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ORIGINAL ARTICLE

Prevalence of Depressive Disorder among Secondary School Students in City Sialkot, Pakistan

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ABSTRACT

Objective: To assess the prevalence of depression in secondary school students and its association with socio-demographic status

Study Design: Cross-sectional study

Place and Duration of Study: Nine student academies located in city Sialkot, Pakistan from August 2019 till January 2020.

Material and Methods: The Beck's Depression Inventory-II (Urdu translated) was administered to the students to see the prevalence and severity levels of depression. Moreover, the depressive problem was associated with socio-demographic variables e.g. family type (nuclear/joint) or possession of mobile phone of any brands using Chi-square test.

Results: Of 208 subjects, 40 revealed depression (prevalence rate = 19.2%: Mild 13.0% and moderate 6.2%). A female student had 5-fold more likelihood of the problem than male under study (95% CI : 2.205 - 11.553, $p = .0001$). A higher rate of overall depression was seen in students from nuclear (30.1%) compared to joint family system (8.6%) ($p = .0001$). However, the rate was seen slightly lower in Grade 9 than 10 (18.3 vs. 20.2%, respectively; $p = .73$). Sadness (58.7%) was found to be a remarkable clinical variable for depression followed by concentration difficulty and self-criticalness.

Conclusion: Depression exists among 1/5th population of the secondary school students. There is need of awareness among parents and teachers to help the depressed students.

Key Words: *Depressive disorder, Prevalence, Beck's depression inventory-II, Students*

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INTRODUCTION

Depression is a worldwide psychopathology of all segments of the society.¹ In students, it jeopardizes daily academic activities followed by poor grades on lack of interest. On bad results, there is a series of emotional (some time physical) abuse from parents and teachers which in turn

compound severity of the depression for further decline in academic outcomes. Shockingly, the undiagnosed or misaddressed depression - grade interactivity prompts suicidal ideation in adolescent students.^{1,2}

Generally, the students of grade 9 and 10 are 14 to 17 years of age. This is the time when sex-

oriented hormonal changes³ are at their peak while behavioral changes are generally recognized on fascination towards other gender. The relationship with the opposite sex adversely affects the study timetable due to emotional instability. The situation compound when boundless scrolling of social media minimizes prerequisite consistent concentration for study affairs.^{4,5} The factors contribute in the development of poor academic grades – a predictor for depression. The sufferer can get away the circumstances by profiting the psychotherapy or self-mediation. Unfortunately, about 70%⁶ adolescents do not avail appropriate treatment as they conceal their dispositions, and are seldom analyzed. So, depression is an under-recognized health ailment of the teenagers.

The DSM-V (Diagnostic and Statistical Manual of Mental Disorders, 5th edition) defines clinical symptoms for depression e.g. diminished pleasure. A person with at least five of these symptoms is categorized as sufferer of major depressive disorder.⁷ These psychological and cognitive symptoms may appear in children. So, the Beck's Depression Inventory-II (BDI-II)⁸ with item No. 9 on suicidal wish is equally applicable to assess the magnitude of depression in them.

Online published articles are available on prevalence of depression e.g. in Pakistani higher secondary or medical school students.^{9,10} However, there is not a single paper hitting magnitude of this mental disorder in high school students particularly at city Sialkot, Pakistan. So, present survey was conducted to address the research gap. The aim of the study was to explore the prevalence of depression in secondary school students, and its association with socio-demographic information. The findings of the study will be helpful for both, guardians and educators in addressing deviant conduct of the students e.g. referral to psychiatrist for support after clinical identification.

MATERIALS AND METHODS

A cross-sectional study was conducted between August 2019 and January 2020 in city Sialkot on finding approval from the ethics committee, Masood Research Centre, Sialkot (Pakistan). The Centre encourages research in both, physical and mental health problems in human population.

The sample size was calculated vide a formula: z^2pq/d^2 using $z_{\alpha/2} = 1.86$, $p = 0.16$ (prevalence of depression in the secondary school students of the area through pilot study), $q (1 - p)$, and $d = 0.05$. The size (206.52 ~ 207) increased to 228 in the light of 10% non-response rate.

Grade 9 and 10 students were selected using two-stage cluster sampling method after Jha *et al.*¹ Of total 44 academies, nine were randomly selected as primary selection unit. In the 2nd stage, any one class (9 or 10) was selected randomly from each of the units as sampling frame. From each frame, a section of 30 students was selected and all the students of the selected section were eligible to take part in study. However, all those with age (over 17 or below 14 years), who had serious physical/mental ailment, had been taking antidepressant medicine(s) in near past, lacked school enrollment; or declined to give participation consent were excluded.

