

## Gender Comparison of the Factors Associated with Clinical Depression: A Descriptive Study in a Teaching Institute of Eastern Nepal

Lata Gautam<sup>1</sup>, Dhana Ratna Shakya<sup>2\*</sup>, Samir Kumar Poudel<sup>3</sup>, Binod Kumar Deo<sup>4</sup>

<sup>1</sup>Senior Consultant Psychiatrist, Mental Hospital, Lagankhel, Lalitpur, Nepal

<sup>2</sup>Professor, Department of Psychiatry, BP Koirala Institute of Health Sciences (BPKIHS), Dharan, Sunsari, Nepal

<sup>3</sup>Senior Consultant Physician, National Academy of Medical Sciences (NAMS), Kathmandu, Nepal

<sup>4</sup>Assistant Professor, Department of Psychiatry, BPKIHS, Dharan, Sunsari, Nepal

\*Corresponding author: Shakya DR, Professor, Department of Psychiatry, BP Koirala Institute of Health Sciences (BPKIHS), Dharan, Sunsari, Nepal, E-mail: [drdhanashakya@yahoo.com](mailto:drdhanashakya@yahoo.com)

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### Abstract

**Background and Objectives:** Possible reasons for different factors and presentations in depression may be sex related

**Methods:** A total of 100 (53 female and 47 male) depression cases (as per the ICD-10 DCR) who came to the out-patient clinic and admitted to the ward of department of Psychiatry of a teaching hospital in eastern Nepal were enrolled after obtaining informed consent during the study period. Patients with severe physical co-morbidity, mental retardation making unable to participate and the age younger than 18 and older than 65 years were excluded. Socio-demographic information, clinical profile and co-morbidities were recorded. Three scales: Hamilton Rating Scale for Depression (HAM-D), Social Readjustment Scale by Holmes and Rahe and Eysenck's Personality Inventory were used to see the severity of depression, the life events and the personality traits respectively. Chi-square test was applied to find out the difference between the genders in different variables.

**Results:** Most of the depressive patients were of age 18-50, with most males educated and females educated to middle level. Source of income for majority of females (45%) was family-income and for males (21%) their own income ( $p= 0.000$ ). More females had family history of depression, suicide and other psychiatric co-morbidities. More females presented with changes in biorhythm including libido and suicide attempt. Males presented more with mood, physical and behavioral changes. More females had co-morbidity of Anxiety, Migraine and substance use disorder. Prevalence of stressor was similar among males and females though the nature and type varied.

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**Out of the life events, value of pregnancy (p= 0.014) and trouble with in-laws (p= 0.000) were more in female; and that of losing spouse (p= 0.408), and sex difficulty (p= 0.044) more in male patients with depression. More male patients were found extroverted and neurotic and female patients socially desirable (p= 0.001).**

**Conclusion: Gender differences are seen in depression cases in bio-psycho-social factors. Identification of particular factors guides management of all levels in general and in particular in female and male patients.**

**Keywords: *Clinical depression; Factors; Gender; Personality trait; Co-morbidity; Stressor***

## **1. Introduction**

Globally, more than 264 million people of all ages suffer from depression making it one of the most common clinical disorders [1]. A Nepalese community survey reports depression as the commonest mental disorder, with 5.8% prevalence [2]. Life time prevalence of depression is 5-17% (average 12%). It is the leading contributor of disability and the fourth leading cause of the global burden of disease. Depression already is the second cause of DALYs in the age category 15-44 years [3]. A South Asian study (2016) reported its age-standardized prevalence of 3.9% and for Nepal 4.0%. Depressive disorders accounted for 9.8 million DALYs and 577.8 per 100,000 populations in South Asia. DALYs due to depressive disorders were highest in females and older adults (75-79 years) across all the countries [4]. Crude prevalence of depression is reported as 11.7% in a Nepalese study [5]. Mood (affective) disorder, main being depression is also the most common diagnosis in Psychiatric out-patient service of B. P. Koirala Institute of Health Sciences (BPKIHS) [6].

