

The Influence of Psychosocial Factors on Bhutanese High School Students

นิพนธ์ต้นฉบับ

Original Article

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20131

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วารสารไทยเภสัชศาสตร์และวิทยาการสุขภาพ 2561;13(1):28-38.

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Thai Pharmaceutical and Health Science Journal 2018;13(1):28-38.

บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาภาวะซึมเศร้า และอิทธิพลของปัจจัยด้านจิตสังคมที่มีต่อภาวะซึมเศร้าในนักเรียนชั้นมัธยมศึกษาตอนปลายชาวภูฏานที่ศึกษาอยู่ในโรงเรียนมัธยมศึกษาตอนปลายที่ตั้งอยู่ในจังหวัดซาร์ปัง ประเทศภูฏาน **วิธีศึกษา:** กลุ่มตัวอย่างคือ นักเรียนมัธยมศึกษาตอนปลายจำนวน 316 คน ได้มาโดยการสุ่มแบบหลายขั้นตอน โดยใช้แบบสอบถามเพื่อเก็บข้อมูล 1) ลักษณะส่วนบุคคลของนักเรียน 2) ภาวะซึมเศร้า (CES-D) 3) การครุ่นคิด 4) บุคลิกภาพแบบ D 5) ความเครียดด้านการเรียน 6) การถูกปฏิเสธจากเพื่อน และ 7) กลไกด้านสิ่งแวดล้อมของครอบครัว ได้ค่าความเชื่อมั่นของเครื่องมือ 2 ถึง 7 ระดับยอมรับได้ถึงระดับสูงโดยมีค่าสัมประสิทธิ์อัลฟาของครอนบาคเท่ากับ 0.89, 0.91, 0.75, 0.87, 0.89 และ 0.91 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงบรรยาย และสถิติการวิเคราะห์ถดถอยพหุแบบมาตรฐาน **ผลการศึกษา:** กลุ่มตัวอย่างในงานวิจัยนี้มีค่าเฉลี่ยคะแนนซึมเศร้าเท่ากับ 19.12 (SD = 8.20) โดยพบว่าร้อยละ 33 มีภาวะซึมเศร้า (N = 104) ปัจจัยด้านจิตสังคมซึ่งประกอบด้วย การครุ่นคิด บุคลิกภาพแบบ D ความเครียดด้านการเรียน การถูกปฏิเสธจากเพื่อน และสิ่งแวดล้อมด้านครอบครัว สามารถร่วมกันอธิบายความแปรปรวนของภาวะซึมเศร้าได้ 46% ($R^2 = 0.46$, $F_{5,310} = 53.46$, $P < 0.001$) บุคลิกภาพแบบ D มีอิทธิพลสูงสุดต่อภาวะซึมเศร้า ($\beta = 0.32$, $P < 0.001$) รองลงมาคือการครุ่นคิด ($\beta = 0.31$, $P < 0.001$) ความเครียดทางการเรียน ($\beta = 0.10$, $P < 0.05$) และการถูกปฏิเสธจากเพื่อน ($\beta = 0.10$, $P < 0.05$) ส่วนสิ่งแวดล้อมด้านครอบครัวไม่สามารถทำนายภาวะซึมเศร้าได้ **สรุป:** ภาวะซึมเศร้าทำนายได้ด้วยบุคลิกภาพแบบ D การครุ่นคิด ความเครียดทางการเรียน และการถูกปฏิเสธจากเพื่อน ยกเว้นสิ่งแวดล้อมด้านครอบครัว ผลการวิจัยสามารถนำไปประยุกต์ใช้ในการพัฒนาโปรแกรมเพื่อป้องกันและการจัดการด้านภาวะซึมเศร้าในนักเรียนโรงเรียนมัธยมในภูฏาน

คำสำคัญ: นักเรียนชั้นมัธยมศึกษาตอนปลาย, ภาวะซึมเศร้า, ปัจจัยด้านจิตสังคม, ภูฏาน

Abstract

Objective: To identify depression level and examine the influence of psychosocial factors on depression in Bhutanese high school students.

Methods: Data were collected from 316 students in grades 9 - 12 at a higher secondary school, Sarpang District in Bhutan selected through multi-stage random sampling. Self-administered questionnaires including 1) demographic information, 2) Center for Epidemiologic Studies Depression Scale, 3) Rumination Response Scale, 4) Type D Personality Scale, 5) Education Stress Scale, 6) Social Peer Rejection Measure, and 7) Family Dynamic Environment Scale were used. Scales 2 to 7 had acceptable to high reliability with Cronbach's alpha coefficients of 0.89, 0.91, 0.75, 0.87, 0.89 and 0.91, respectively. Data were analyzed using descriptive statistics and multiple regression. **Results:** The sample's mean depression score was 19.12 (SD = 8.20) where 33% had depression (N = 104). Rumination, Type D personality, academic stress, peer rejection, and family environment significantly explained 46% of the variance of depression ($R^2 = 0.46$, $F_{5,310} = 53.46$, $P < 0.001$). Type D personality served as a strongest predictor ($\beta = 0.32$, $P < 0.001$), followed by rumination ($\beta = 0.31$, $P < 0.001$), academic stress ($\beta = 0.10$, $P < 0.05$), and peer rejection ($\beta = 0.10$, $P < 0.05$). However, family environment was not a significant predictor.

Conclusion: Depression was positively associated with type D personality, rumination, academic stress, and peer rejection, but not family environment. School based mental health program for prevention and management of depression for high school students could be developed.

