Mental Health Well-being among Undergraduate Students of East West University: Evidence from a Cross-sectional Survey

Md. Mobarak Hossain Khan[*]

Abstract

Poor mental health is common among university students every where, including in Bangladesh. Since information about mental health well-being (MHWB) of private university students are still scarce, this study aims to estimate the prevalence of poor mental health and associated determinants, using cross-sectional data (N=670) collected from undergraduate students of East West University. The WHO Well-Being Index, composed of five Likert Scale questions with possible answers from 0 (not at all) to 5 (all the time), was used to measure the state of MHWB using a cut-off 13 for the total score. The overall prevalence of poor mental health was 34.6%, and was significantly higher among female (38.9%) than among male (30.5%) students. Its prevalence was also significantly higher among students who had no close friends for sharing problems, and among students with low level of satisfaction about their current residences in Dhaka, academic performance at EWU, and relationship with faculty members. Since a large proportion of students suffer from poor MHWB, EWU administration should consider this as a serious issue and apply feasible prevention strategies in a comprehensive manner.

Keywords: Mental health well-being, Undergraduate students, East West University, Academic performance.

1. Introduction

Mental health is an integral and crucial aspect of overall student health. Literally, there is "no health without mental health" (Prince et al., 2007). This statement is clearly reflected by the definition of health given by the World Health Organization (WHO) in 1948, which defined health as "a state of complete, physical and social well-being and not merely the absence of disease or infirmity" (Grad, 2002). Also, there is no group which is immune to mental health problems (Dachew, Bisetetegn, & Gebremariam, 2015). Unfortunately, the mental health status of large number of undergraduate students across countries are not satisfactory. According to a review conducted by Ibrahim, Kelly, Adams, & Glazebrook (2013), which included

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* Professor and Chairperson, Department of Social Relations, East West University, Dhaka, Bangladesh. Email: mmhkhan@ewubd.edu

universities from both developed and developing countries, around one-third of the university students surveyed suffer from mental health disorders such as depression and anxiety. Some studies even report a higher prevalence of mental health problems among university students than among the general population (Ibrahim et al., 2013; Hersi et al., 2017; Kuruppuarachchi, Kuruppuarachchi, Wijerathne, & Williams, 2002). For example, the prevalence of mental health problems was 39.8% among university students in Sri Lanka, although it was 25.7% amongst the general population (Kuruppuarachchi et al., 2002).

The mental health well-being of university students is adversely affected by multiple factors associated with economic, social, environmental, academic and future aspects. These factors may include gender, a family history of mental illness, poor socioeconomic (e.g., housing, income, environmental) condition of the student's family (Ngin et al., 2018; Richardson, Elliott, Roberts, & Jansen, 2017; Dachew et al., 2015; Simic-Vukomanovic et al., 2016; Dessie, Ebrahim, & Awoke, 2013) and poor academic performance in the university (Ngin et al., 2018; Jaisoorya et al., 2017; Simic-Vukomanovic et al., 2016; Dachew et al., 2015). Having no close friends and conflicts involving friends (Dachew et al., 2015; Dessie et al., 2013), high level of academic stress, and living alone (Islam, Low, Tong, Yuen, & Abdullah, 2018), lack of vacations/breaks (Dachew et al., 2015), adoption of unhealthy lifestyles (e.g., drug abuse, junk food eating, lack of physical activities, smoking and alcohol drinking) are also associated with poor mental health (Ngin et al., 2018; Jaisoorya et al., 2017; Nur, Kibik, Kilic, & Sümer, 2017). Rural background of students (Ngin et al., 2018; Kuruppuarachchi et al., 2002), negative perception about body shape (Ng in et al., 2018), exposure to physical, sexual and psychological violence (Ng in et al., 2018; Jaisoorya et al., 2017), human right violations, lack of recreation facilities and engagement, and limited job opportunities also increase the risk of poor mental health (Lund et al, 2018; Silva, Loureiro, & Cardoso, 2016).

