

## ORIGINAL ARTICLE

**FACTORS ASSOCIATED WITH DEPRESSION AMONG ADOLESCENTS, ENROLLED IN EDUCATIONAL SETTINGS (AGE 15-19 YEARS) FROM A LOCALITY OF KARACHI, PAKISTAN**

Maria Kanwal<sup>1\*</sup>, Raja Khetpal<sup>2</sup>, Ramna Shafique<sup>3</sup>, Saleha Haider<sup>4</sup>, Perah Ali<sup>5</sup>, Rafay Shahab Ansari<sup>6</sup>

**ABSTRACT**

**Background:** Depression is a prevalent and debilitating mental health issue among adolescents. This study aims to investigate the various factors associated with depression among adolescents, enrolled in educational settings aged 15 to 19 in Karachi, Pakistan.

**Methods:** A total of 250 participants were included in the study. Depression levels were assessed using the Hamilton Depression Rating Scale, and participants were categorized by age, gender, educational level, family background, and various psychosocial variables. Data were analyzed using statistical tests to identify significant associations.

**Results:** The study found that 52.8% of participants experienced depressive symptoms. Females exhibited a higher prevalence of depression, 32.4% with a significant increase in symptoms among those above 18 years of age, 26.4%. Additionally, social media usage showed a complex relationship with depression, 4 hours of use with 60.6% and up to 6 or more hours of use with 60.4% prevalence; and the excessive comparisons with online influencers correlating with higher depression risk, 68.4%. 65% (26 out of 40) of those students who found their parents to be Authoritarian; and those perceiving presence of gender differences applied within their household, 12.0% (81.1% within the variable) ( $p=0.000$ ), were also associated with depression. Other contributing factors included a family history of depression, 20% with a  $p$ -value of 0.016; the perception of mental health as a taboo subject, 23.2% with  $p=0.000$ ; body image dissatisfaction, 24% with  $p=0.001$ ; and poor appetite, 10.8% with  $p=0.004$ .

**Conclusion:** The findings of this study highlight the multifaceted nature of depression among adolescents in Karachi addressing this issue requires a comprehensive approach involving parents, schools, and healthcare providers. Strategies should encompass emotional support, mental health programs, and tailored interventions targeting individual needs. Initiatives involving parents, schools, and healthcare providers are essential to improving the well-being of school-going adolescents in Karachi.

**Keywords:** Depression, Adolescents, Karachi, Psychosocial Factors, Mental Health, Social Media Usage, Family Dynamics.

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1\*,3-6, 5<sup>th</sup> Year MBBS Student, Ziauddin Medical College

2 Senior Registrar, Psychiatry Department, Dr. Ziauddin Hospital Kaemari, Karachi Pakistan

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**INTRODUCTION**

Depression is a significant mental health concern worldwide, affecting individuals across different age groups. However, the prevalence of depression among adolescents has been gaining attention due to its potential long-term consequences on their overall well-being and academic performance. Adolescence

is the period of transition. Depressive disorders often start at a young age; they reduce people's functioning and often are recurring. In the research conducted in government schools of Chandigarh, India, the peak age of depression was 18 years [1].

Adolescence is a critical developmental stage characterized by numerous physical, psychological, and social changes. During this period, school-going children experience increased academic pressures, interpersonal challenges, and identity formation struggles, making them vulnerable to mental health issues such as depression. Acculturative stress predicted hopelessness and suicidal ideation, and hopelessness mediated the relation between acculturative stress and suicidal ideation [2].

Moreover, the socio-cultural context of Karachi, with its rapid urbanization, diverse population, and socioeconomic disparities, may contribute to unique stressors and risk factors for depression among this age group [3,4]. While research on depression in school-going children has been conducted globally, there is a paucity of studies specifically investigating this issue within the local context of Karachi, Pakistan. Therefore, this research aims to bridge this gap by examining the factors associated with depression in adolescents aged 15-19 years in a specific locality of Karachi.

Understanding the factors associated with depression in this population has both theoretical and practical implications. From a theoretical perspective, it contributes to the existing body of knowledge by shedding light on the specific risk and protective factors relevant to this age group within the local context [5]. It enhances our understanding of the complex interplay between individual, familial, and environmental factors that contribute to depression among school-going children. Therefore, this study aims to investigate the various factors associated with depression among adolescents, enrolled in educational settings aged 15 to 19 in Karachi, Pakistan.

