MEDICAL SCIENCE

PHQ-9 to screen for depression in Riyadh, Saudi Arabia

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ABSTRACT

Background: Depression is a prevalent mental condition characterized by poor mood, loss of function and impaired focus. We aim to assess prevalence of depression among adolescents and adults in Riyadh, Saudi Arabia. *Methods:* A cross-sectional study was conducted in April 2022 in Riyadh, Saudi Arabia, with 166 participants selected by convenience sampling, data collected by a paper-based self-administered questionnaire using patient health questionnaire PHQ-9 and the extremely ill eliminated using SPSS V.23 to analyze the data. A p-value of 0.05 percent or less is deemed significant. *Result:* The majority of participants were female (58%) and between the ages of 15 and 20 (73%), had experienced a traumatic event (62%) and a stressful event (80%), were not married (78%), did not have chronic diseases (83%), were not dependent on alcohol or drugs (97%), led an isolated life in society (60%) and were bullied (60%), lost interest (42%), felt hopeless (36%), had sleep problems (32%), felt tired (41%), lost their appetite (35%) and did not consider suicide. In Prevalence of Depression, the majority had mild depression (31%), moderate depression (27%), minimal depression (24%), moderately severe depression (11%) and severe depression (4%). From the mild depression, the majority was males (21%) and females (35%), with higher education (35%) and a stressful event was the most common risk factor (80%). *Conclusion:* There was a significant association between depression and education level, as the prevalence of depression increased with university education.

Keywords: Depression, Psychological disorder, Discouragement, Hopelessness.

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1. INTRODUCTION

Today's psychologists are aware that man's spirit is directly affected by his

physical and mental state and vice versa, man's physical actions are affected by his mental and intellectual behavior (Askarabadi et al., 2011). Depression is ubiquitous and is associated with large indirect costs associated with lower work function, such as absences, impaired productivity and even reduced job retention in a variety of occupations (Molla et al., 2016). Some preliminary data suggests that different features of major depressive disorder (MDD) may have distinct causes (Vares et al., 2015).

According to epidemiological research, the prevalence of major depressive disorder and major depressive disorder in patients with severe cognitive impairment is 11-51% and 15-20%, respectively (Park et al., 2017) traumatic adverse life situations and hereditary variables. Negative inferential techniques, dysfunctional attitudes and self-criticism correlations with underlying temperament and character traits among children and adolescents receive the greatest attention. Several personality traits, such as neuroticism, ruminative tendencies, immature personality styles and personality disorders, have been identified as having an impact on mood disorders (Asaye et al., 2020); these personality traits have been identified through decades of research on the interrelationships between personality, depression and anxiety in adult populations.

A recent assessment from the 28 Member States of the European Union (EU) revealed that more than one in five women in the EU had experienced physical and sexual violence from an intimate partner, either a current or past partner and that 35% had encountered controlling conduct. In one of our earlier investigations conducted in Sweden (Nayak and Rajpura, 2013), 8% of women reported exposure to physical IPV in the previous year, while just 3% experienced sexual IPV. Another study conducted in Sweden revealed that about 2% of female respondents had been subjected to systematic and repetitive controlling behavior in the preceding year.

The physical, cognitive and psychological states of a patient influence their health-related quality of life (HRQL) and well-being (Sherif et al., 2019). Studies suggest that 20% to 30% of depressed teenagers will develop a substance use disorder (Gellis et al., 2014). Depression is the biggest cause of adult disability, costing the United States around $210 billion annually (Jones et al., 2020). Even mild or subtle depression is harmful (including dysthymia) is related with poor job performance, according to a number of studies (Beck et al., 2011). The link between a continuum of severity of depressive symptoms and the extent of productivity loss in a large, varied and representative sample of outpatients commencing treatment for depression (Chambliss et al., 2003). We aim to evaluate the pattern of depression among adolescents and adults in Riyadh, Saudi Arabia.

2. MATERIAL AND METHODS

This study adopted a cross sectional paper based self-administered questionnaire to classify participants into five groups ranging from minimal to severe depression using the validated PHQ-9 in April 2022 in Riyadh city, Saudi Arabia and the severely ill were excluded from the study. The study included 166 participants. With ethical approval from the Al Maarefa University Research Ethics Committee, data collectors described the questionnaire's aim and substance to participants, who then willingly filled out and submitted the questionnaire.