The poor mental health of university students is of increasing concern worldwide because of its long-lasting multidimensional consequences (Simic-Vukomanovic et al., 2016; Yerramilli & Bipeta, 2012). It is a source of immense suffering, and can substantially affect a student's personal, family and social life (Adewuya, Ola, Aloba, Mapayi, & Oginni, 2006). The negative impact of poor mental health can also be seen in the family and in the workplace. For instance, overall productivity can fall down due to high sickness-related absenteeism and a family can be affected due to poor nutrition and higher healthcare cost (Yerramilli & Bipeta, 2012). Although various research on university students' mental health have already been conducted, they are mainly related to universities in developed countries (Ibrahim et al., 2013). Moreover,

mental health studies using the WHO Well-Being Index are scarce in developing countries, including Bangladesh. Only a few studies have addressed the issue of students' mental health in Bangladesh, which are mainly related to medical colleges (Hossain, Rehena, & Razia, 2018; Eva et al., 2015). Only one relevant abstract of the current topic based on private university students has been found (Hoque, 2015). However, the sample size is very small. In sum, information on students' mental health based on the WHO Well-Being Index is scanty or almost absent, which is particularly true for private universities in Bangladesh. Therefore, this study firstly aims to estimate the prevalence of poor mental health well-being (MHWB) and secondly tries to identify some associated factors utilizing a large cross-sectional sample of undergraduate students from East West University, Dhaka, Bangladesh.

2. Methodology

This study was conducted among undergraduate students of East West University (EWU) between September 23 and October 7, 2018. This university was established in 1995 in the megacity of Dhaka. This is one of the leading private universities in Bangladesh, with a total of approximately 11,000 students. These students come from both rural and urban areas of Bangladesh, the majority of whom are male students. According to the annual report of the University Grant Commission in Bangladesh, the total number of private university students in 84 functional universities was 4,63,767 in 2014 with 40% female students (Ahmed, Iqbal, & Abbasi, 2018). So, male-female composition of students at EWU is comparable to the aggregated situation of Bangladeshi private universities.

2.1 Sample Size Calculation

In order to generate results with precision based on a cross-sectional survey (also called prevalence survey), it is extremely important to have the appropriate sample size (Naing, Wing, & Rusli, 2006). The main aim of a cross-sectional study is to estimate the prevalence of unknown parameter(s) from the target population using a random sample (Pourhoseingholi, Vahedi, & Rahimzadeh, 2013). Some information such as the expected prevalence or proportion (P) of the outcome (here proportion of poor mental health) from any representative/pilot study, Z statistic for the selected level of significance, and the precision (also called effect size) are also necessary. For the present study, the following simple statistical formula has been used to estimate the sample size:

$$ n = P * (1 - P) * \frac{(Z_a)^2}{d^2} \dots \dots \dots \dots \dots \dots (1) $$

Where P = expected prevalence or proportion of students with poor well-being. Since the value of "P" based on a sound and representative study is not available in Bangladesh, an approximate value of P = 0.30 was chosen from a systematic review to calculate the sample size. This review included many representative studies from different countries, which were methodologically sound. The exact prevalence of mental disorders in this review article was 30.6% (Ibrahim et al., 2013). Information for other parameters were:

d = 0.035

Zα = 1.96 (two tailed Z value at 5% level of significance)

Based on the abovementioned values, the formula provided a sample of 659 samples.

2.2 Data Collection Process

The cross-sectional data was collected by using a pre-tested questionnaire administered by well-trained faculty members of the Department of Social Relations at EWU. This department generally provides general education courses, which are taken by all university students. Because of this characteristic of the department, the researcher expected a representative sample of EWU students. The questionnaire was very brief (consist of only 15 questions, mostly close-ended ones) since it was applied during regular classes. Before conducting the survey, each faculty member explained the main objective of the study in the class. The confidentiality and anonymity of the respondent to be maintained by the researcher was stressed. Participation in the survey was completely voluntary. Each student had the option not only to skip the whole interview but also some items of the questionnaire. The response rate was nearly 100%. In total, 677 students provided data. The data for the WHO well-being index was incomplete for only seven cases and so they were excluded during data analysis.