## METHODOLOGY

A cross-sectional study was done to investigate

factors associated with depression among Adolescents aged 15-19 years in educational settings Karachi, Pakistan. The study aimed to collect data in a period of 6 months from April of 2023 to September of 2023, to examine the relationships between variables and determine prevalence rates. The study adopted a cross-sectional study design. This design allowed for the collection of data from a sample of individuals at a single point in time and provided a snapshot of the current situation and explored potential associations.

A simple random sampling technique was employed to ensure representative coverage of the target population of 250 students. The target population consisted of adolescents of educational settings aged 15-19 years in Baldia Town, Karachi, Pakistan. Inclusion Criteria includes age range of participants must be between 15 and 19 years old. Educational status of participants must be enrolled in a school or educational institution. Participant must reside in the specified locality of Karachi, Pakistan. Exclusion Criteria include individuals who are unable to provide informed consent for any reason, individuals who are unable to understand or communicate effectively in the language used for data collection. And cases with known mental or substance use disorders. The primary data was collected through questionnaires filled by the researchers individually assessing the participants.

Ethical guidelines and standards were informed to the inclusive participants and strictly followed throughout the research process. For conducting this research, the approval of the ethical committee of Ziauddin Medical College was taken under protocol reference # 070723MRS6. Informed consent was obtained from all participants (assent of the underage participants was taken through their parents) and participants' privacy and confidentiality was ensured by anonymizing the collected data and storing it securely.

**Statistical Analysis:** The collected data were analyzed using SPSS. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were

used to summarize the data and describe the characteristics of the study sample. Chi-square tests were employed to examine associations between variables of interest. The significance level was set at  $p < 0.05$  to determine statistical significance.

## RESULT

In our study, a total of 250 students participated, ranging in age from 15 to 19 years old. The majority of participants were under the age of eighteen, comprising 55.2% ( $n=138$ ), while those over eighteen constituted 44.8% ( $n=112$ ) of the sample. Female students made up 60% ( $n=150$ ) of the participants, while males constituted 40% ( $n=100$ ). The

participants were categorized into three different education levels: secondary school, with 26.8% ( $n=67$ ); higher secondary school, with 70% ( $n=175$ ); and university students, with 3.2% ( $n=8$ ).

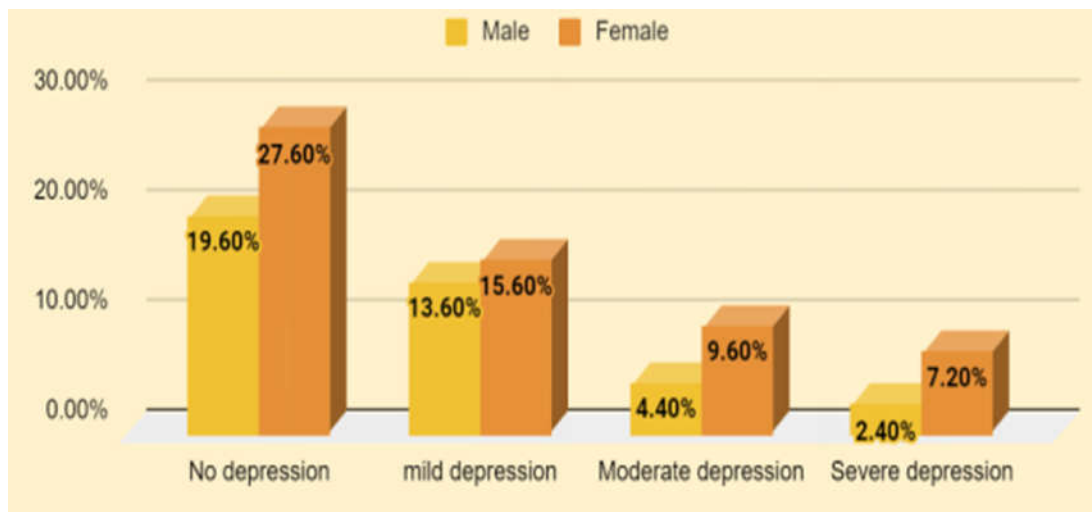
A majority of the students came from middle-class families, accounting for 54.4% ( $n=136$ ), and the nuclear family type was prevalent among 56.8% ( $n=142$ ) of the participants. The educational background of the fathers indicated that 28.8% ( $n=72$ ) had education up to the secondary level, while 54.4% ( $n=136$ ) were engaged in business occupations. Mothers' education was primarily up to the primary level, representing 34% ( $n=85$ ) (table 01).