Keywords: high school students, depression, psychosocial factors, Bhutan

Introduction

Depression in adolescents is a significant problem that impairs everyday functioning and increases the risk of severe mental health problem in adulthood.¹ It is a highly prevalent and serious mental health problem in adolescence. Depression is associated with a range of problems such as problematic peer and family relationships, school difficulties and dropout, health problems, increased substance abuse and suicide.² In the year 2014, World Health Organization revealed that depression is one of the predominant causes of illness and disability for both boys and girls aged 10 to 19

years.³ Globally, depression is the number one cause of illness and disability in this age group. A study has shown that half of all people who develop mental disorders have their first depressive symptoms by the age of 14.⁴ An estimated 2.8 million adolescents aged 12 to 17 in the United States had at least one major depressive episode in the past year. This number represented 11.4% of the U.S. population aged 12 to 17.⁵ By 2030, depression will rank first in high-income countries among disorders contributing to global disease burden.⁶ The prevalence of depression

among high school students in Asian countries such as India was found to be 29.9% in a study conducted by Vashisht et al.⁷ and 18.4% in a study by Bansal, Goyal, and Srivastava.⁸ In the People's Republic of China, prevalence of depression was reported to be 14.8% in high school students.⁹ In Taiwan, depression in high school students was reported to be 12.3%.¹⁰ In Bhutan, a study presented that depression accounted for 29.3% of total psychiatric cases attending psychiatric facilities.¹¹ According to the Annual Health Bulletin the trend of depression from 2011 to 2013 is increasing.¹²

Hoeksema and Hilt (2009)¹³ stated that the reason for this disorder being costly to individuals and society is that it is chronic and recurrent. When this condition strikes early in adolescents, it is highly likely to be associated with chronicity and relapse over the life span. Approximately 50% of adolescents with depressive symptoms spontaneously recover; however, for remaining half, symptoms persist and significantly impair functioning.¹⁴ In addition, up to 20% will experience at least one clinically depressive episode by the age of 18.¹⁵ The older adolescents experience more depressive symptoms than younger adolescents.¹⁶⁻¹⁸ They found a significant association between age and depression in their sample of adolescents. It is evident that despite high level of distress and impairment caused by depression, adolescent hardly access mental health service.

In a World Health Organization guideline developed by Funk (2005)¹⁹, it is mentioned that no country in the world has a clearly defined mental health policy pertaining uniquely to adolescents to address these issues. However, 34 countries (7% of countries worldwide) were found to have identifiable mental health policies, which may have some beneficial impact on children and adolescents. Given the significant burden of depression, it has now become a public health issue which demands a robust strategy to recognize and treat depression in adolescence by reaching out to them. If adolescents with mental health problems like depression are recognized early and properly managed then the long term consequence can be prevented and ultimately suffering can be reduced.

In Bhutan, 17% of the total population are adolescents and approximately 34,982 adolescents are enrolled in high schools across the country in 2014.²⁰ These high school adolescents experience dramatic biological changes related to puberty which significantly affect their psychosocial

development. An increased awareness of sexuality and a heightened preoccupation with body image are fundamental psychosocial tasks during adolescence. At this stage they are presented with many opportunities like meeting new people in the school, visiting new places and finding a direction in life. But these years can also be a time of stress and they would feel overwhelmed rather than excited by these challenges.

High school students are adolescents who are in the transition stage between childhood and adulthood characterized by changes in various developmental domains including cognitive, social, affective and biological areas.¹⁸ These simultaneous changes can increase the vulnerability for developing symptoms of depression known to be prevalent during teens, and increasing the risk for negative outcomes, including functional impairment, distress, poorer quality of life, suicidal ideation and the trajectory to a clinical depression in adulthood. Depression is under recognized among adolescents because depressive symptoms are considered a familiar part of adolescent experience and a belief that the adolescents would grow out of them in many society.¹⁷ But in reality, adolescents are faced with many attributing factors of depression like academic pressure, poor sleep and diet, procrastination, social and relationship stress, poor family environment, rumination, peer rejections/bullying, and financial and developmental trajectories.

Depression is etiologically heterogeneous, reflecting the convergence of multiple developmental.²¹ There are evidences showing that apart from biological factors contributing to depression, there are also psychological and social factors which influence depression among adolescents as well. Selected factors examined in this study encompassed of rumination and personality traits which are psychological factors whereas academic stress, peer rejection, and family environment are the selected social factors. From the previous studies, rumination and type D personality were found to be positively associated with depression in adolescents.²¹⁻²³ Similarly, academic stress and peer rejection were also positively associated with adolescent depression.^{24,25} Family environmental factors contribute to the development of depressive symptoms among adolescents. Studies reported that lower levels of satisfaction and cohesion and higher levels of conflict within the family contribute to development of depression in adolescents.^{21,26}

The association between rumination and adolescence depressive symptoms at baseline and after 6 months was reported in a study by Young and Dietrich (2015), with $r = 0.75$ and 0.66 respectively, at $P < 0.001$.²⁷ A prospective study has shown that rumination as a vulnerable factor that could predict depression.²⁸ Nolen-Hoeksema, Wisco and Lyubomirsky (2008) reported that rumination does predict depression.²⁹

The link between personality and depression can be traced to antiquity where personality-depression relation has been studied all over and is associated as precursor or predisposal of depression. It also has implications for elucidating etiology and comorbidity, identifying at-risk individuals, and tailoring treatment.³⁰ Certain personality type appears to play an important role in early-onset, chronic, and recurrent depressive conditions given adverse life experiences.³¹ One such personality is type D personality or the distressed personality. Type D is characterized by the joint tendency to experience negative emotions and to inhibit these emotions while avoiding social contacts with others. Negative affectivity component was significantly associated with depression.³² Both dimensions of type D (negative affectivity and social inhibition) are associated with greater cortisol reactivity to stress.³³ Certainly type D adolescents experience various and more severe mental health problems including depression.^{21,23}

Similarly, academic stress is associated with a variety of negative health outcomes, including depression. Depression was positively associated with academic stress reported.²⁴ Adolescents with academic stress were found to have 2.4 times (95% CI = 0.9 - 2.4) ($P < 0.001$) more risk of having depression than those adolescents without academic stress.³⁴

Another important factor associated with psychological distress, depression in particular among high school student is the peer rejection. School and friends are great source of influences for this age group. Acceptance from teachers, friends and good school environment can be the source of positive influence and on the other hand peer rejections can be devastating. Adolescents with low social status meaning those who are not popular and who operate at the fringe of the peer system and may be categorized as rejected.³⁵ Peer rejection was a significant prospective predictor of depressive symptoms.²⁵

Likewise depression has long been viewed as a disorder that arises within the family context. The high school students are dependent on their family and the family provides the platform for students' socioemotional development.³⁶ So any family adversity can be translated into risk for depression during adolescence.³⁷ Literature indicates that low cohesion, high conflict, and high maternal control were associated with adolescent depression.³⁸ Family conflict has been found to be associated factor for youth depression.²¹ It is usually found that family and school situations become overwhelming for the adolescent to continue maintaining mental stability.