Despite general fact of the 2:1 ratio for F:M gender difference in major depression, the gender difference in various important aspects, e.g. levels of depressive symptoms have received less attention. It is a known fact that the gender difference in depression has a multi-factorial etiology [7]. Theories of developmental psychopathology contend that there are multiple pathways to the gender difference in depression involving combinations and interactions of risk factors that span multiple levels of analysis [7]. As studies related to gender comparison of the factors associated with Depression is scarce, especially from Nepalese setting, this study was designed to identify different factors and to see them from gender comparison perspective.

The objectives of this study were: to identify common factors (socio-demographic, psychological and biological/ clinical) occurring in clinical depression and to study the differences in those associated factors between the male and female patients with primary diagnosis of clinical depression.

## **2. Materials and Methods**

This is a hospital based descriptive study conducted among the patients with primary diagnosis of clinical depression coming in psychiatric service of BPKIHS, a multi-specialty teaching hospital in eastern Nepal within 1 year of study period.

## **2.1 Inclusion criteria**

Age between 18 to 65 years whose primary diagnosis was clinical depression (Depressive episode, Recurrent depressive disorder). Male and female patients coming to psychiatry OPD or admitted in psychiatry ward and first contact depressive patient who might be on any medication including antidepressant.

## **2.2 Exclusion criteria**

Age below 18 and above 65 years, with Mental Retardation and severe physical co-morbidity who could not participate in the study.

## **2.3 Subject enrollment procedure**

Subjects meeting inclusion criteria attending psychiatric out-patient department and wards with primary diagnosis of clinical depression were enrolled. Diagnosis of clinical depression was made according to the ICD-10 DCR criteria [8]. Moderate depressive episode needs at least two of: sad mood, decreased interest and easy fatigability with other symptoms (reduced concentration and attention, reduced self-esteem, ideas of guilt and unworthiness, pessimistic views of future, ideas of self-harm or suicide, disturbed sleep, disturbed appetite) making a total of six and severe requires three of them with other symptoms making a total of eight. Duration needs to be at least two weeks and major exclusion includes general medical condition and psychoactive substance use explaining the symptoms.

Socio-demographic and clinical data were recorded in a semi-structured pro forma. Depression was studied with the 'Hamilton Rating Scale for depression' (HAM-D) [9]. Psychiatric co-morbidity was recorded as per usual psychiatric assessment based on the ICD-10. The subjects were assessed with the application of instruments for Stressor study (Social Readjustment Scale by Holmes and Rahe) [10], Personality type study (Eysenck Personality Inventory) [11] and Family charting with two generations above and below as possible, with the record of known psychiatric illness.

## **2.4 Ethical consideration**

Study was initiated after the ethical clearance from the 'Institutional Ethical Review Board' (IERB) of BPKIHS. An informed written consent was collected from all the subjects. Confidentiality was strictly maintained.

## **3. Results**

A total number of 100 subjects were included with 53 female and 47 male patients, including both out-patients and in-patients. Most of the males and females were married, whereas 10 males and 7 females were unmarried. Males were mostly educated and females were educated mostly to middle level (6-10 standards). The p-value of education status was 0.000 which was significant (TABLE 1). The religion of maximum number of patients was Hindu. Maximum number of patients was from semi-urban setting. Family type most observed was Joint. More females were from lower socio-economic status than males. Source of income for females came from the family and males on their own, where p-value was significant (<0.05) (TABLE 2).

**TABLE 1. Age, Marital status, Education, Occupation of Patients with Depression.**

Characteristics		Gender		P-Value
		Male/ %	Female/ %	
Age (in years)	18 – 25	15	15	<b>0.780</b>
	26 – 40	14	22	
	41 -65	18	16	
Marital Status	Married	30	32	<b>0.934</b>
	Widow/ Widower	6	9	
	Divorced	0	3	
	Unmarried	10	7	
	Others	1	2	
Education Status	Illiterate	4	2	<b>0.000</b>
	Just literate	3	3	
	Class 1 - 5	5	12	
	Class 6 - 10	9	22	
	Class 11 - 12	12	11	
	Graduate	14	3	
	Post graduate	-	-	
Occupation	Farmer	16	2	<b>0.000</b>
	Businessman	14	0	
	Laborer	1	1	
	Student	9	6	
	Housewife	0	36	
	Unemployed	6	4	
	Others	1	4	

**TABLE 2. Religion, Residential Setting, Socio-economic Status, Family Type and Income source of Patients with Depression.**