**Table 01: Baseline Characteristics of Study Participants**

Variable		N	%
Age	Below 18	138	55.2
	Above 18	112	44.8
Gender	Male	100	40
	Female	150	60
Education Level	Secondary school	67	26.8
	Higher secondary school	175	70
	University	8	3.2
Family Type	Joint family	108	43.2
	Nuclear family	142	56.8
Father's Education	No education	16	6.4
	Up to primary	52	20.8
	Up to secondary	72	28.8
	Up to higher secondary	46	18.4
	Graduation or Above	64	25.6
Mother's Education	No education	28	11.2
	Up to primary	85	34
	Up to secondary	74	29.6
	Higher secondary	35	14
	Graduation or above	28	11.2
Father's Occupation	Unemployed	41	16.4
	Labourer, Agricultural worker	73	29.2
	Businessman, Professional	136	54.4
Mother's Occupation	Unemployed	213	85.2
	Labourer, Agriculture worker	25	10
	Businesswoman, Professional	12	4.8
Socioeconomic Status based on Income, type of Education, & Residence	Upper	81	32.4
	Middle	136	54.4
	Lower	33	13.2
Number of Siblings	None	8	3.2
	1-2	43	17.2
	3-4	95	38
	5-6	70	28
	7 or more	34	13.6

To investigate factors associated with depression, we employed the Hamilton Depression Rating Scale for students aged 15 to 19 years. The scale categorized scores into different depression levels: 0-7 (no depression), 8-16 (mild depression), 17-23 (moderate depression), and >24 (severe depression). Figures 01 and 02 illustrate the prevalence of scores with respect to gender and age. Figure 01: The prevalence of Depression, as assessed using the Hamilton Depression Rating Scale with respect to

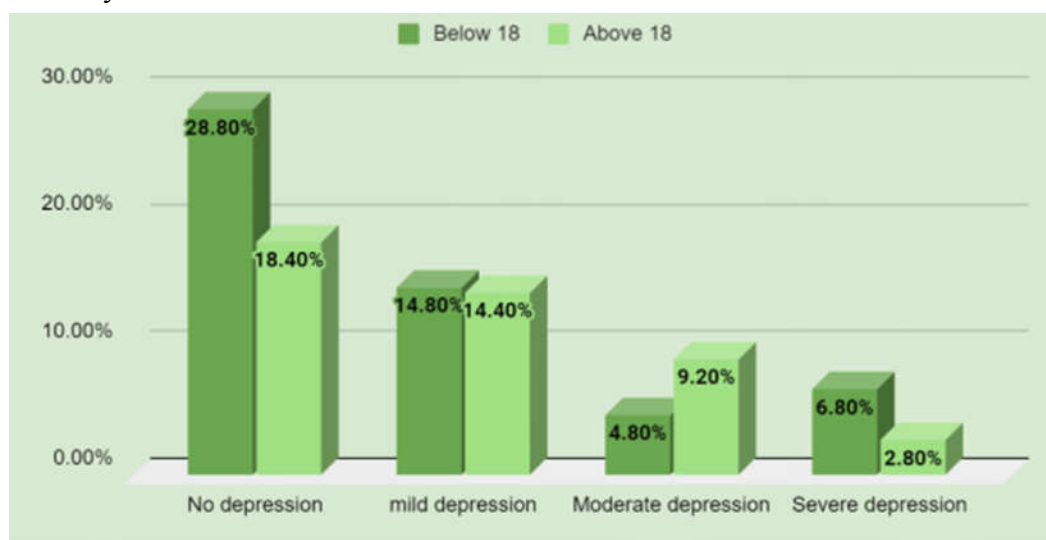
Gender is presented. The majority of participants exhibited no depression, accounting for 47.2% of the total sample (27.6% for females and 19.6% for males). Mild depression was observed in 29.2% of participants (15.6% for females and 13.6% for males), while 14.0% experienced moderate depression (9.6% for females and 4.4% for males). Severe depression was identified in 9.6% of participants (7.2% for females and 2.4% for males).