Risk factors for adolescent depression include multiple and complex issues of personal characteristics and both family and school environments. If the prevalence of depression in high school student is high and the influencing factors are not well studied, this will lead them to a bitter future like school drop outs, teenage pregnancy, substance use and suicide. This has a huge implication to family and increases overall economic burden.³⁹ Therefore, understanding depression and identifying predictive factors of depression within this age group are crucial in order to render preventive measures and treatment strategies. By knowing these psychosocial factors and its influence on depression some interventions can be designed to address the issue. This study could also help the school and the authority to develop preventive programs and policy by large.

A review of literature on theory, concepts and research related to depression among adolescents in general revealed that early identifications of depressive symptoms is essential for preventing it from progressing to disorder and also identifying at risk group of adolescents. From the above background knowledge, it is evident the depression in high school students is devastating yet there are limited researches in Bhutan. Little is known about rumination (cognitive distortion), type D personality, academic stress, peer rejection, family environment, and depression. Therefore, this study aimed at early screening and explore the predictors of adolescent depression.

These psychological theories postulate that depression results from disturbances of individuals' mind, thinking, behaviors and relationship with the family, peers, teachers, etc. Rumination based on empirical findings, showed that this thought which enhances negative thinking, impairs problem solving, interferes with instrumental behavior, and

erodes social support. Rumination has an effect on mental health, depression in particular.⁴⁰ Another psychological factor examined in this study is type D personality, which is characterized by negative affectivity, and social inhibition. This personality construct makes adolescents more vulnerable and in presence of other adverse social situations make them more susceptible to depression. Similarly the social theories emphasize on the interaction between individuals and their environment such as relationship, stress, social roles, position, financial status, expectation from others and losses.⁴¹ Adverse family environment, academic stress and peer rejection are such social factors influencing depression. The social theory views depression as a consequence of maladaptive interaction between individual and his or her environment. Depression is viewed as the reaction expressed by individual when they are under pressure from outside environment. Since depression is a multi-factorial condition, predictive factors need to be evaluated to provide a broader understanding of depression as well as its predictors starting in high school students in adolescence period which is crucial developmental transition from childhood to adulthood. The present study examined depression and its influencing factors including rumination, type D personality, academic stress, peer rejection and family environment with adolescent depression in Bhutan.

Methods

A predictive correlation design was used in this study. Out of two government high schools in Sarpang District of Southern Bhutan namely Gelephu higher secondary school (GHSS) and Sarpang higher secondary school (SHSS) were for selection. With the simple random sampling, GHSS, the school located within the Gelephu municipality area, was selected. Data collection was carried out in the month of April, 2017. The school had students from grade 9 - 12. The medium of instruction is English in the schools.

Population and sample

The target population of this study was the high school students studying in grades 9 - 12 in two high schools located in Sarpang district. According to school authorities, GHSS had 873 students and SHSS had 734 students studying in grades 9 -12 during the academic year of 2016. The total study population was 1,607 students. Multi-stage

random sampling was used to select individual students from different grades and classes.

The study sample consisted of 316 high school students of grades 9 to 12. The inclusion criteria for the participants were Bhutanese nationality and having no diagnosed medical or psychiatric problems that could impair their ability to answer the research questionnaires.

The sample size was determined by using standardized table developed by Krejcie and Morgan⁴² for finite population. This method is suitable for estimating sample size for describing prevalence of depression as well as covering the sample size required for testing predictors. With a confidence interval of 95% and a margin of error of 5%, an exact sample size corresponding to population size of around 1,600 was 310. A total of 316 students participated in this study. The data were collected by the primary researcher.

Research instruments

There were seven research instruments used in this study. Students in the two high schools are fluent in English. Thus, the questionnaires were all in English format, no translation was made.

The demographic data were collected using questionnaire developed by the researcher which had 10 items asking the participant's age, gender, birth order, parents' marital status, current living arrangement. They were also asked about school grade/class, academic mark in the previous academic year, use of alcohol, tobacco and other psychotropic substances.

Depression was measured using the Center for Epidemiologic Studies Depression (CES-D) Scale developed by Radloff.⁴³ Twenty items in the scale is a self-report measure of symptoms of depression. The cutoff point of 22 was used which was recommended to be an appropriate cutoff for Thai adolescents by Trangkasombat and colleagues in 1997⁴⁴ and was considered suitable for Bhutanese students in this study as well. This scale was used for clinical, screening and research purposes. The scale includes depressed affect (blues, depressed, lonely, cry sad), happiness (good as other people, hopeful, happy, enjoy life), somatic symptom and retardation (bothered, appetite, mind on things, effort, sleep, get going) and interpersonal relationship (people unfriendly, people dislike). CES-D is a four-point rating scale ranging from 0 (Not at all)

to 3 (A lot). With a possible total score of 0 to 60, higher scores indicate a greater degree of depressed mood. CES-D has been extensively used in adolescents. It was found that CES-D had a high internal consistency reliability with Cronbach's alpha coefficients of 0.92 to 0.95.^{45,46} In this study, the instrument yielded an acceptable internal consistency with a Cronbach's alpha coefficient of 0.78.

