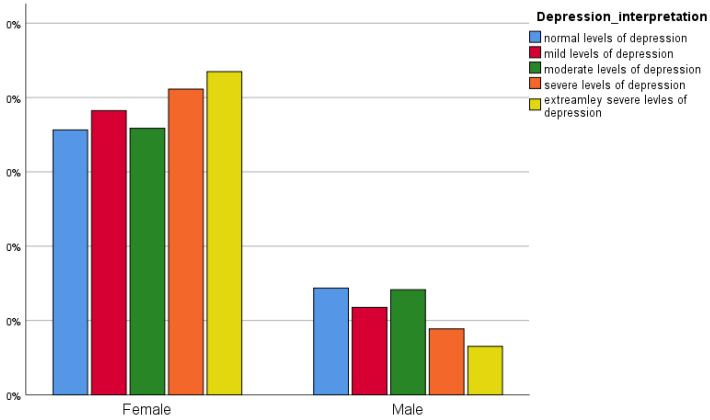

Figure 4. Prevalence and severity distribution of depression across genders

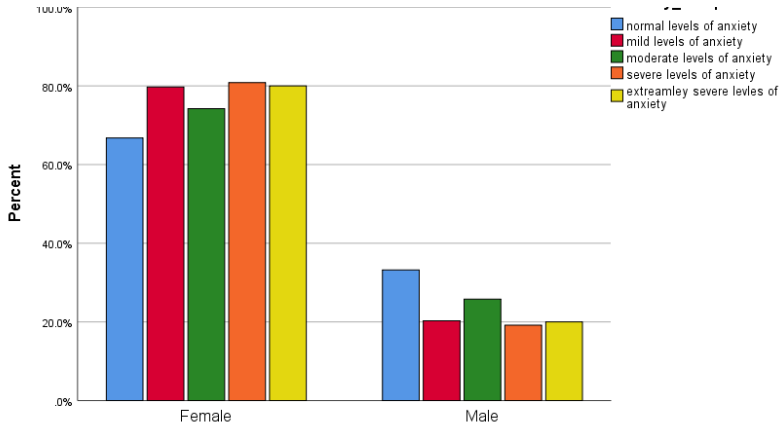

Figure 5. Prevalence and severity distribution of anxiety across genders

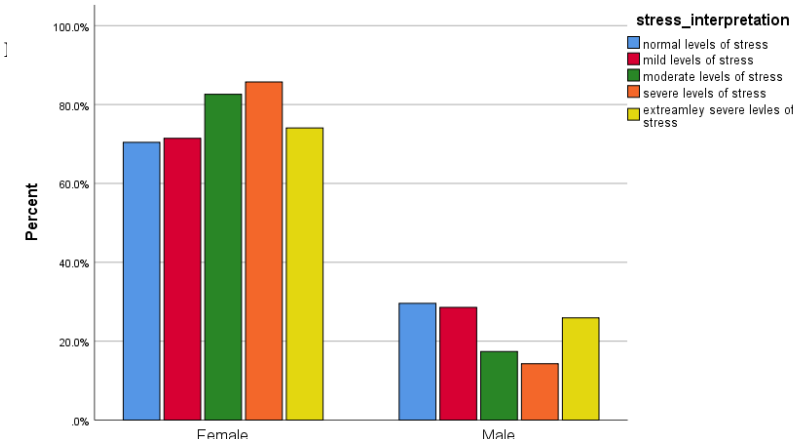

Figure 6. Prevalence and severity distribution of stress across genderS

Kruskal-Wallis test was conducted to find differences between first, second and third year students in their level of depression, anxiety and stress. The test indicated that there is no significant difference between the study year and the level of depression (p=0.187), anxiety (p=0.323) and stress (p=0.624).

Study campus

Kruskal-Wallis test was also conducted to test whether there is a significant difference between study campus and students' level of depression, anxiety and stress. The test indicated that there was a slight difference between the study campus and students' level of depression (p=0.063), anxiety (p=0.195) and stress (p=0.070). However, these differences were not significant enough. Figure 7, 8 and 9, shows the level of depression, anxiety and stress percentages seen in different campuses.