2.3 Dependent Variable: WHO Well-being Index

The subjective mental well-being of undergraduate students was measured by the tool called "WHO Well-being Index", developed by the World Health Organization in 1998. This is a tool that is very popular among researchers worldwide because of its good qualities. It is a short questionnaire consisting of five simple and non-invasive Likert Scale questions, along with six possible answers, ranging from "not at all" (0) to "all the time" (5) (See Table 1). It is/has already been translated into 30+ languages and has been successfully applied in various settings. It also demonstrates high clinimetric validity and sensitivity (as a screening tool for depression) (Topp, Østergaard, Søndergaard, & Bech, 2015). The total score for each respondent ranges from 0 (worst imaginable well-being) to

25 (best imaginable well-being), which was later dichotomized using the cut-off point of 13. According to the WHO criteria, the total score of below 13 indicates "poor" MHWB of the respondent, and is an indication for testing for depression under ICD-10. In contrast, a score 13 and above indicates "good" MHWB of the respondent (Gruebner et al., 2012). For detailed analysis, the dependent variable is dichotomized as "poor" (the total score from 0 to 12) and "good" (the total score from 13 to 25) MHWB based on the recommended cut-off point.

Table 1: WHO five items to measure mental well-being with possible answers

Items/Statements	0 = At no time	1 = Some of the time	2 = Less than half of the time	3 = More than half of the time	4 = Most of the time	5 = All of the time
Over the last 2 weeks, I have felt cheerful and in good spirits	0	1	2	3	4	5
Over the last 2 weeks, I have felt calm and relaxed	0	1	2	3	4	5
Over the last 2 weeks, I have felt active and vigorous	0	1	2	3	4	5
Over the last 2 weeks, I woke up feeling fresh and rested	0	1	2	3	4	5
Over the last 2 weeks, my daily life has been filled with things that interest me	0	1	2	3	4	5

2.4 Independent Variables

There are several independent variables in the questionnaire. These are age (in completed years), sex (1 = male, 2 = female), current semester (1, 2, 3,…), name of the faculty (1 = Science and Engineering, 2 = Liberal Arts and Social Science, 3 = Business and Economics), location of college (1 =

Dhaka city, 2 = Outside Dhaka city), duration of residence in Dhaka (in months), whether living with parents or other family members (1 = yes, 2 = no), number of close friends for sharing problems without any hesitation (0,1,2 …), satisfaction about current place of residence (1 = low satisfaction, 2 = moderate, 3 = high). These variables were included in the questionnaire based on other studies.

2.5 Statistical Analysis

All statistical analyses were performed by IBM SPSS Statistics 23. Various kinds of analyses, ranging from descriptive analysis to multivariable analysis were carried out. Under descriptive analysis, we performed frequency analysis and calculated percentage for categorical variables and mean and standard deviation for continuous variables. The bivariate (mainly cross-table) analysis was performed to assess the association of poor MHWB with independent variables. Since the MHWB of the student (i.e., the outcome variable) was dichotomized (poor MHWB = 1, good MHWB = 0), the binary logistic regression analysis adjusted for many categorical variables (namely age group, semester level, name of faculty, location of college, duration of residence in Dhaka, staying with parents or other family members) was finally applied to estimate the odds ratio (OR) of poor MHWB and 95% confidence interval (CI) for sex and other variables of interest. To assess whether the association between dependent and independent variables are significant, we set the level of significance at $P = 0.05$.