Rumination was measured by the Rumination Response Scale, which has 22 items developed by Nolen-Hoeksema and Morrow.⁴⁷ The scale measures ruminative coping responses to negative mood and includes reflection, brooding, and mood related items.⁴⁸ The questionnaire has a 4-point Likert-type scale ranging from almost never (1) to almost always (4). With a possible total score of 22 to 88, higher scores indicate a more ruminative response style. Internal consistency reliabilities in a study for the three time points ranged from 0.88 to 0.94.²⁷ For this study, a high reliability with a Cronbach's alpha of 0.91 was obtained.

The **type D personality** was measured using the Type D Personality Scale-14 (DS-14) developed by Denollet and colleagues.⁴⁹ It consists of two 7-item subscales assessing negative affectivity (e.g. "I often feel unhappy") and social inhibition (e.g. "I am a closed person"). Individuals are categorized as type D using a standardized cut-off score of at least 10 points both on the negative affectivity (NA) and social inhibition (SI) subscales. Participants were asked to rate their character on a 5-point Likert-type scale ranging from 0 = false to 4 = true. The NA and SI subscales can be scored as continuous variables (range, 0 - 56) to assess the level of these personality traits in their own right. Higher scores from the subscales indicate a trend of distressed personality. NA and SI subscales have an acceptable internal consistency reliability with Cronbach's alpha coefficients of 0.88 and 0.86, respectively. DS-14 exhibited a sound psychometric property, with a Cronbach's alpha coefficient of 0.88 and a test-retest reliability coefficient of 0.76.²¹ In this study, it was found to have an acceptable reliability with a Cronbach's alpha coefficient of 0.75.

Academic stress was measured using the Education Stress Scale of Adolescents developed by Sun et al.⁵⁰ The scale contains 16 items and five latent variables, i.e., pressure from study (items 1, 2, 3 and 4), workload (5, 6, and 7), worry about grades (8, 9, and 10), self-expectation (11, 12 and 13) and despondency (14, 15 and 16). Each item is scored against a 5-point Likert-type scale ranging from

strongly disagree (1) to strongly agree (5). The possible total score ranges from 16 to 80 where higher scores reflect a higher academic stress for the students. The questionnaire has an acceptable internal consistency reliability with a Cronbach's alpha coefficient of 0.81.⁵⁰ This study also found an acceptable reliability with Cronbach's alpha coefficient of 0.87.

Peer rejection was measured using the Social Peer Rejection Measure developed by Lev-Wiesel, Nuttman-Shwartz, and Sternberg.⁵¹ There are four categories of peer rejection with a total of 21 items. Each item describes a different peer rejection situation. The respondent was asked to rate their experience of the rejection severity on a 5-point Likert-type scale ranging from not at all (0) to severely/extremely (4). The possible total score ranges from 0 to 84 where higher scores indicate a greater rejection. The questionnaire has a high internal consistency reliability with a Cronbach's alpha coefficient of 0.92.⁵² In this study, a high reliability level was also found (Cronbach's alpha coefficient of 0.89).

Family environment was measured by using the Family Dynamic Environment Scale developed by Kim and Kim.⁵³ With a total of 42 items, it included psychological climate (items 1 - 17), parent-child relationship (18 - 24), paternal parenting attitude (25 - 30), family cohesion (31 - 37) and maternal rearing attitude (items 38 - 42). Each item is rated on a 6-point Likert-type rating scale ranging from strongly disagree(1), to disagree(2), somewhat disagree(3), somewhat agree(4), agree (5), and strongly agree (6). With a possible total score of 42 to 252, higher scores indicate a more negative perception of the family environment. The total scale has a high internal consistency reliability with a Cronbach's alpha coefficient of 0.95.⁵³ A high reliability was also found in our study (Cronbach's alpha coefficient of 0.91).

Data collection procedure

The research was approved by the Institutional Review Board for Graduates Studies (approval no. 08-01-2560), Faculty of Nursing, Burapha University, Thailand. Further, it was reviewed and approved by the Research Ethics Board of Health (REBH), Ministry of Health of Bhutan. The permission to access Gelephu Higher Secondary School in Sarpang district was obtained from the Ministry of Education of Bhutan. Finally, permission from the school principal was

obtained. The time period of data collection was during the month of March and April, 2017. Once the approval and permission letter were obtained from the relevant authorities, data collection procedure then was conducted as follows. The participants were recruited randomly from those who had met the sample inclusion criteria. Students and parent/guardian information sheet were provided and both parent/guardian's consent and student's assent were obtained. The questionnaires were distributed to the participants and instructions on how to answer the questionnaires were provided. Students took about 60 minutes to complete the survey.

Data analysis

Descriptive statistics including frequency with percentage and mean (M) with standard deviation (SD) were used to describe the demographic information and other variables. The multiple regressions was performed to determine the predictors of depression in high school students which included rumination, type D personality, academic stress, peer rejection and family environment. The data were tested for assumptions of multiple regressions including normality of variables, linearity, homoscedasticity, no autocorrelation and no multicollinearity. The statistical significance with an alpha level of 0.05 was used.

Results

Of 316 respondents, most of them had their age in the range of 13 to 18 years (91.50%) with mean age of 16.32 years (SD = 2.5) (Table 1). There were slightly more male than female respondents (52.5% and 47.5%, respectively). The majority were in grade 9 (31.0%), followed by grades 10 and 12 (26.00% each) and grade 11 (17.0%). As high as 98.1% had siblings. The mean pass percentage of previous academic year was 62.8% with a range of 40% to 90%. It was found that 79.1% of the respondents were staying with their parents, 20.6% with relatives and 0.3% with friend. They reported that their parents were living together (81.3%), followed by divorced (12.3%), and separated (6.3%). Alcohol use was reported in one-third (29.4%) and tobacco use in 19.4% of the respondents. In addition, 7.9% reported a use of psychotropic substance.

Table 1 Demographic characteristics of high school students (N = 316).