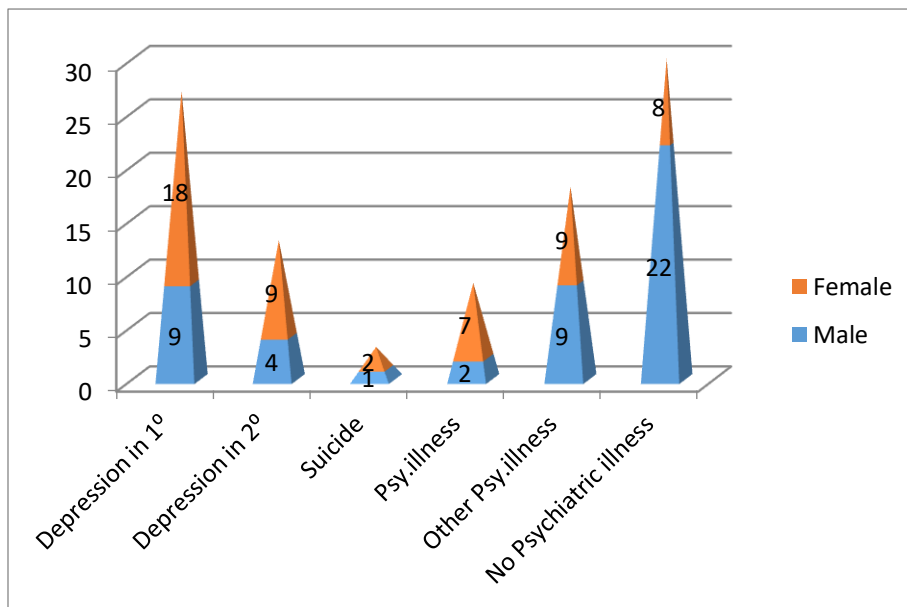
Characteristics		Gender		P-Value
		Male/ %	Female/ %	
Religion	Hindu	39	41	<b>0.797</b>
	Buddhist	3	8	
	Christian	2	3	
	Muslim	2	1	
	Others	1	0	
Resident Setting	Rural	13	4	<b>0.328</b>
	Semi urban	23	41	
	Urban	11	8	
Socioeconomic Status	Lower	13	24	<b>0.36</b>
	Middle	12	29	
	Upper	2	0	
Family Type	Joint	34	41	<b>0.565</b>
	Nuclear	13	12	
Income Source	Self	26	8	<b>0.000</b>
	Family	21	45	

Some stressors were present in most number of both male and female patients. Age of patients when their parents died was 6-10 yrs. in most number of both males and females (TABLE 3).

**TABLE 3. Stressors and Age of Depression patient when parent died.**

Characteristics		Gender		P-value
		Male	Female	
Stressors	Present	43	51	<b>0.322</b>
	Absent	4	2	
Age at parents' death	Alive	19	30	<b>0.091</b>
	0 - 5	5	4	
	6 - 10	9	9	
	11 - 15	5	5	
	16 - 20	3	2	
	> 20	6	3	

More females had family history of the first- and second-degree relatives with depression, suicide and other psychiatric illness in comparison to males (FIG. 1).



**FIG. 1. Family Mental Illness Among Patients with Depression P-value = 0.002 (significant).**

More females presented with changes in biorhythm, changes in libido, suicide attempt and thought abnormalities than males (FIG. 2).