3. Results

3.1 Description of Sample

The frequency distribution of the study sample of 670 undergraduate students is provided in Table 2. Out of the total sample, 341 (50.9%) were male and 329 (49.1%) were female students. The mean and median age of the students was 21.8 years and 22 years, respectively. The minimum and maximum age of the students varied from 19 to 28 years with a standard deviation (SD) of 1.37. Over 50% (52.7%) were covered by the age group of 21 – 22 years. Most students belonged to the faculty of Business and Economics (51.1%), followed by Science and Engineering (30.4%) and Liberal Arts and Social Science (17.0%). Over 60% of the total students reported their semesters from 4 to 9, followed by the semesters of 10 and above. Almost 8 in 10 students (78.1%) finished their college education from Dhaka city. Most of the students (54.0%) reported their duration of residence in Dhaka as over 18 years. Similarly, approximately 80% of students reported that they were staying with parents or close family members. Most students (65.5%) stated that they had 1 to 3 close friends with whom they could share their problems without any hesitation. The mean and median number of close friends were

2.93 and 2, respectively. Only 8.1% mentioned that they had no friend to share their problems. The percentage of students with "low" versus "high" level of satisfaction were: 4.5% versus 38.1% for their current place of residence, 14.9% versus 10.6% for their academic performance at the university and 11.3% versus 23.9% for their relationship with teachers at EWU. Moderate satisfaction was expressed by most respondents, ranging from 57.5% (related to the current place of residence in Dhaka) to 74.5% (related to the academic performance).

Table 2: Frequency distribution of students and percentage of poor MHWB by covariates

Variable	Categories	Sample		Poor MHWB	
		n	%	%	P
Age	19-20	128	19.1	32.0	0.614
	21-22	354	52.8	34.2	
	23-28	188	28.1	37.2	
Sex	Male	341	50.9	30.5	0.022
	Female	329	49.1	38.9	
Semester level	1-3	54	8.1	37.0	0.917
	4-6	209	31.2	34.9	
	7-9	210	31.3	32.9	
	10+	197	29.4	35.5	
Name of faculty	Sci. and Eng.	207	30.9	36.2	0.807
	Lib. Arts & Soc. Sci.	117	17.5	35.0	
	Bus. and Econ.	346	51.6	33.5	
Location of college	Dhaka city	523	78.1	35.8	0.247
	Outside Dhaka	147	21.9	30.6	
Duration of living in Dhaka	Until 6 years	197	29.4	31.5	0.275
	Over 6 years	111	16.6	40.5	
	Over 18 years	362	54.0	34.5	
Staying with parents or other family members	Yes	529	79.0	34.4	0.815
	No	141	21.0	35.5	
Number of close friends to share problems without hesitation	0	54	8.1	57.4	0.000
	1-3	439	65.5	36.0	
	4+	177	26.4	24.3	

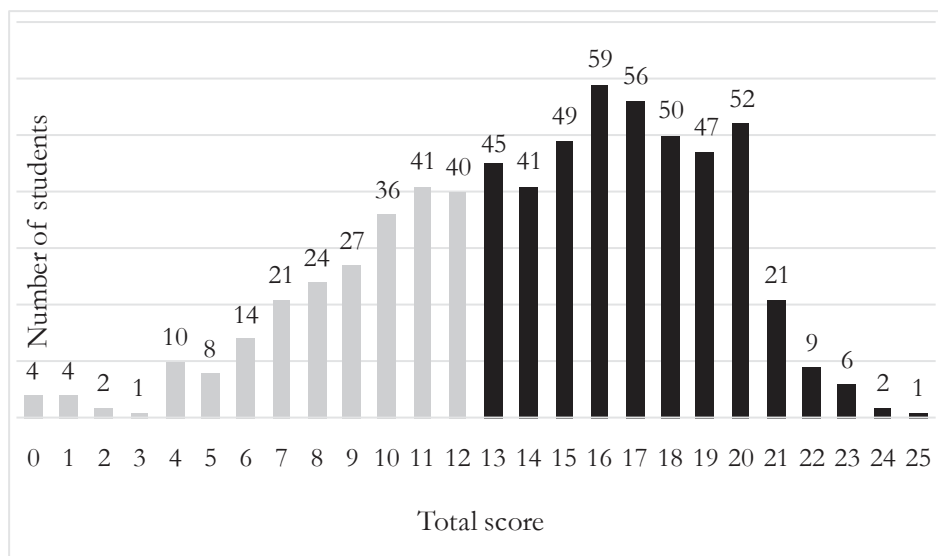|					
Satisfaction about current place of residence in Dhaka	Low		30	4.5	56.7	0.000
	Moderate		385	57.5	37.9	
	High		255	38.1	27.1	
Satisfaction about academic performance at the university	Low		100	14.9	56.0	0.000
	Moderate		499	74.5	31.9	
	High		71	10.6	23.9	
Satisfaction about relationship with teachers	Low		76	11.3	61.8	0.000
	Moderate		434	64.8	35.3	
	High		160	23.9	20.0	