The Beck's Depression Inventory II (BDI)⁸ was translated into Urdu (Native language) by a team of language specialists and psychology clinicians (Cronbach $\alpha = 0.80$). The tool had 21 items with 4 response options each. Each answer was scored on a 0-3 scale (possible total score 63). The severity levels of depression were interpreted, as: Normal (0-13), mild/border line (14-19), moderate (20-28), and severe depression (29-63 score). The tool was pretested before using in main study. In the main study, the tool was administered by purposely trained members of the research team. The students were asked to response the tool at home on finding no physical/mental fatigue, illness, or environmental disturbance at home and return the same within 3 days. Permission of academy administrators was guaranteed before explaining the purpose of study and secrecy of responses in the tool. Similarly, informed consent from the parents and assent of the students were sought ensuring confidentiality of the data.

Mean values and percentages were calculated using continuous (with normal distribution) and dichotomous data, respectively. Pearson's Chi-square test was used to see the association of depression with demographic variables. However, a p-esteem (<.05) was taken as statistically significant for the test. The analyses were conducted utilizing techniques in SPSS

software version 25.0.

RESULTS

Of 228 eligible students of 9th and 10th grades, 208 (response rate: 91.2%) returned completely filled in BDI-II. The depression was noticed in 40 subjects (prevalence: 19.2%). The rate of mild severity level of depression (13%, $n = 27$) was almost double the moderate depression (6.3%, $n = 13$) as shown in Bar diagram (fig 1). However, not a single case of severe depressive disorder was documented. A total 19 participants [18.2% of total 104] of Grade 9 had symptoms of depression. The rate of mild depression (i.e.14.4%) was remarkably higher than that of the moderate depression (3.8%). However, the rate increased to 20.2% ($n = 21$; Mild: 11.5%, Moderate: 8.7%) in Grade 10.

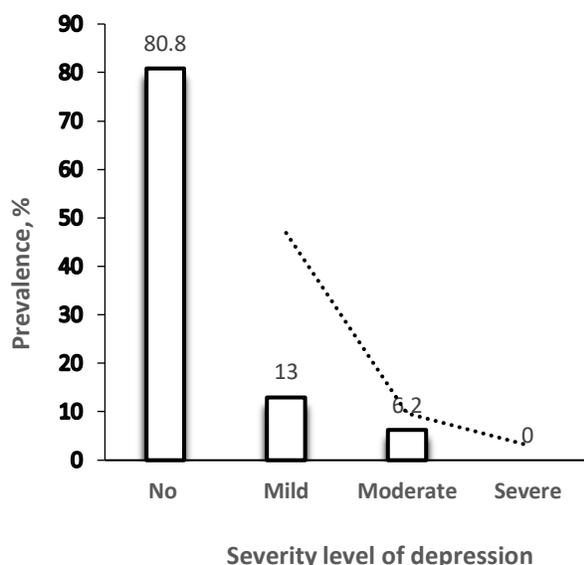


Fig. 1: Prevalence versus severity levels of depression in school students ($n = 208$)

The biological age of the respondents in BDI-II ranged between 14 and 17 ($M = 15.44$, $SD = 0.9$) years with male predominance ($n = 111$, 53.4%). However, there was no evidence of trans genders. Likewise, 160 (76.9%) subjects reported nuclear family structure (i.e. father, mother, and children). Possession of personal mobile set for social media scrolling confined to

79 (38.0%) students. A few i.e. 19 (9.1%) revealed emotional abuse by school teachers on poor academic grades as depicted in table 1 after 2x2 cross tabulation of dichotomous variable with depression rate using SPSS software. However, none of the subjects pointed out any physical/sexual perpetration by the educators.

TABLE 1: Socio-demographic information of eligible study subjects ($n = 208$)

Variable	Percentage	Frequency
Gender		
Male	53.4	111
Female	46.6	97
Academic grade		
9	50.0	104
10	50.0	104
Biological age; years		
14	15.9	33
15	36.5	76
16	35.6	74
17	12.0	25
Phone possession		
No	62.0	129
Yes	38.0	79
Family structure		
Joint	23.1	48
Nuclear	76.9	160
Emotional abuse*		
No	90.9	189
Yes	9.1	19

*by class teachers at school

Data in table 2 show relative risk ratio of different variables against socio-demographic variables of the respondents. A female student had 5-fold more risk of the depression than male understudies (95%CI: 2.205 - 11.553, $p = .0001$) after Chi-square test for association. The overall prevalence rate was significantly higher in students of nuclear (30.1%) than joint family system (8.6%) ($p = .0001$). The depressive disorder also showed statistically significant association with possession of personal mobile set for social media scrolling ($p = .0001$). However, statistical analysis revealed insignificant difference in the rate between Grade 9 and 10 (18.3 vs. 20.2%, respectively, $p = .73$).