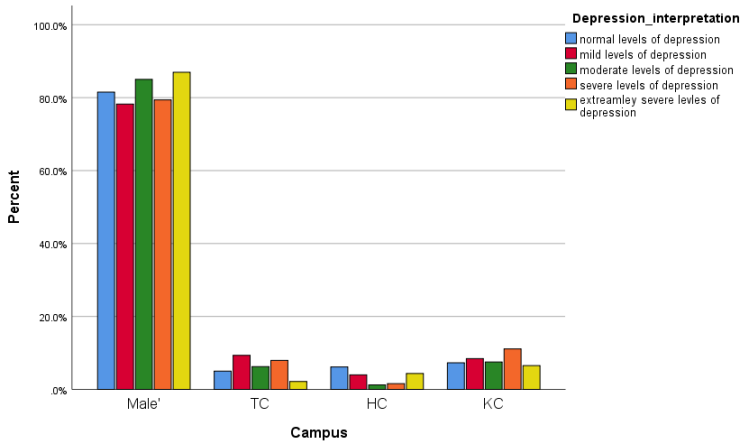

Figure 7. Prevalence and severity distribution of depression across campuses

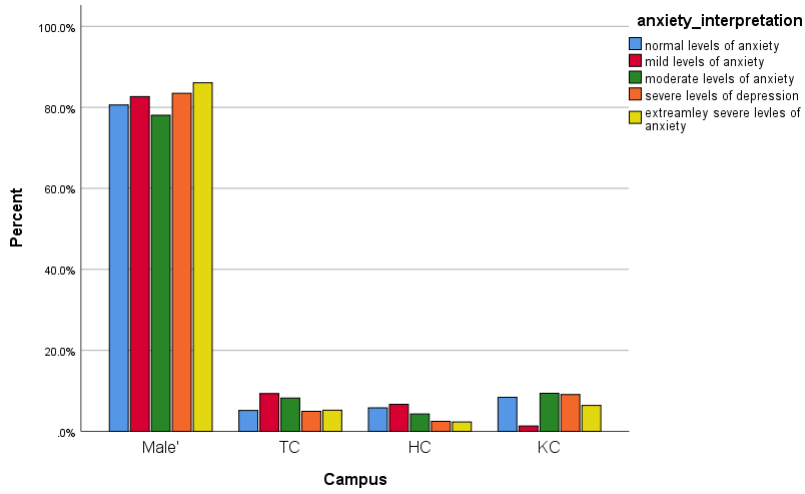

Figure 8. Prevalence and severity distribution of anxiety across campuses

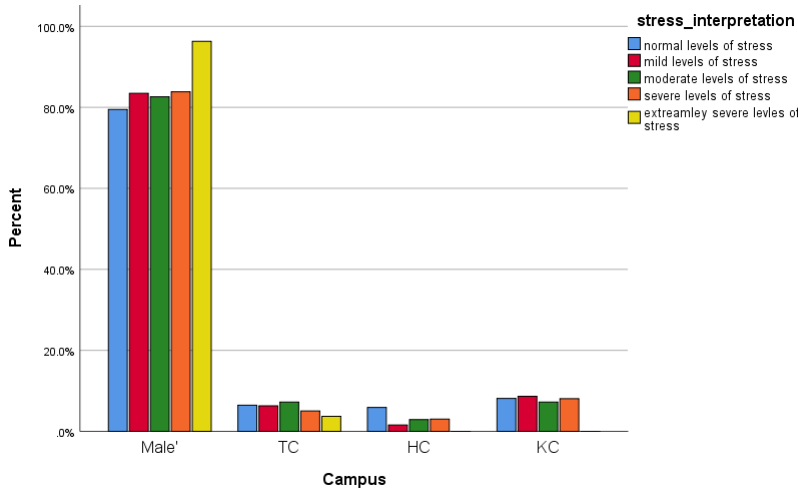

Figure 9. Prevalence and severity distribution of stress across campuses

Discussion

Depression, anxiety and stress are currently the most common mental health problems among university students (Aldiabat et al., 2014). Hence this study aims to find out the prevalence of stress, anxiety and depression among undergraduate students of Maldives National University and its correlation with socio-demographic factors such as gender, year of study and location of study (campus).