Figure 1: Distribution of students by total score of the WHO well-being index

The distribution of students by the total score of the WHO well-being index varied from 0 ("worst imaginable mental well-being") to 25 ("best imaginable well-being"). The values of mean, median and mode were 14.2, 15 and 16, respectively. Based on the recommended cut-off point of 13, a total of 232 undergraduate students (34.6%) revealed "poor mental well-being". In contrast, 438 students (65.4%) indicated "good mental well-being" (see Figure 2). Since the total score reveals a negatively skewed distribution (mean or median < mode), we categorized it for both cross-table (bivariate) and multivariable logistic regression analyses. The appropriate test statistic (namely the Chi-Square test) was used for both types of analyses.
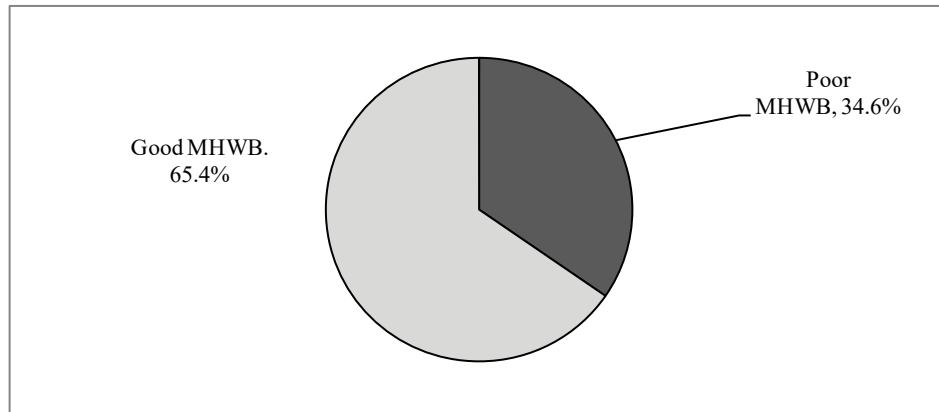
Figure 2: Prevalence of poor mental health well-being among EWU students

3.2 Cross-table (bivariate) Analysis

Using cross-table analysis, the prevalence of poor mental well-being was calculated for each category of the independent variable and the corresponding p-value was reported (Table 2, last two columns). Out of 11 independent variables, only five variables revealed significant associations (for which p values were less than 0.05) with well-being index at 5% level of significance. The prevalence of poor MHWB was significantly higher among female (38.9%) than male (30.5%) students (P = 0.022). The prevalence of poor MHWB was significantly (P < 0.001) lower among students who reported 4+ close friends (24.3%) for sharing their problems without any hesitation than those students who reported either no (57.4%) or 1-3 friends (36.0%). Low satisfaction about (i) current place of residence in Dhaka, (ii) academic performance at the university and (iii) relationship with teachers also appeared as strong significant factors for "poor" MHWB of students. For instance, the prevalence of "poor" MHWB was the lowest (23.9%) among students, who expressed high satisfaction about academic performance than students who expressed low satisfaction (56.0%).