**Figure 01: Prevalence of Depression according to Hamilton Scale and Gender**

Figure 02: The distribution of Hamilton Scale scores based on age groups. The results indicate that the majority exhibited no depression, constituting 47.2% of the total sample (28.8% for participants below 18 years and 18.4% for those above 18 years). Mild depression was found in 29.2% of participants (14.8% for those below 18 years and 14.4% for those above

18 years). Similarly, moderate depression was identified in 14% of participants (4.8% for those below 18 years and 9.2% for those above 18 years), while severe depression was observed in 9.6% of participants (6.8% for those below 18 years and 2.8% for those above 18 years).



**Figure 02: Prevalence of Depression according to Hamilton Scale and Age**

Table 02 presents data on factors associated with and without depression. Among the participants, 52.8% (n=132) experienced depressive symptoms, while 47.2% (n=118) did not. Specifically, 26.4% (n=66) of participants above 18 years old and 26.4% (n=66) below 18 exhibited signs of depression. In terms of gender, 32.4% (n=81) of female students and 20.4% (n=51) of male students showed depressive symptoms. Higher secondary students

had the highest prevalence of depression at 38.4% (n=96). Regarding family structure, 20.8% (n=52) with joint family systems and 32.0% (n=80) with nuclear families displayed depressive symptoms. Students with fathers engaged in business or professional occupations showed a higher rate of depressive symptoms (29.2%, n=73) compared to those with other occupations.

**Table 02: Demographic Factors associated with and without Depression**

Variables		Depression Absent n(%)	Depression Present n(%)	p-Value
Age	Below 18 years	72 (28.8)	66 (26.4)	0.080
	Above 18 years	46 (18.4)	66 (26.4)	
Gender	Male	49 (19.6)	51 (20.4)	0.642
	Female	69 (27.6)	81 (32.4)	
Education Level of the Participant	Secondary school	36 (14.4)	31 (12.4)	0.418
	Higher secondary school	79 (31.6)	96 (38.4)	
	University	3 (1.2)	5 (2.0)	
Family Type	Joint family	56 (22.4)	52 (20.8)	0.199
	Nuclear family	62 (24.8)	80 (32.0)	
Father's Education	No education	8 (3.2)	8 (3.2)	0.250
	Up to primary	26 (10.4)	26 (10.4)	
	Up to secondary	32 (12.8)	40 (16.0)	
	Up to higher secondary	16 (6.4)	30 (12.0)	
	Graduation or Above	36 (14.4)	28 (11.2)	
Mother's education	No education	15 (6.0)	13 (5.2)	0.605
	Up to primary	36 (14.4)	49 (19.6)	
	Up to secondary	38 (15.2)	36 (14.4)	
	Up to higher secondary	18 (7.2)	17 (6.8)	
	Graduation or Above	11 (4.4)	17 (6.8)	
Father's Occupation	Unemployed	19 (7.6)	22 (8.8)	0.912
	Laborer, Agricultural worker	36 (14.4)	37 (14.8)	
	Businessman, Professional	63 (25.2)	73 (29.2)	
Mother's Occupation	Unemployed	97 (38.8)	116 (46.4)	0.318
	Laborer, Agricultural worker	13 (5.2)	12 (4.8)	
	Businessman, Professional	8 (3.2)	4 (1.6)	
Socioeconomic Status	Upper	43 (17.2)	38 (15.2)	0.286
	Middle	58 (23.2)	78 (31.2)	
	Lower	17 (6.8)	16 (6.4)	

Among students whose mothers were unemployed or housewives, 46.4% (n=116) showed depressive symptoms. Spending more time on social media or TV was associated with higher rates of depression. Regarding parenting style, students perceiving their parents as Authoritative exhibited a depression rate of 30% (n=75). Students who perceived the presence of gender differences within their household reported depressive symptoms at a rate of 12.0% (n=30).

Witnessing or being victims of domestic abuse was associated with a depression rate of 16.4% (n=41). Furthermore, family history of depression or anxiety disorders, considering depression and mental health as taboo topics, body image dissatisfaction, poor appetite, lack of physical activity, recent loss of a loved one, and witnessing or being victims of substance abuse were all associated with higher rates of depressive symptoms among students.