The research focused on adolescents and adults (above 15 years). The sample was determined assuming a response distribution of 50 percent, an error margin of 10 percent and a confidence level of 99 percent. 166 teenagers and adults were surveyed for this study. If a questionnaire was missing information, it was ruled invalid and removed. With 200 questionnaires issued, 166 valid replies were received for an 83% response rate. Participants were recruited using a method of convenience sampling. For this investigation, a questionnaire was created specifically. The first component (Patient Health Questionnaire 9, PHQ-9) was used to screen for and measure the occurrence of depression and the second section identified depression risk factors.

The PHQ-9 consists of nine sections, each with four possible answers and a score. By the completion of the questionnaire, the participant obtained a score that could be used to classify him/her as depressed or not and to describe the degree of depression. The dependent variable is depression, while the independent variables include demographic characteristics, coexisting diseases, trauma, family history and stress, among others. In the present study, participants were classified as depressed if their PHQ-9 score was 5 or more (5–9 mild depression, 10–14 moderate depression and 15–19 moderately severe depression and 20–27 severe depression).

The data was cleansed, coded and placed into an Excel spreadsheet before being exported to SPSS-23 for analysis. Using descriptive statistics, the study population's key variables were characterized. The data were reported as frequencies and parentages in tables and graphs. The Chi-square test was employed to determine significance, with a P value of .05 or less indicating significance. Al Maarefa University's Institutional Review Board has examined and approved the research proposal. Participants' consent was sought prior to data collection. Participants had the freedom to withdraw at any time, as participation was voluntary. Confidentiality was guaranteed and upheld. Moreover, the data were used exclusively for this investigation.

3. RESULT

Table 1 presents the demographic information for 166 participants, revealing that the majority are female (58.4%), the majority are between the ages of 15 and 25 (72.3%) and the minority are between the ages of 46 and 65 (1.2%), the majority have a bachelor's degree (80.1%) and the minority are illiterate (0.6%); the majority are students (59%) and the minority are self-employed (4.2%).

Table 1 Personal Information

Gender	Frequency	Percent
Male	69	41.6
Female	97	58.4
Total	166	100
Age	Frequency	Percent
15-25	120	72.3
26-35	35	21.1
36-45	9	5.4
46-65	2	1.2
Total	166	100
Education level	Frequency	Percent
Illiterate	1	0.6
Intermediate	4	2.4
High school	28	16.9
University	133	80.1
Total	166	100
Occupation	Frequency	Percent
Unemployed	19	11.4
Employed	42	25.3
Self employed	7	4.2
Student	98	59
Total	166	100

n=166

Table 2 Depression Proportion

Depression	Percentage	Total
None-minimal	24.69	41 (24.69%)
Mild	31.92	53 (31.92%)
Moderate	27.1	45 (27.10%)
Moderately severe	11.44	19 (11.44%)
Severe	4.81	8 (4.81%)
Total	100.0	166

n=166

Table 2 and Figure 1 depicts the depression scale (PHQ-9) used in this investigation. It shows that 24.6% of the subjects have non-minimal depression, while 31.9% have mild depression, 27.1% have moderate depression, 11.4% have fairly severe depression and 4.6% have severe depression.

According to the findings of the study, in Table 3 the correlation between gender and depression is statistically significant (P-value is 0.31). The study reveals comparable gender differences for non-minimal depression, with 30.4 males and 20.6 females affected and for severe depression, with 3% males and 6% females affected.