3.3 Multivariable Logistic Regression Analysis

The multivariable adjusted results of the logistic regression analyses (Table 3) are presented through odds ratios (ORs) and 95% confidence intervals. All five significant factors of the cross-table analyses also remained significant in the logistic regression. The likelihood of reporting "poor" MHWB was almost 1.6 times more (OR = 1.55, 95% CI: 1.11 – 2.18, P = 0.011) among female than male students. Similarly, the likelihood of reporting "poor" MHWB was about 6.7 times (OR = 6.65, 95% CI: 3.60 – 12.28, P < 0.001) and 2.2 times (OR = 2.19, 95% CI = 1.41 – 3.40, P < 0.001) more among students who reported "low"

satisfaction and "moderate" satisfaction about their relationship with teachers as compared to students with "high" satisfaction (reference category).

Table 3: Odds ratio and 95% confidence interval for poor MHWB by categories of different independent variables

Variable	Categories	OR	95% CI	P
Sex	Male (Ref.)	1.00		
	Female	1.55	1.11 – 2.18	0.011
Number of close friends to share problems without hesitation	0	4.36	2.27 – 8.36	<0.001
	1-3	1.78	1.20 – 2.67	0.005
	4+	1.00		
Satisfaction about current place of residence in Dhaka	Low	3.89	1.75 – 8.64	0.001
	Moderate	1.71	1.20 – 2.43	0.003
	High (Ref)			
Satisfaction about academic performance at the university	Low	4.29	2.15 8.54	<0.001
	Moderate	1.54	0.86 – 2.77	0.149
	High Ref)	1.00		
Satisfaction about relationship with teachers	Low	6.65	3.60 – 12.28	<0.001
	Moderate	2.19	1.41 – 3.40	<0.001
	High (Ref)	1.00		

Note: Odds ratios are adjusted for age, semester, faculty, college location, duration of staying in Dhaka, and staying with parents or other family members

4. Discussion

According to my review of literature, no similar study based on a large sample had been previously conducted to assess poor MHWB of undergraduate students at East West University. Hence, this study could be considered as one of the pioneering studies undertaken by researchers dealing with mental health issues

of private universities in Bangladesh. Approximately 1 in 3 undergraduate students reported poor MHWB, which is significantly higher among female students than male students. A higher prevalence of poor MHWB among female students have also been reported in Cambodia (Ngin et al., 2018), Ethiopia (Dachew et al., 2015), Malaysia (Islam et al., 2016) and UK (Richardson et al., 2017). These results indicate a worrying condition in the university, which should be improved as quickly as possible through adoption of proper strategies. Future studies based on triangulation (combination of quantitative and qualitative research methods) approach should be designed to find possible answers to the question "Why do female students suffer more from poor well-being than male students?" Qualitative studies may provide better explanation for this problem.

Since the present study and other studies (Ngin et al., 2018; Jaisoorya et al., 2017; Simic-Vukomanovic et al., 2016; Dachew et al., 2015) have found a strong association of poor MHWB with academic performance, further exploration based on a triangulation approach is necessary to find the reasons of poor academic performance at the university. Particularly, why do students fail to cope with academic matters in such a private university? Are academic issues such as syllabuses, teaching methods, resources, vacations or student advising not pursued appropriately for students with poor MHWB?

According to our findings, having no close friends or fewer friends is an important factor for poor MHWB of the students. Similar association has also been reported by another study in Ethiopia (Dachew et al., 2015). Friendly infrastructures and activities (e.g., group assignments, club activities) for students may improve the situation in many cases.

The positive association between poor well-being and low satisfaction about teacher-student relationship also deserve increasing attention from the university administration. This is needed to find feasible strategies for both students and teachers to improve teacher-student relationship. Both parties should try to minimize unjust barriers which can weaken such relationships. For this purpose, further research based on the mixed method should be conducted.

Low level of satisfaction about current place of residence in Dhaka is significantly associated with poor MHWB of students. Since EWU does not provide accommodation for its students, it could be difficult for the university administration to address this problem. Actually, lack of accommodation facilities (e.g., student halls and residential campus) in private universities is identified as a common weakness (Ahmed et al., 2018) in such cases.