The most prominent finding of this study was that, majority of the students (58.9%) reported experiencing moderate to severe and above levels of anxiety. In consistent with this result, Shamsuddin et al. (2013) and ul Haq et al. (2018) found that majority of the Malaysian (63%) and Indian students (73.4%), respectively experienced moderate to severe and above levels of anxiety. Although, not majority but Talwar et al. (2017) in another study reported a high prevalence (45%) of anxiety among Malaysian university students. Likewise,Bayram and Bilgel (2008), revealed similar results for university students in Turkey (47.1%). However, less prevalence rate for anxiety were found in the study done among Serbian University students (Simić-Vukomanović et al., 2016), which showed that 33.5% students were experiencing symptoms of anxiety, while, a study done in young adult college students in USA showed that 27 % of the students had symptoms of anxiety (Mahmoud et al., 2012). The prevalence rate was lesser (25%) in another study conducted in a US university by Beiter et al. (2015).

In addition to this, a significant amount (28.9%) of students were found to have moderate to severe and above levels of depression in this study. In contrast, a higher prevalence was reported in Pakistani undergraduate students (53.43%) (Ghayas et al., 2014)and Indian students (48.4%) (ul Haq et al., 2018). However, the prevalence rate of depression among Maldivian university students is less compared to Kenyan university students (Othieno et al., 2014) and Malaysian university students (Shamsuddin et al., 2013). Nevertheless, it should be noted that the prevalence of depression in some other international studies is less compared to Maldivian university students. The prevalence rate of depression is 23.6% in Serbian university students (Simić-Vukomanović et al., 2016), 2.7% in Nigerian university students (Adewuya, Ola, Aloba, Mapayi, & Oginni, 2006), 27.1% in Turk-

ish students (Bayram & Bilgel, 2008) and 11.7 % in Chinese students (Chen et al., 2013). These differences in the results could be due to the study methods, tools used to measure depression, cultural differences, and differences in gender roles and availability of facilities and resources in different countries and universities.

This study reveals that the majority of the students have normal levels (58%) of stress. This results is compatible with the previous studies done by Shamsuddin et al. (2013), Talwar et al. (2017) and ul Haq et al. (2018). However, a significant amount of students was found to have depression and anxiety. The high prevalence of anxiety and depression in Maldivian university students can be due to various reasons. In Maldives a large number of students migrate to the capital City of Male' for better education and employment opportunities. This is substantiated by the fact that Majority of the study participants (89.44%) in this study are from Male' Campus. Most students who migrate to Male' live away from their families, either with a distant relative or a close family member, with friends, for rent or in hostel facilities (Dhanaal). Also, a considerable number of students also work full time while attending university. This together with the living conditions; work stress; study commitments along with multiple other responsibilities can have an effect on their family and other social relationships which puts them at a greater risk to develop depression and anxiety. Consequently, these students are more prone to get Homesick (Thurber & Walton, 2012), have financial difficulties, have sleep deprivation and poor relationship with parents and friends (Beiter et al., 2015), all of which are associated with depression, anxiety and loneliness. Another important factor worth noticing is the effect of excessive internet use and its relation to anxiety and depression. With the rapid development of the technology around the world, the use of internet, smart phones and social media (facebook, twitter etc.) among the Maldivian students may have increased over the years. Unrestrained use of internet makes it more likely for the students to get addicted to it and results in anxiety and depression among the users (Azher et al., 2014; Spada, 2014). This is further supported by Feng, Qing-Le, Du, Yong-Ling, and Qi-Qiang (2014) in their study which revealed that low screen time is associated with low prevalence of depression and better sleep quality. In addition to this, previous studies have identified other factors that causes depression and anxiety among students. They include long work hours, challenging career decisions, uncertainity about employment prospects, personal life events and less than optimal learning environment (Samaranayake, Arroll, & Fernando, 2014); pressure to succeed, academic performance and self-esteem (Beiter et al., 2015; ul Haq et al., 2018). Undergraduate Students from Maldives national university could be experiencing all these challenges which lead to a higher prevalence of anxiety and depression among those students.