Characteristics	N	%
Age (years) mean = 16.30, SD = 2.50		
13 – 18	289	91.50
> 18	27	08.50
Gender		
Male	166	52.50
Female	150	47.50
Grade		
9	100	31.00
10	81	26.00
11	54	17.00
12	81	26.00
Sibling		
No sibling	6	1.90
Have siblings	310	98.10
Academic pass (Percentage) mean = 62.80, SD = 9.78		
40 – 50	38	12.00
51 – 60	97	30.70
61 – 70	119	37.70
71 – 80	49	15.50
81 – 90	13	4.10
Staying with		
Parents	250	79.10
Relatives	65	20.60
Friends	01	0.30
Marital status of parents		
Staying together	257	81.40
Divorced	39	12.30
Others	20	06.30
Alcohol use	93	29.40
Tobacco use	61	19.40
Substance use	25	07.90

Description of depression

It was found that the total mean score of depression among 316 students was 19.12 (SD = 8.2). There were more students with no depression, i.e., a total score lower than 22 points, (n = 212 or 67%) than those with depression (n = 104 or 33.0%) (Table 2).

Table 2 Description of depression in high school students measured by the Center for Epidemiologic Studies Depression Scale (CES-D) (N = 316).

Variables	Possible Range	Actual range	N	%
Depression (total)	0 - 60	1 - 49		
No depression	< 22	1 - 21	212	67.00
Depression	≥ 22	22 - 49	104	33.00
Mean = 19.012, SD = 8.20				

Students studying in different school grades had different rates of depression. Students in grades 11 and 12 had the

highest rate of depression (37.0% each), followed by grade 9 (32.0%) and grade 10 (27.0%) (Table 3).

Table 3 Description of depression by level of education (N = 316).

School grades	No depression (n = 212)		Depression (n = 104)	
	n	%	n	%
9	68	68.00	32	32.00
10	59	73.00	22	27.00
11	34	63.00	20	37.00
12	51	63.00	30	37.00

Psychosocial factors influencing depression among high school students

The scores of psychosocial factors examined in this study are presented in Table 4. The associations of these factors with depression (CES-D score) examined with Pearson's correlation coefficients are shown in Table 5. Depression score was significantly positively correlated with rumination, type D personality, academic stress, peer rejection and family environment with correlation coefficients of 0.57, 0.60, 0.32, 0.41, and 0.44, respectively, with *P*-value < 0.01 for all.

Table 4 Description of psychosocial factors of depression (N = 316).

Variables	Possible Score	Actual Score	M	SD
Rumination	22 - 88	22 - 76	50.00	9.90
Type D personality	0 - 56	5 - 49	23.10	7.90
Academic stress	16 - 80	24 - 76	54.80	9.50
Peer rejection	0 - 84	0 - 67	14.30	10.90
Family environment	42 - 252	42 - 204	103.90	27.50

Table 5 Pearson's correlation coefficients between psychosocial factors and depression (N = 316).

Variables	1	2	3	4	5	6
1. Depression	1					
2. Rumination	0.57*	1				
3. Type D personality	0.60*	0.62*	1			
3. Academic stress	0.32*	0.24*	0.28*	1		
4. Peer rejection	0.41*	0.33*	0.41*	0.24*	1	
5. Family environment	0.44*	0.44*	0.45*	0.32*	0.53*	1

* *P*-value < 0.01.

Predictors of depression among high school students

Standard multiple regression analysis showed that psychological factors including rumination, type D personality, academic stress, peer rejection and family

environment could explain 46% of variance for depression in this sample ($R^2 = 0.46$, $F_{5,310} = 53.46$, *P*-value < 0.001) (Table 6). The psychosocial factors which significantly predicted depression ordered from the strongest to the weakest were type D personality ($\beta = 0.32$, *P*-value < 0.001), rumination ($\beta = 0.31$, *P*-value < 0.001), academic stress ($\beta = 0.10$, *P*-value < 0.05) and peer rejection ($\beta = 0.10$, *P*-value < 0.05). However, family environment did not have a significant effect on depression ($\beta = 0.08$, *P*-value > 0.05).

Table 6 Standard multiple regression analysis on depression with various factors (N= 316).

Independent variables	Unstandardized beta coefficient (B)	Standardized beta coefficient (β)	Standard error of β
Rumination	0.23**	0.31**	0.046**
Type D personality	0.32**	0.32**	0.058**
Academic stress	0.09*	0.10*	0.039*
Peer rejection	0.08*	0.10*	0.038*
Family Environment	0.02	0.08	0.081

Model summary: $R^2 = 0.46$, $F_{5,310} = 53.46$, *P*-value < 0.001.

* *P*-value < 0.05. ** *P*-value < 0.001.

Discussions and Conclusion

In our study, depression among high school students in Bhutan was measured using the CES-D Scale. The sample had a mean CES-D score of 19.12 (SD = 8.2) and 104 (33.00%) of them were considered having depression. There has been no previous studies done in Bhutan to compare the findings. The incident of depression found in this study was higher than those reported in previous studies from other countries.⁷⁻¹⁰ However, it was lower than that reported by Vatanasin and colleagues⁵⁴ who studied 800 high school students in Chiang Mai, Thailand and found 42% of students with depression. Similarly, studies in India found 57.7% and 60.80% of the high school students with depression.^{17,55} The difference in the rate of depression among studies may have resulted from the differences in the sample characteristics, scales and the scale's cutoff point, nature of school curriculum, lifestyle, and sociocultural condition. Some further possible explanation for relatively high incidence of depression in this study could be the fact that these high school students are adolescents in academic settings. They are in a critical development transition period surrounded by many day to day challenges such as forming identity, and

relationships with friend, teacher, etc. There are many dramatic physical, emotional and lifestyle changes occur in their life. The physical manifestations of puberty, cognitive and behavioral changes of adolescence are caused by changing levels of hormones and brain development in adolescents. These challenges could contribute to several psychiatric illnesses including anxiety and mood disorders, psychosis, eating disorders, personality disorders and substance abuse. Therefore, apart from depression, other psychological distresses such as stress and anxiety can be found in this age group.²⁴ Thus, it is also crucial to assess other mental health problem like anxiety and stress which may be found or co-exist with depression in these students.