TABLE 2: Risk estimates against socio-demographic variables (N = 208)

Variable	Depression, f (%)	X ² value	RR	95%CI	p
Academic class					
9	19 (18.3)	0.124	1.065	.744 –	.73
10	21 (20.2)			1.524	
Gender					
Male	5 (4.5)	33.23	5.05	2.205 –	.0001
Female	35 (36.1)			11.553	
Family type					
Joint	9 (8.6)	15.51	2.54	1.408 –	.0001
Nuclear	31 (30.1)			4.581	
Phone possession					
No	10 (8.3)	21.69	2.62	1.514 –	.0001
Yes	30 (34.1)			4.530	
Emotional abuse					
No	31 (16.4)	Nil*	.256	.115 – .608	.003
Yes	9 (47.4)				

*on Fisher's Exact test for association, RR – Relative risk, 95%CI – 95% Class interval

Each item in BDI-II had a clinical factor while the highest option (with 3 scores) of each item indicated severe depression. Sadness (58.65%; item number 1) was found to be the most prevalent clinical factor as 122 subjects marked option of severe depression. Concentration difficulty (47.11), self-criticalness (37.02), irritability (35.58), and indecisiveness (28.85) were amongst the successive prominent factors. Similarly, moderate depression (with score 2) was also seen against many factors. However, none of the respondents showed severe depression against item No. 21 on loss of libido (i.e. sexual desire).

DISCUSSION

Depression in secondary school adolescent students leads to antisocial behavior beside poor academic grades.^{5-7,10,11} So, its assessment is essential for positive outcomes.

The rate of depression (i.e. 19.2%) in our study is markedly lower than the reported 49.2%,¹ 52.6%,¹² or 57.7%² in similar students. The lower rate is socio-cultural values-based. The sudden drop in rate (from mild to moderate depression) is in line with that of Jha et al¹ and Nagendra et al² while indicates inverse depression-prevalence relationship. However, no case of severe depression contradicts a Saudi study (5%)¹³ on school students and is an encouraging sign. The severe depression prompts suicidal ideation.

Gender distribution (male, 53% and female, 47%) tallies Population Census, 2017¹⁴ of Pakistan. More vulnerability of depression in females (i.e. 36.1%) marks gender-specific approach^{12,15} and is endocrinology-based. Our findings on sexes is similar to that of Saudi and Norwegian studies.^{13,15} Hormonal³ and behavioral changes of adolescent (aged: 14-17 years) can also be held responsible for triggering poor grades – depression cycle via sex fascination and emotional instability, respectively. Similarly, insignificant difference in the prevalence (2.0%) between the two academic classes is cumulative impact of family history of depression¹⁶ and age disparity (older in 9 while younger in Grade 10).

Reporting of nuclear family structure by 76% of subjects (depression prevalence 30.1%) is frightening. Here, CAN (child abuse and neglect) seems as predictor for depression in the absence of security by family acquaintances and peer to peer (P2P) counseling. The CAN also promotes deviant attitude beside fatal diseases.^{11,17-19} Existence of depression in 34.1% of personal phone users for social media endorses a concept 'Boundless media scrolling couples depression'^{9,20} in adolescents. Actually, frequent scrolling of the media diminishes learning attitude for sustainable education.^{4,5} The reason behind no evidence of corporal punishment traces back to strict implementation of disciplinary action²¹ against the offenders.

The contribution of clinical symptom of sadness or irritability in depression levels seems to endorse the findings of published studies^{22,23} on the same signs in the study tool. However, no reporting of severe depression against loss of libido (i.e. sexual desire) disagrees a remarkable value of 38%²⁴ in Papua, New Guinea. Similarly, evident cases with indecisiveness²⁵ clinical factor – lack of decision power is notable as it has direct association with overall depression.

CONCLUSION

Secondary school going students are vulnerable to depression of mild and moderate levels. Femininity, nuclear family structure and possession of personal mobile set for social media are amongst the predictors for the disorder. Sadness is the most prominent clinical factor of the problem. There is need of help from both, parents and teachers in reduction of magnitude and severity levels of the depression for better educational grades.

IMPLICATIONS

The findings will be helpful for both, guardians and educators in addressing deviant conduct of the sufferers be side referring the students (13 in present study) with moderate level of depression to psychiatrist support. Similarly, public agencies like CPB (Child Protection Bureau) can get benefit from outcomes after revising mental health-related policies.

LIMITATIONS

The study restricted to small sample size on account of limited financial, time and human power resources. Hence, its findings cannot be generalized to overall population of students of this level. Likewise, many socio-demographic variables e.g. family history of depression remained out of investigation.

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