**Table 3: Responses of the Participants with or without Depression**

Variables		Depression Absent n (%)	Depression Present n (%)	P-value
Spending Time on social media / TV	Up to 2 hours	71 (28.4)	60 (24.0)	0.041
	Up to 4 hours	28 (11.2)	43 (17.2)	
	6 hours or more	19 (7.6)	29 (11.6)	
Compare or Feel Insecure to the people who present themselves on social media in a specific manner	Never	81 (32.4)	71 (28.4)	0.243
	Hardly Ever	16 (6.4)	16 (6.4)	
	Much of the time	15 (6)	29 (11.6)	
	Most of the time	6 (2.4)	13 (5.2)	
	All of the time	0 (0.0)	3 (1.2)	
How do you find your Parent's Nature to be?	Authoritarian	14 (5.6)	26 (10.4)	0.691
	Authoritative	66 (26.4)	75 (30.0)	
	Permissive	31 (12.4)	26 (10.4)	
	Rejecting style	7 (2.8)	5 (2.0)	
How many siblings do you have?	None	2 (0.8)	6 (2.4)	0.000
	1-2	22 (8.8)	21 (8.4)	
	3-4	47 (18.8)	48 (19.2%)	
	5-6	32 (12.8)	38 (15.2)	
	7 or more	15 (6)	19 (7.6)	
Do you feel like there are gender differences being applied in your household?	Yes	7 (2.8)	30 (12.0)	0.003
	No	111(44.4)	102 (40.8)	
Have you ever witnessed Domestic Abuse whether verbal or physical?	Yes	18 (7.2)	41(16.4)	0.167
	No	100 (40)	91 (36.4)	
Do you think your Parents are Strict regarding your Grades, your Studies, Religion, or Anything in General?	Yes	50 (20)	67 (26.8)	0.009
	Sometimes	54 (21.6)	45 (18.0)	
	No	14 (5.6)	20 (8.0)	
How Good are your Grades?	Great	64 (25.6)	47 (18.8)	0.003
	Average	51 (20.4)	77 (30.8)	
	Poor	3 (1.2)	8 (3.2)	
Have you ever been a Victim of School/Family Bullying?	Yes	20 (8.0)	44 (17.6)	0.016
	No	98 (39.2)	88 (35.2)	
Do you have a Family History of Depression or anxiety disorders?	Yes	28 (11.2)	50 (20)	0.000
	No	90 (36.0)	82 (32.8)	
Does your Family think the Topic of Depression and Mental Health is Taboo?	Yes	26 (10.4)	58 (23.2)	0.015
	No	92 (36.8)	74 (29.6)	
Do you feel like you have your Ideal Body Weight?	Yes	71 (28.4)	59 (23.6)	0.001
	No	47 (18.8)	73 (29.2)	
Are you Dissatisfied with your Body Image or Face?	Yes	30 (12.0)	60 (24.0)	
	No	88 (35.2)	72 (28.8)	
How is your Appetite?	Good	52 (20.8)	49 (19.6)	0.004
	Average	59 (23.6)	56 (22.4)	
	Poor	7 (2.8)	27 (10.8)	
How much Physical Activity / Outdoor Activity do you perform each day?	None	37 (14.8)	51 (20.4)	0.101
	1-2 hours	39 (15.6)	52 (20.8)	
	3-4 hours	18 (7.2)	15 (6.0)	
	5 hours or more	24 (9.6)	14 (5.6)	
Have you Recently Lost a Loved One?	Yes	46 (18.4)	72 (28.8)	0.014
	No	72 (28.8)	60 (24.0)	
Have you been a witness/victim of substance abuse?	Yes	35 (14.0)	44 (17.6)	0.533
	No	83 (33.2)	88 (35.2)	

## DISCUSSION

Depression hinders academic performance by interfering with emotional, cognitive, and social abilities, thus leading to increased school absences and compromising the overall well-being of students [3]. This study investigated the factors associated with depression in school-going children aged 15 to 19 years who are attending school in Karachi. The findings revealed that a significant portion of students experience symptoms of depression. The prevalence of depression was notably higher among female students and those above the age of 18. This finding is consistent with a prior study done by et al., Kaur S [4] and another study by Sandal, RK, which found that females exhibited a greater degree of frustration compared to males [1]. Several factors have been suggested as potential explanations for this gender difference. Some studies propose that social factors, such as concerns related to weight, could be contributing to these gender differences during adolescence. In contrast, others emphasize physiological factors and the influence of sex hormones as contributing factors [5].

Furthermore, a higher proportion of students in higher secondary education exhibited signs of depression, followed by secondary students, and then university students, maybe it could be the transitioning period as the effector, leading to higher prevalence. The study also noted a higher incidence of depression among students from the middle-class demographic. Sandal, R. K illustrated a greater prevalence of depression in those belonging to poor families, indicative of a lack of control over resources and an inability to meet fundamental needs [1]. The screen time wasn't associated with depression. Unlike a study by Kidokoro, T. et al. found that more screen time including social media was associated with a higher prevalence of depression [6]. However, the students who felt that they constantly compared themselves to social media influencers and figures had a higher rate of depression.