Furthermore, in contrast with the previous studies (Bayram & Bilgel, 2008; Chen et al., 2013; Mahmoud et al., 2012), the level of depression was found to be higher in females compared to males in this study. The results of this study is consistent with the studies done in Nigeria (Adewuya et al., 2006) Serbia (Simić-Vukomanović et al., 2016), Pakistan (Ghayas et al., 2014), and 17 Islamic countries (Alansari, 2006). Similarly, in agreement with the studies done by Bayram and Bilgel (2008); Alansari (2006); Mahmoud et al. (2012), it was found that the level of anxiety and stress are higher in females compared to males. Alternatively, ul Haq et al. (2018) identified that male students were more depressed, anxious and

stressed compared to female students.

Depression and anxiety levels are found to be high among females in the general population across the world (Afifi, 2007; Seedat et al., 2009; World Health Organization, 2017). The high prevalence of anxiety and depression in female students in Maldives could be because of similar trend among the general population of the country. There is very few recent research in the field of mental health in Maldives which could support this but Fulu (2004) reported that anxiety and depression cases are very common in Maldives and mostly prevalent among women compared to men. This report also stated that women in Maldives faces numerous levels of abuse from different people and the women's position in marital relationship is considered subordinate by most of the people. Gender based violence, low or subordinate social status and gender roles are some of the risk factors identified previously across the world in relation to higher prevalence of depression and anxiety among female population (Afifi, 2007; World Health Organization, 2017). Other such risk factors highlighted include education, low income and income inequality, employment, socioeconomic disadvantage, (Alansari, 2006; World Health Organization, 2002), multiple work and family responsibilities (Alansari, 2006), gender bias and help seeking behavior (Afifi, 2007). Most of the female students of the university could be experiencing these difficulties which has resulted in the huge gender difference revealed in this study. Furthermore, it was found that there is no significant difference between the year of study and level of depression, anxiety and stress. Nonetheless, Chen et al. (2013)found a small connection between study year and level of depression. Likewise, (Othieno et al., 2014)in their study found that level of depression is related to the study year. In fact, it showed that depression is more common among first year students.

Moreover, very little association was found between study campus and prevalence of depression, anxiety and stress in this study. Since there is very limited research done to explore the relationship between study campus and level of depression, anxiety and stress, comparison literature is not available. In this study, it was found that students from Hithadhoo campus had lower level of depression, anxiety and stress compared to students from other campuses. Hithadhoo campus is located in one of the most developed cities in the Maldives and studies have found that students from urban areas have lower level of depression compared to students from rural backgrounds (Bayram & Bilgel, 2008). However, other studies have concluded that there is no difference between the level of depression, anxiety and stress among students from urban and rural areas (ul Haq et al., 2018). Hence, further research is needed to explore and identify the various factors that affect students' mental health in different campuses.

This study has certain limitations. First of all, the cross sectional design of the study hindered the establishment of a causal relationship between the variables. Secondly, data were collected using self-report questionnaires which can result in response bias. Thirdly, depression, anxiety and stress were assessed using DASS-42, which is not standardized to Maldivian population. The questionnaire was in English and the language of the questionnaire could have an effect on the responses of some of the participants. Fourthly, the sample of our study should include students from all five campuses of the university however, we were unable to collect data from one of the campus. Lastly, the study sample was solely from The Maldives National University, hence, the generalization of the results to all the

undergraduate students in Maldives should be taken with caution.

Conclusion and Recommendations

Despite these limitations, our study was the first to estimate the prevalence and examine the socio-demographic correlates of depression, anxiety and stress in Maldivian university students. It was found that majority of the students in the university has anxiety, while a significant amount of students has symptoms of depression and stress. The study indicated that females and students from Male' campus have higher prevalence of depression, anxiety and stress.

1. A significant amount of students in the university is living with depression, anxiety and stress and requires early intervention and ongoing psychological support which could be provided most effectively by establishing a counselling center at the university.
2. Given the magnitude of the findings in this study, the University also needs to implement a system that can continuously monitor the mental health of students in the university.
3. Students could be made aware of the common mental health issues and its treatment through awareness programs, with a particular focus on prevention and control of stress, depression and anxiety.
4. Further research could be done to identify various causes for the high prevalence of depression and anxiety among the student population of the Maldives.
5. Further research could be done to identify the correlation between depression, anxiety and stress and other socio demographic variables such as age, financial status, relationship status, living conditions, marital status, etc. in university students.

Funding

This research received funding from the Maldives National University research grants. (URG-2016-005).

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