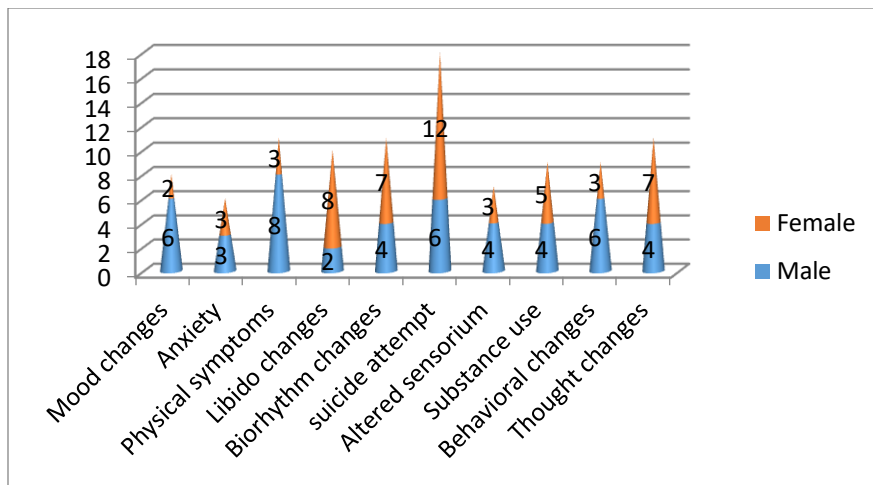


FIG. 2. Presenting features of Patients with Depression P- value = 0.341.

Nature of onset of Depressive illness in most of both males and females was acute with continuous, waxing and waning course (TABLE 4).

TABLE 4. Onset and Course of illness of Depression.

Characteristics		Gender		P-Value
		Male	Female	
Onset	Abrupt	6	5	0.109
	Acute	36	35	
	Insidious	5	13	
Course	Continuous	17	22	0.600
	Cont. waxing/waning	18	19	
	Episodic	12	12	

Almost equal number of males and females had history of depression whereas more females had history of other psychiatric illnesses in their past. Equal numbers (11 males and 11 females) were diagnosed with Recurrent depressive disorder (FIG. 3).

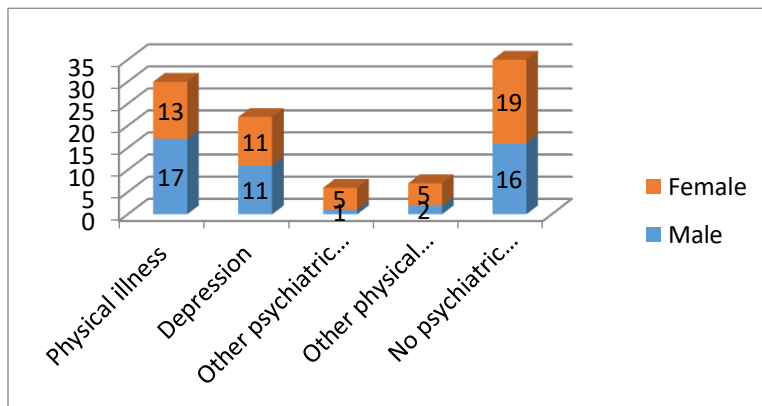


FIG. 3. Past History of Depressive Patients P= 0.310.

More females had co-morbidity of Anxiety disorder, Migraine, Substance use disorder and both physical and Psychiatric illnesses than males (FIG. 4).

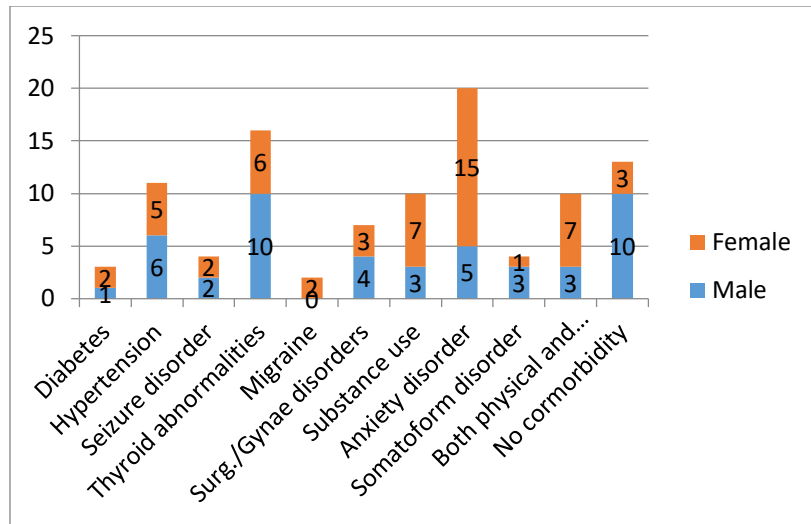


FIG. 4. Co-morbidity among Patients with Depression P- value: 0.030 (significant).

Almost equal number of males and females were presented in severe form as per the Hamilton Rating Scale for Depression (FIG. 5).