The majority of depressed students reported engaging in physical exercise for at least 1 to 2 hours. However, a study conducted by Kidokoro, T. reported the

opposite findings, that sufficient exercise lowered depression [6]. At the same time, another research showing the association between physical activity and depressive symptoms, demonstrated mixed results [7,8]. Notably, a significant portion of students with depression reported having parents with an authoritative nature and a greater number of siblings. Additionally, it is noteworthy that students with depression often perceived their households as lacking gender-based discrimination. However, those students who felt the gender-based discrimination applied to their household had a higher rate of depression prevalence. According to a review by Simone N. Vigod and Paula A. Rochon (2020), gender discrimination is a significant risk factor for depression in women. The authors propose several mechanisms through which gender discrimination may lead to depression, including stress, lack of control, social isolation, and low self-esteem [9].

The research also highlighted a concerning observation that many students with depression had been exposed to instances of verbal or physical domestic abuse. Sandal, R. K, reports that there is a greater likelihood of depression as parental affection decreases, underscoring the significant impact of parental love and care [1]. Another significant determinant of depression was the perception of parental strictness across various aspects such as academics, religious matters, and general conduct. Students who perceived their parents as highly strict were more susceptible to depression compared to those who viewed their parents as occasionally strict or non-strict. The study found that a majority of depressed students maintained average academic performance. This is supported by McCarty, CA et al., finding evidence that school failure can be considered an indicator of psychological health [7] and Sandal, RK. et al., stating that there was a higher occurrence of depression among students who were dissatisfied with their academic performance [1].

A minority of depressed students have instances of bullying, either within the school or family environment. As Kaltiala-Heino and Fröjd (2011) note, bullying can lead to a variety of mental health

problems, including depression, anxiety, and post-traumatic stress disorder. It is important for schools and parents to be aware of the signs of bullying and to take steps to prevent it [10]. Family history of depression gave a strong association with the depression prevalence among the students but interestingly, most families of depressed students view depression and mental health as taboo subjects, indicating a shift in societal perspectives. As shown in a study by Vania Martínez (2020), stigmatizing beliefs and attitudes toward depression are still prevalent among adolescent school students in Chile and Colombia. The study found that students who held stigmatizing beliefs about depression were less likely to seek help for their own depressive symptoms. This suggests that stigma is a significant barrier to help-seeking and mental health treatment for adolescents with depression [11].

A slightly larger number of depressed students expressed dissatisfaction with their perceived body weight. Our study revealed that a slightly larger number of students with depression expressed dissatisfaction with their perceived body image or facial appearance. Soares Filho LC, Batista RFL, and Cardoso VC (2020) discuss the possible bidirectional relationship between body image dissatisfaction and depression in adolescents [12]. Additionally, our study suggests that the students with poor appetites had a higher prevalence of depression. This is consistent with the findings of the article by Simmons WK (2016), which showed that people with depression that have decreased appetites show less activity in brain regions that are associated with interception [13]. Students who had recently experienced the loss of a loved one exhibited a higher likelihood of experiencing depression which is supported by previous findings [1]. Intriguingly, twice the number of depressed students reported not having witnessed or been victims of substance abuse.

## CONCLUSION

From a practical standpoint, the findings of this study can inform the development of targeted interventions and support strategies to prevent and address depression in adolescents in Karachi. By

identifying the key factors associated with depression, appropriate interventions can be designed and implemented to provide timely and effective support to these vulnerable individuals. This may include school-based programs, mental health awareness campaigns, and collaborative efforts between schools, families, and healthcare providers. Compared with usual care, treatment with structured psychotherapy (CBT or interpersonal therapy) represents good value for money for adults with major depressive disorder and/or generalized anxiety disorder.

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## Author's Contribution:

MK: Questionnaire formation, introduction, conclusion, data collection, funding

RK: Questionnaire formation, data collection, funding

RS: Result, data collection, funding

SH: Research methodology, data collection, funding

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RSA: Discussion writing, funding

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Methods: Describe clearly your selection of the observational or experimental subjects (patients or laboratory animals, including controls). Identify the methods, apparatus (manufacturer's name and address in parenthesis) and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical (see below); provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dosage(s) and route(s) of administration.

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