We found that depression rate was high in grade 11 and 12 students. This could be because they were in a pivotal stage. They had to decide on their future course of study. Doing well in grade 12 could help them get a government scholarship to study professional courses abroad or get admitted to the competitive famous public colleges. Furthermore, studies have proved that older adolescents experience more depressive symptoms than their younger counterparts.¹⁶⁻¹⁸ Similarly students in grade 9 were new to high school. This could have added stress to them with some degree of adjustment problems. Other possible reasons could be that the school setting in this study is located in the urban area. Since many students were from a rural background, adjustment to the new urban living surrounding could have added stressor to their lives. There is a high rate of alcohol use in this sample of high school students (29.4%). A high alcohol use supports a high prevalence of depression as it has been reported that depression increases risk of alcohol use.¹⁶ The results provided an understanding that a greater proportion of adolescents are experiencing depressive symptoms.

This study affirmed that multiple factors which subsumed under psychosocial factors contributed to depression. Rumination was considered a cognitive factor, while type D personality and peer rejection, academic stress and family environment as social factors. All these factors together could predict depression as hypothesized. They could explain 46% of variance in depression among high school students. Among these five psychosocial factors examined, only negative family environment could not significantly, and independently predict depression.

Type D personality was the most significant predictor of depression in this study. It is consistent with a study conducted by Dooren et al. (2016) where personality was also a strongest predictor of depression ($\beta = 3.87$, P -value < 0.001).⁵⁶ Type D is not pathological by itself but the tendency to experience negative emotions and to inhibit emotions is more obvious in individual with type D personality traits. Therefore students with more distress trait become more vulnerable to depression of which 28.48% of our sample were found with such trait. Type D personality was usually assessed in unhealthy adults and it was rarely conducted in healthy adolescents. According to Zhang et al. (2011) students with this personality trait were more prone to depression.²¹ In addition, individuals with this type of personality are likely to misconduct and have behavioral problems which may cause them to get trouble in school. These eventually give rise to mental distress, depression in particular.

Rumination is a thinking style in which attention is given to negative emotional state and it exacerbates and prolongs distress and memories. Significant correlation ($r = 0.57$, P -value < 0.01) between rumination and depression was found. In addition, it also significantly predict depression ($\beta = 0.31$, P -value < 0.001). It was consistent with study in which rumination significantly predicted depression ($\beta = 0.32$, P -value < 0.001).⁵⁴ Similarly, another prospective study examined rumination as vulnerability in youth and consistently supported that rumination moderated the association with development of future depressive symptoms and major depressive episodes.²⁸ The perspective of the response styles theory,²⁹ postulates that those who engage in rumination on their negative affect and memories, are more likely to experience depressive symptoms. This can apply to high school students as well. They are in a transition period from early to middle adolescence and to adulthood. They are more likely to encounter various negative events either inside or outside school which will give rise to more negative affect and memories. Then those who ruminate about such negative memories and make pessimistic inferences to understand the current circumstances are at risk of suffering from depression. Furthermore, this response style is likely to increase severity and duration of depressive symptoms in students over time.

Academic stress was also a significant predictor of depression. This is consistent with the study conducted by

Ang and Huan (2006).⁵⁷ Adolescents with academic stress were found to have 2.4 times of the risk of having depression than the adolescents without academic stress in a study in India.³⁴ Academic expectation is an important source of stress among Asian students and it is recognized as a risk factor for depression. Pressure from study, workload, and worry about grades, self-expectation and despondency were the factors causing academic stress among students. Moreover, in Asian context, parents usually expect their children to have successful study results in order to have greater opportunity for future study or career choices. This in turn could cause more stress to the students. High school students often see themselves as being evaluated in terms of academic performance. Those who experienced academic difficulties in school often received negative feedback regarding their academic performance and consequently, developed depressed feelings. They are under pressure to perform well academically because somehow academic range still remains the major criteria to evaluate their ability. In Bhutan, there has been a growing recognition of academic burden and its impact on students' health. This raises the public health and education concern.

Peer rejection also significantly predicted depression similar to the findings by Prinstein and Aikins (2004) who also reported that peer rejection was a significant predictor of depression.²⁵ Generally there is a heightened emotional reactivity in high school adolescents due to their developmental stage. Psychosocial factor like peer rejection exerts effect on them by triggering their underlying vulnerabilities, thereby giving rise to psychological distress like depression. Though relationship between rejection and depression is complex yet this relation can be explained that peer rejection leads to depression and vice versa. At this age, peers become integral source of their support system. They spend a substantial proportion of their waking hours involving with peer interactions than with family. They invest more energy in forming peer networks. Developmental theorists postulated that adolescents use peers as primary bases for social comparison and self-appraisal as part of the process for their identity formation.²⁵ High school students are also in the period of biological and psychological change which may contribute to the cause peer rejection with their aggressive behavior, resistant behavior, high temper, egocentric, etc. Adolescents represent their ages as period

of stress and storm and they react immensely to peer rejection which could cause worsened mood and increased distress, and make them feels angrier, sadder, more excluded and less happy.⁵⁸ This will eventually give rise to mental distress including depression.

Psychological theories of depression state that negative family relationships play a key role in the etiology of depression. In this study, negative family environment was positively correlated with depression which is in line with previous studies.^{21,37,56} However, this association was not strong enough to reach a predictive level. The relationship between family environment and depression may be buffered by other factors. In adolescence period, family is not solely the world for them. They have different world of their own which includes friends, social media, games and sports, school and education. In addition, such family environment might have been there in their lives for quiet sometime, so they have learnt to accept or adjusted with it. Another reason is that, according to Erickson theory, which postulated that adolescent period is usually a time for them to search for a sense of self and their personal identity through an intense exploration of personal values, beliefs and goals. They want to be more independent and begin to look at the future in terms of career and relationship. They start to slowly drift away from the family. In addition, families in Bhutanese context are closely netted and believe in collectivism. This type of family culture actually trains children to engage in appropriate levels of relatedness to have an obedient, calm, polite and respectful manner. It promotes social cohesion and interdependence and provides an excellent resource for mental health.⁵⁹ Reasons mentioned above help explain why negative family environment could not predict depression in this study.