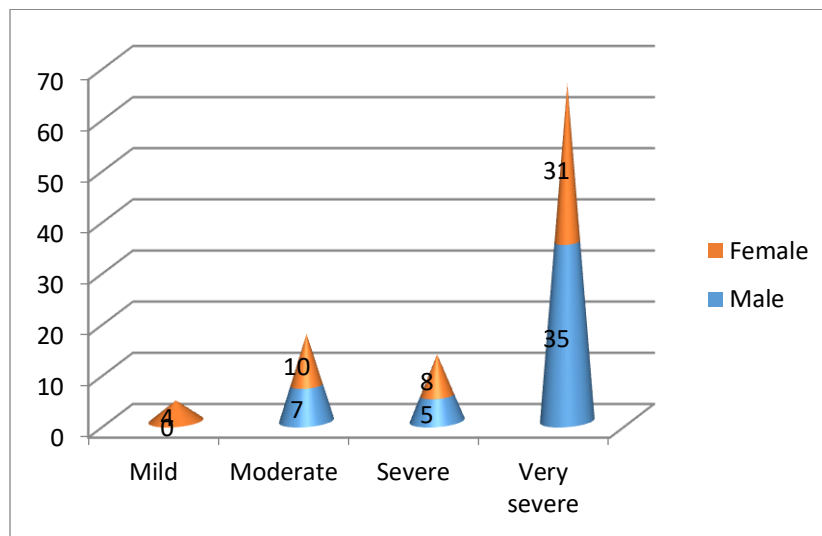


FIG. 5. Hamilton Rating Scale for Depression p-value: 0.055.

Life events in past 1 year (Holmes and Rahe Scale): It consists of 45 events, and 32 events were seen among our patients (FIG. 6).

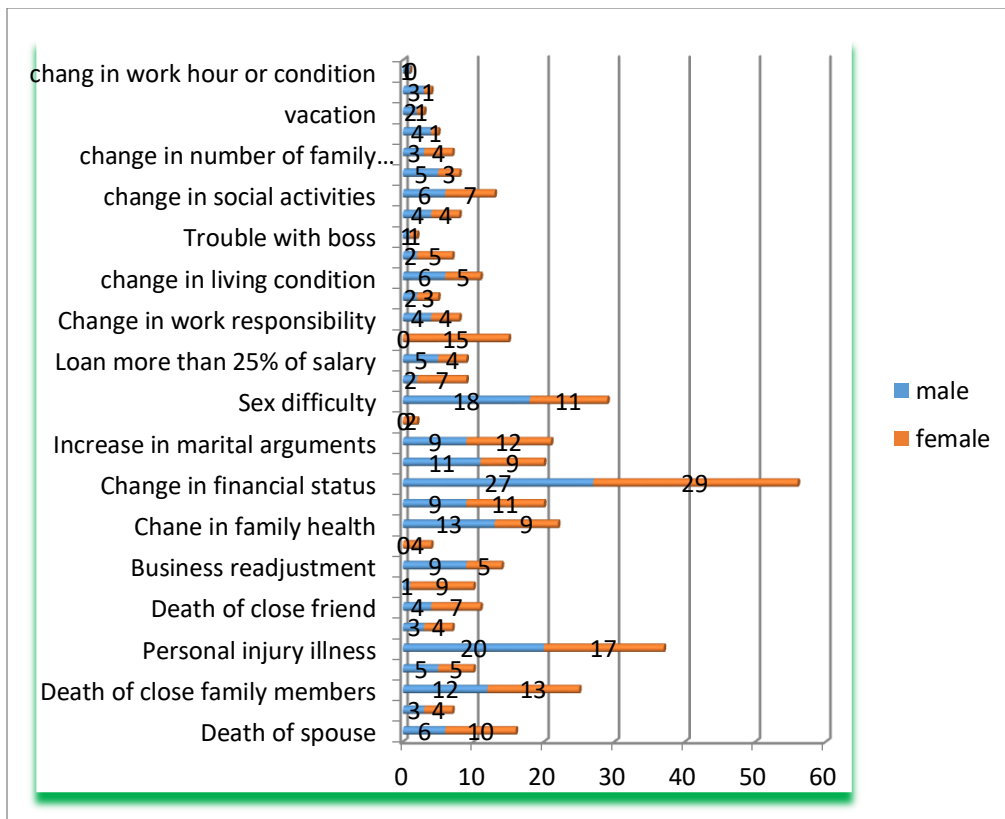


FIG. 6. Life events in past 1 year (Holmes and Rahe Social Readjustment Scale) among Patients with Depression.