The study has several strengths and is important for these reasons. One of its

major strengths is that it is based on a large sample size which is quite representative for undergraduate students. Another important strength of the study can be related to the topic, which has not only been addressed for the first time here but it also generated some important findings for East West University. If these findings are considered by the university and all relevant stakeholders (e.g. students' families, to arrange better housing for them in Dhaka) for improving the MHWB of undergraduate students, we may expect better achievements from students at the family, social and national levels. The major aim of university education can be achieved through rapid and sustainable development. Generally, university education focuses on providing timely and innovative education and converting students into highlyskilled and efficient manpower/workforce for different sectors of the country (Islam and Salma, 2016). Since many of these students belong to a relatively privileged section of society, they can be viewed as future leaders, administrators, managers, planners and architects of the country (Bostani et al., 2014). However, they can contribute over more to the development sectors (Islam and Salma, 2016) if they are able to remain healthy physically, mentally and socially after their graduation.

However, this study has some limitations. Since the questionnaires were distributed in classes, some students may have felt uncomfortable (for stigmatization and discrimination) to report their actual mental health status in the classroom. As a result, the prevalence of poor MHWB may have suffered from under-reporting (Mahroon et al., 2018). The WHO Well-being Index, consideredas a screening tool for assessing poor MHWB or depression, is purely subjective and hence suffers from self-reported biases. To minimize the information bias, clinical diagnosis should be used (Hossain et al., 2014). The results of the study may also suffer from limited generalizability because the prevailing conditions of EWU is no doubt different from those in other private universities (Lun et al., 2014). Generally, MHWB of the students is challenged by many aspects. However, this study only covered some of these aspects, mainly because of time constraints. Exclusion of qualitative research methods (missing triangulation) is also a limitation. The last but not least limitation is that the results are cross-sectional and hence we can only study associations rather than causation (cause-effect), which means it is not possible to establish cause-effect relationships between identified factors and poor mental health well-being (Lun et al., 2018).

5. Possible strategies

Since consequences and psychological morbidities of poor MHWB of university students are long-lasting and negatively affect their adult lives, including family, social and professional aspects (Ngin et al., 2018; Simic-Vukomanovic

et al., 2016; Ibrahim et al., 2013;Yerramilli & Bipeta, 2012), and since rates of poor MHWB in universities is alarmingly high, each university should have some university-based mental health programs and interventions. The author recommends some of them based on other relevant studies, which seems to be feasible. These are as follows:

- The university should expand facilities for counseling students with poor MHWB.

- Early detection through time to time screening processes must be followed by prompt in-house counseling or treatment by well-trained experts (Ngin et al., 2018; Jaisoorya et al., 2017; Hossain & Wahab, 2016).

- Organized campaigns and health education seminars organized on a regular basis by the counseling section of the university to increase mental health-related awareness among students, teachers and other ancillary staff members and to reduce misconceptions, stigmatization and discrimination towards students suffering from poor MHWB (Hossain, Rehana & Raiza, 2018).

- Supportive infrastructure and environment for physical, recreational and socialization activities such as improved facilities for playing indoor and outdoor games, and club activities should be available for students (Eva et al., 2015). Lun et al (2018) found an inverse association between regular exercise and depression because of both physiological and psychological mechanisms. Good interpersonal relationships with peers is also identified as a protective factor for having good MHWB (Lun et al., 2018).

- Since self-reporting data may suffer from information biases (e.g., misclassification bias, under-reporting bias), further studies based on well-designed epidemiological and clinical methods should be conducted (Hossain, Rehana & Raiza, 2018).

- Friendly attitude and behavior of teachers, families and friends towards students with poor MHWB are also important (Eva et al., 2015).

- Easy access to mental health services, especially for female students, should be ensured (Hossain, Ahmed, Chowdhury, Niessen, & Alam, 2014).

6. Conclusion

The prevalence of poor mental health well-being among the undergraduate students of EWU is alarming. The university administration should take this issue up as a matter of urgent concern and some feasible strategies should be developed based on the significant predictors of poor well-being. Particularly, increased attention should be given to female students, as they are more vulnerable than their male counterparts.

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