This study is a stepping stone for the future researches on depression in Bhutan. The findings of this study can be used as a benchmark to generate better understanding regarding prevalence of depression and its predicting factors among Bhutanese high school students. Both educators and health personnel could work together to address this issue and develop interventions appropriate for these high school students. School remains a crucial place for students where the acceptance from teachers and friends can help them overcome their difficulties and facilitate them in life transition. The school authority can arrange for mental assessment and regular counseling, and raise more awareness in this mental

health issue. Standard checklist and flyers can help students identify their problems and availability of help resource.

Limitations of this study were related to its cross-sectional design, which was unable to identify the casual relationships between psychosocial factors and depression as they change over time. Another limitation was that data collection in this study was conducted from only one school. This could limit the ability to reach more general conclusions about overall adolescents in Bhutan.

In terms of recommendations for future study, more studies towards depression and its predictors with cultural specific measures in Bhutanese context is suggested. In addition, longitudinal studies to understand the causal effects should also be considered. A qualitative research can help achieve better understanding of depression among Bhutanese students. Further research in terms of experimental study to test the effects of interventions that enhance protective factors and reduce risk factors for depression is recommended.

Acknowledgement

The authors would like to thank Faculty of Nursing, Burapha University, Ministry of Health and Ministry of Education, Bhutan and Gelephu Higher Secondary School for the support. We extend our special gratitude to all the high school students who participated in this study.

References

1. Stallard P, Montgomery A, Araya R, et al. Protocol for a randomised controlled trial of a school based cognitive behaviour therapy (CBT) intervention to prevent depression in high risk adolescents (PROMISE). *Trials* 2010;11(1):114.
2. Keenan-Miller D, Hammen C, Brennan P. Health Outcomes Related to Early Adolescent Depression. *J Adolesc Health* 2007;41(3):256-262.
3. World Health Organization. Depression. (Accessed on Dec 2, 2017, at <http://www.who.int/topics/depression/en/>).
4. Kessler RC, Amminger GP, Aguilar-Gaxiola S, Alonso J, Lee S, Ustun TB. Age of onset of mental disorders: a review of recent literature. *Curr Opin Psychiatry* 2007;20(4):359-364.
5. National Institute of Mental Health. Major depression in adolescence. (Accessed on Dec. 2, 2016, at <https://www.nimh.nih.gov/health/statistics/prevalence/major-depression-among-adolescents.shtml>).
6. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine* 2006;3(11):e442.
7. Vashisht A, Gadi NA, Singh J, Puryakastha M, Pathak R, Mishra P. Prevalence of depression & assessment of risk factors among school going adolescents. *Ind J Comm Health* 2014;26(2):196-199.
8. Bansal V, Goyal S, Srivastava K. Study of prevalence of depression in adolescent students of a public school. *Ind Psychiatry J* 2009;18(1):43.
9. Xu F, Wang CY, Li JQ et al. Study on the prevalence of depression and its risk factors among high school students in Nanjing. *Zhonghua Liu Xing Bing Xue Za Zhi* 2006;27(4):324-3270
10. Lin H, Tang T, Yen J et al. Depression and its association with self-esteem, family, peer and school factors in a population of 9586 adolescents in southern Taiwan. *J Neuropsychiatry Clin Neurosci* 2008;62(4):412-420.
11. Nirola D. Where psychiatrists are scarce: Bhutan. *Asia Pac Psychiatry* 2010;2(3):126-126.
12. Ministry of Health. Annual health bulletin. Royal Government of Bhutan, 2014.
13. Nolen-Hoeksema S, Hilt, MN (eds.). Handbook of depression in adolescents. New York. Routledge, 2013.
14. Garvik M, Idsoe T, Bru E. Effectiveness study of a CBT-based adolescent coping with depression course. *Emot Behav Diff* 2013; 19(2):195-209.
15. Magklara K, Bellos S, Niakas D et al. Depression in late adolescence: a cross-sectional study in senior high schools in Greece. *BMC Psychiatry* 2015;15(1):199.
16. Maughan, B., Collishaw, S., Stringaris, A. Depression in childhood and adolescence. *J Can Acad Child Adolesc Psychiatry* 2013;22(1):35-40.
17. Mohanraj R, Subbaiah, K. Prevalence of depressive symptoms among urban adolescents in south India. *J Indian Assoc Child Adolesc Ment Health* 2010;6(2):33-43.
18. Rawatall N, Kliewer W, Pillay B. Adolescent attachment, family functioning and depressive symptoms. *SAJP* 2015;21(3):6.
19. Funk M. Mental health policy plans and programmes. World Health Organization, 2005.
20. Ministry of Education. Annual education statistics. Royal Government of Bhutan, 2015.
21. Zhang Y, Li H, Zou S. Association between cognitive distortions, type D personality, family environment, and depression in Chinese adolescents. *Depress Res Treat* 2011;1-8.
22. Broderick P. A prospective study of rumination and depression in early adolescence. *Clin Child Psychol Psychiatry* 2004;9(3):383-394.
23. Lee M, Lim H, Ko Y et al. Characteristics of type D personality in Korean adolescents. *Eur Child Adolesc Psychiatry* 2012;21(12):699-706.
24. Macgeorge E, Samter W, Gillihan S. Academic stress, supportive communication, and health. *Commun Educ* 2005;54(4):365-372.
25. Prinstein M, Aikins J. Cognitive moderators of the longitudinal association between peer rejection and adolescent depression symptoms. *J Abnorm Child Psychol* 2004;32(2):147-158.
26. Agerup T, Lydersen S, Wallander J, Sund A. associations between parental attachment and course of depression between adolescence and young adulthood. *Child Psychiatry Hum Dev* 2014;46(4):632-642.
27. Young C, Dietrich M. Stressful life events, worry, and rumination predict depressive and anxiety symptoms in young adolescents. *J Child Adolesc Psychiatr Ment Health Nurs* 2015;28(1):35-42.
28. Abela J, Hankin B. Rumination as a vulnerability factor to depression during the transition from early to middle adolescence: A multiwave longitudinal study. *J Abnorm Child Psychol* 2011;120(2):259-271.
29. Nolen-Hoeksema S, Wisco B, Lyubomirsky S. Rethinking Rumination. *Perspect Psychol Sci* 2008;3(5):400-424.