Of 32 life events; p-values of pregnancy (0.014), sex difficulties (0.044), trouble with in-laws (<0.05) were significant. Almost equal number of males and females were seen with life events such as: change in financial status, change in social activities, change in number of family gatherings and personal injury or illness (TABLE 5).

TABLE 5. p values of the life events in past 1 year.

Characteristics		P-value
1	Death of spouse	0.408
2	Divorce	0.81
3	Death of close family members	0.908
4	Marital separation	0.842
5	Personal injury or illness	0.281
6	Fired from work	0.821
7	Death of a close friend	0.456
8	Pregnancy	<b>0.014</b>
9	Business Readjustment	0.164
10	Marital reconciliation	<b>0.056</b>
11	Change in family member's health	0.242



12	Addition to family member	0.842
13	Change in financial status	0.785
14	Change to different line of work	0.425
15	Increase in marital arguments	0.374
16	Wedding	0.181
17	Sex difficulty	<b>0.044</b>
18	Addition to family	0.120
19	Loan	0.592
20	Trouble with in laws	<b>0.000</b>
21	Change in work responsibility	0.860
22	Starting/finishing school	0.749
23	Change in living condition	0.597
24	Trouble with boss	0.932
25	Change in residence	0.860
26	Change in social activities	0.948
27	Change in sleeping habits	0.362
28	Change in number of family gatherings	0.81
29	Change in eating habits	0.131
30	Vacation	0.491
31	Change in recreational habits	0.255
32	Change in work hrs/condition	0.288

By Eysenck Personality Inventory, males were more extroverted and neurotic among our subjects. More females were socially desirable. p-value was significant (0.001) (FIG. 7).

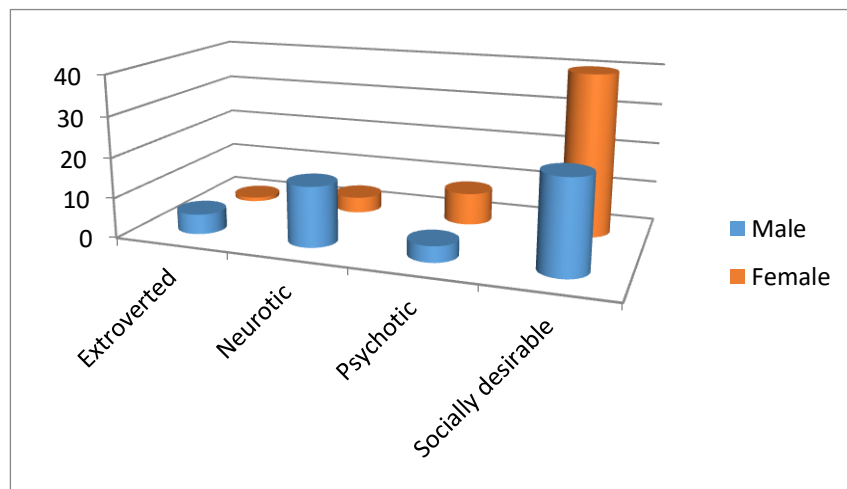


FIG 7. Eysenck Personality Inventory among Patients with Depression P value- 0.001 (significant).

## **4. Discussion**

Current study intended to see the factors associated with depression and their gender comparison in patients seeking psychiatric help from a tertiary care teaching hospital in eastern Nepal. We attempted to enroll equal number of male and female subjects for gender comparison despite of the fact that epidemiological findings point to a female preponderance in prevalence, incidence and morbidity of depression [12]. We had almost equal number of male and female patients with the diagnosis of depression, though slightly less number could be enrolled in male arm during study period.