30. Klein D, Kotov R, Bufferd S. Personality and Depression: Explanatory Models and Review of the Evidence. *Ann Rev Clin Psychol* 2011; 7(1):269-295.
31. Clark LA. Temperament as a unifying basis for personality and psychopathology. *J Abnorm Psychol* 2005;114(4):505-521.
32. Gupta S, Basak P. Depression and type D personality among undergraduate medical students. *Indian J Psychiatry* 2013;55(3):287. (doi:10.4103/0019-5545.117151)
33. Sher L. Type D personality: the heart, stress, and cortisol. *QJM* 2005; 98(5):323-329.
34. Jayanthi P, Thirunavukarasu M, Rajkumar R. Academic stress and depression among adolescents: A cross-sectional study. *Indian Pediatr* 2015;52(3):217-219.
35. Cillessen AH, Rose AJ. Understanding popularity in the peer system. *Curr Dir Psychol Sci* 2005;14(2):102-105.
36. Mahedy L, Heron J, Stapinski LA, et al. Mothers own recollections of being parented and risk of offspring depression 18 years later: A prospective cohort study. *Depress Anxiety* 2013;31(1):38-43.
37. Abaied JL, Rudolph KD. Family relationships, emotional processes, and adolescent depression. In: *The Oxford handbook of depression and comorbidity*. New York. Oxford University Press, 2014: pp.460-475.
38. Sander JB, McCarty CA. Youth depression in the family context: familial risk factors and models of treatment. *Clin Child Fam Psychol Rev* 2005; 8(3):203-219.
39. Lynch FL, Clarke GN. Estimating the economic burden of depression in children and adolescents. *Am J Prev Med* 2006;31(6):143-151.
40. Nolen-Hoeksema S. Gender differences in depression. *Curr Dir Psychol Sci* 2001;10:173-176.
41. Beattie GS. Social causes of depression. (Accessed on Nov. 5, 2016, at <http://www.personalityresearch.org/papers/beattie.html>).
42. Krejcie RV, Morgan DW. Determining sample size for research activities. *Educ Psychol Meas* 1970;30(3):607-610.
43. Radloff LS. The CES-D Scale: A self-report depression scale for research in the general population. *Appl Psychol Meas* 1977;1(3):385-401.
44. Trangkasombat U, Larpoonsarp V, Havanond P. CES-D as a screen for depression in adolescents. *J Med Assoc Thai* 1997;42(1):2-13.
45. Han M, Jia CX. Reliability and validity of center for epidemiological studies depression scale in different rural populations. *Chinese J Pub Health* 2012;28:1265-1267.
46. Fountoulakis K, Iacovides A, Kleanthous S, et al. Reliability, validity and psychometric properties of the Greek translation of the Center for Epidemiological Studies-Depression (CES-D) Scale. *BMC Psychiatry* 2001;1(1):3.
47. Nolen-Hoeksema S, Morrow J. A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *J Pers Soc Psychol* 1991;61(1):115-121.
48. Treynor W, Gonzalez R, Nolen-Hoeksema S. Rumination reconsidered: A psychometric analysis. *Cognit Ther Res* 2003;27(3):247-259.
49. Denollet J, Rombouts H, Gillebert T, et al. Personality as independent predictor of long-term mortality in patients with coronary heart disease. *Lancet* 1996;347(8999):417-421.
50. Sun J, Dunne MP, Hou X-Y, Xu A-Q. Educational stress scale for adolescents: development, validity, and reliability with Chinese students. *J Psychoeduc Assess* 2011;29(6):534-546.
51. Lev-Wiesel R, Nuttman-Shwartz O, Sternberg R. Peer rejection during adolescence: psychological long-term effects—a brief report. *J Loss Trauma* 2006;11(2):131-142.
52. Lev-Wiesel R, Sarid M, Sternberg R. Measuring social peer rejection during childhood: Development and validation. *J Aggress Maltreat Trauma* 2013;22(5):482-492.
53. Kim H-S, Kim H-S. Development of a family dynamic environment scale for Korean adolescents. *Public Health Nurs*. 2007;24(4):372-381.
54. Vatanasin D, Thapinta D, Thompson EA, Thungjaroenkul P. Testing a model of depression among Thai adolescents. *J Child Adolesc Psychiatr Nurs* 2012;25(4):195-206.
55. Urmila KV, Usha K, Mohammed MTP, Pavithran K. Prevalence and risk factors associated with depression among higher secondary school students residing in a boarding school of North Kerala, India. *Int J Contemp Pediatr* 2017;4(3):735.
56. Dooren FEV, Verhey FR, Pouwer F, et al. Association of Type D personality with increased vulnerability to depression: Is there a role for inflammation or endothelial dysfunction? – The Maastricht study. *J Affect Disord* 2016;189:118-125.
57. Ang RP, Huan VS. Relationship between academic stress and suicidal ideation: Testing for depression as a mediator using multiple regressions. *Child Psychiatry Hum Dev* 2006;37(2):133-143.
58. Platt B, Kadosh KC, Lau JY. The role of peer rejection in adolescent depression. *Depress Anxiety* 2013;30(9):809-821.
59. Chadda R, Deb K. Indian family systems, collectivistic society and psychotherapy. *Indian J Psychiatry* 2013;55(6):299.

Editorial note
 Manuscript received in original form on November 16, 2017;
 accepted in final form on February 15, 2018