### **4.1 Age, marital status, education and occupation**

We enrolled the subjects of ages 18 years and above in view of the personality that is established by 18 years. Most of the subjects were married with a few divorcees. Males were more educated and females were educated mostly to middle level. Male patients were mostly employed and females depended on family income. In a study from Denmark, a social gradient was found in depressive disorder regardless of socioeconomic position being measured by education, occupation, employment or income and gender difference was reported higher among employed women compared to employed men, but lower among non-employed women compared to non-employed men in minor depression [13]. In a study of Depression prevalence and demography of Qatar, the high-risk groups of depression were female gender, being married, middle aged, and highly educated [14]. In our context, males were more educated than females, yet present relatively late in comparison to female subjects. This is likely because they are the earning member of the family and their priority would be to work rather than to seek help for minor symptoms.

### **4.2 Religion, residential setting, socio-economic condition**

Most subjects were Hindu and from semi-urban areas. The socio-economic status was low to middle. More females were from lower socioeconomic status than males. Family type seen was mostly joint in both the genders. Source of income was self in most males and family in case of females, which was significant. It is consistent with the fact that greater percentage of female population is housewives and males the earning member of the family.

### **4.3 Family mental illness**

In our study, more females had family history in first- and second-degree relatives with depression, suicide and other psychiatric illness in comparison to males. This was a significant finding. Studies have shown that gene explains 50-70% of the etiology of mood disorders, people with a first-degree family member who has experienced depression are 2.8 - 10 times more likely to develop depression [15]. However, there is no research data to show that females with history of family mental illness are more susceptible to depression as compared to males. This opens door to further research on gender comparison of family history of mental illness in depression.

### **4.4 Presenting features**

More females presented with changes in biorhythm, changes in libido, suicide attempt and thought abnormalities than males. According to a study, women more often present with seasonal changes in mood, anxiety and atypical depressive features

than men [16]. Other studies revealed that men were more likely to self-medicate with alcohol or present with psychosomatic symptoms, including symptoms of digestion, sleep and general well-being [17]. Our finding was more or less in accordance with this finding.

#### **4.5 Duration, onset and course of illness**

Most of the females had presented early with duration of two weeks to two months while males presented in between 1 month to 6 months. Though there was almost equal number of males and females that presented when the symptoms were more severe, there were only females who presented with mild symptoms. This finding is consistent with other studies done on gender comparison generally showing better and earlier help seeking among females [18]. Nature of onset and course were the similar in both females and males.

#### **4.6 Past history**

We observed equal number of ‘Recurrent depressive disorder’ cases in both males and females and more male subjects with physical illness. Approximately 40%-60% of people who suffer a first episode of depression will experience another, with risk rising further for those with more preceding episodes [15].

#### **4.7 Co morbidity**

More female subjects with depression had co-morbid Anxiety, Migraine, Substance use and other psychiatric disorders and physical illnesses than males in this study. This is in tune with a study done in our setting where more females presented with harmful use of alcohol, mood, anxiety, suicidal tendencies, physical and somatic complaints whereas perceptual symptoms were seen more among males; suicidality was significantly more as presenting complaint among females who came more to quit alcohol drinking [18]. Migraine headache was more seen among female, and even more among those having severe Depressive disorder. Hence, it needs to be remembered that while looking for Depressive disorder or headache, the other condition must be kept in mind [19,20]. Co-morbid depression is associated with increased medical symptom burden, functional impairment, medical expenses, poor adherence to self-care and increased risk of morbidity and mortality in patients with chronic medical disorders. Studies have shown that the relationship between depression and diabetes and/or heart disease is bidirectional [20].

Depression may worsen the course of medical disorders owing to effect on pro-inflammatory factors, hypothalamic-pituitary axis, autonomic nervous system, and metabolic factors; in addition to being associated with a higher risk of obesity, sedentary lifestyle, smoking, and poor compliance to treatment [21]. Studies show that depressive symptoms ranging from few to co-morbid associations of clinical depression are common with seizure disorders. Depression is often not recognized and treated among seizure cases [22]. Equal number of males and females were seen in patients with seizure disorder which was in accordance with studies done in seizure disorder and psychiatric illness in the same set up [23]. More males had thyroid abnormalities. Diabetes and Hypertension was observed in both the gender equally in our study.

#### **4.8 Stressful life events**

In most of the cases both male and female, stressors were present in this study. A long-standing observation has shown many individuals experiencing a single, major depressive episode following an acute stressful life event [24]. Majority of the suicide attempt cases of this setting has been reported to share one or other stressor, major being interpersonal conflict, dispute or quarrel and the subject's health issues, e.g. illness, treatment cost and depression was the commonest diagnosis among them [25]. During the stressful period of COVID-19 pandemic lockdown too, most number of the people shared the problems of depressive and anxiety as symptoms and disorder in psychiatry helpline of this institute [26]. Our patients reported 32 various life events out of the total 45 items of Holmes and Rahe's Stress Scale. The more common events were pregnancy, trouble with in-laws in female patients. The conflict between mother in law and daughter in law is reported as a common occurrence [27] and depression is found high among pregnant women in our context [28]. There were more males who presented in depression with events such as: death of spouse, change in financial status and personal injury or illness of a family member.

In a study done by Satija and Nathawat in 1985, death of spouse was more closely associated with elderly males; death of close family member and marital and family conflicts were found more frequently occurring in depressed patient [29] which was consistent with our finding. This shows that males are more vulnerable to depression with the advancing age. This warrants further in-depth study for our context-based intervention. Stressor and mental illness including depression needs particular attention both in general and in specific to the local context [30].

#### **4.9 Age of the patient when parent died**

Age of most patients when their parents died for both the genders was 6-10 years. Previous findings have shown that parental death at early age of patients may be a risk factor for depressive disorders [31].

#### **4.10 Personality factors**

More male patients with depression were extroverted and neurotic and more females socially more desirable in our study. Similar study done by Sharma D in 1985 highlights the relationship between different components of personality like 'Psychoticism', 'Extroversion', 'Neuroticism' and depression. Findings support that the persons with more component of Psychoticism and Neuroticism in their personality are more likely to suffer from depression than extroversion in patients with old age depression [29]. This finding was seen to be parallel with our study.

### **5. Limitations**

Current study had some limitations. Sample size was small and sampling was convenient. Sample was biased in a way that it studied only the patients seeking treatment from psychiatric service. Therefore, the sample might not represent the general population and the results may not be generalized to the community. Hence, we recommend further in-depth study with multi-center participation and in community setting.

## **6. Conclusion**

Males were mostly more educated and most females were educated to middle level among the patients with depression seeking psychiatric service of a teaching institute in eastern Nepal. Female depression patients came to psychiatric service sooner than male counterparts. More female patients with depression depended on the family income whereas males on their own.

Both male and female patients were younger when their parent died. Nature of onset of depressive illness was acute with continuous, waxing and waning course in both the gender. Almost equal number of males and females had history of depression whereas more females had history of other psychiatric illnesses in their past. More females had family history with first- and second-degree relatives with depression, suicide and other psychiatric illness in comparison to males. More females presented with changes in biorhythm, changes in libido, suicide attempt and thought abnormalities. Males presented more with mood changes, physical symptoms and behavioral changes. More females had co-morbidity of Anxiety disorder, Migraine, Substance use disorder than males. Out of the life events, the value of pregnancy, trouble with in-laws was seen among females. Males had events such as sex difficulty and losing spouse. Almost equal number of males and females were seen with life events such as: change in financial condition, change in social activities, change in number of family gatherings and personal injury or illness. Males were found more extroverted and neurotic and more females were socially desirable.

## **7. List of Abbreviations**

BPKIHS: B. P. Koirala Institute of Health Sciences; ICD-10: International Classification of Diseases and Infirmity; IRC: Institutional Research Committee; MDD: Major Depressive Disorder; OPD: Out-patient department; RDD: Recurrent Depressive Disorder

## **8. Ethics Approval and Consent to Participate**

The study was done after obtaining the approval of the Institutional Ethical review Board (IERB)/ Institutional Research Committee (IRC) of BPKIHS. Cases were enrolled after informed written consent from the subject. Strict confidentiality of information was maintained and the results were utilized for management of the problem concerned and similar problems in general.

## **9. Consent for Publication**

Not applicable.

## **10. Availability of Data and Materials**

All data generated during this study are included in this published article.

## **11. Competing Interests**

The authors declare that they have no competing interests.

## 12. Funding

None. The authors, however, declare that they received logistic support from BPKIHS research committee.

## 13. Authors' contributions

DRS and LG were involved in all steps. BKD analyzed and interpreted the subjects' response regarding personality traits. SKP helped analysis and editing. All authors read and approved the final manuscript.

## 14. Acknowledgements

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