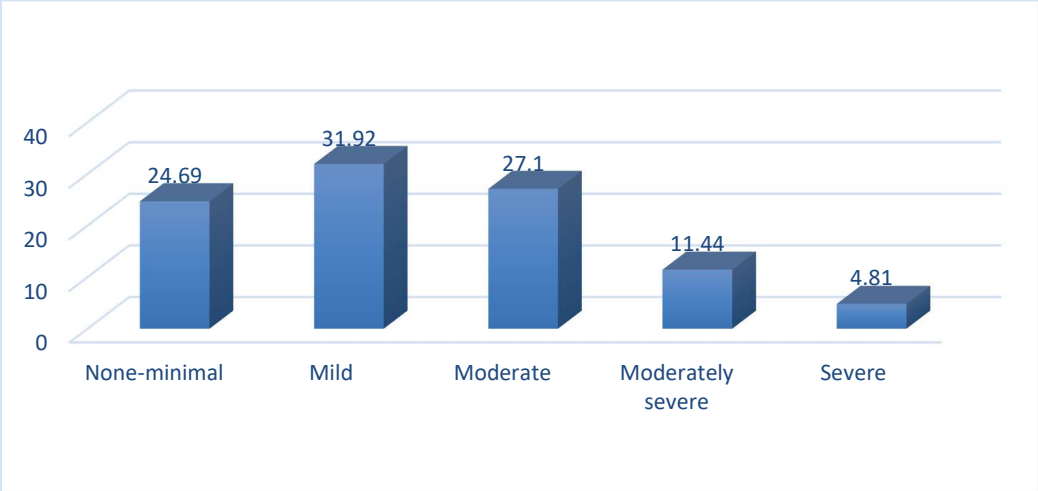

Figure 1 Depression Proportion

Table 3 shows the relationship between the severity of depression and gender

Severity	Male	Female	Total
None-Minimal	21 (30.4%)	20 (20.6%)	41 (24.69%)
Mild	21 (30.4%)	32 (33%)	53 (31.92%)
Moderate	15 (21.7%)	30 (30.9%)	45 (27.10%)
Moderately Severe	10 (14.5%)	9 (9.3%)	19 (11.44%)
Severe	2 (2.9%)	6 (6.2%)	8 (4.81%)
Total	69 (41.5%)	97 (58.5%)	166

(P-value is 0.31)

Table 4 Correlation between depression and educational level

	Illiterate	Intermediate	High School	University	Total
None-Minimal	0 (0%)	0 (0%)	6 (21.4%)	35 (26.3%)	41 (24.69%)
Mild	0 (0%)	1 (25%)	5 (17.9%)	47 (35.3%)	53 (31.92%)
Moderate	1 (100%)	2 (50%)	9 (32.1%)	33 (24.8%)	45 (27.10%)
Moderately Severe	0 (0%)	0 (0%)	3 (10.7%)	16 (12%)	19 (11.44%)
Severe	0 (0%)	1 (25%)	5 (17.9%)	2 (1.5%)	8 (4.81%)
Total	(0.60%)	4 (2.4%)	28 (16.86%)	133 (80%)	166 (100%)

(P-value is 0.01)

The link between depression and educational level is depicted in Table 4. There is a statistically significant correlation between educational level and the presence of depression (P-value is 0.01). The majority of respondents with a university education had mild depression (35.3%), whereas those with a high school education experienced severe depression (17.9%).

Table 5 determine the risk factors for depression

Traumatic event	Frequency	Percent
Yes	103	62.0
No	63	38.0
Stressful event	Frequency	Percent
Yes	133	80.1
No	33	19.9
Quality of marriage	Frequency	Percent
Very happy	14	8.4
Ordinary	14	8.4
Full of problems	8	4.8

Not married	130	78.3
Chronic illness	Frequency	Percent
Yes	27	16.3
No	139	83.7
Social support	Frequency	Percent
Ordinary	90	24.0
Very strong	41	54.2
Full of problems	15	9.0
Lacking, isolated	20	12.0
Alcohol or drug abusing	Frequency	Percent
Yes	5	3.0
No	161	97.0
Grief and loss	Frequency	Percent
Yes	92	55.4
No	74	44.6
Social isolation	Frequency	Percent
Yes	100	60.2
No	66	39.8
Bullying	Frequency	Percent
Yes	80	60.2
No	86	39.8
Poor nutrition	Frequency	Percent
0-5	123	74.1
6-10	34	20.5
11-15	6	3.6
16-20	3	1.8
Total	166	100

n=166

Table 5 displays the risk factors related with depression among respondents. The study reveals that: Traumatic events (62%), stressful events (80.1%), quality of marriage: Very happy (8.4%), ordinary (8.4%), full of problems (4.8%), not married (78.3%), chronic diseases (16.3%), social support: Very strong (24%), ordinary (54.2%), full of problems (9%), isolated (12%), addiction to alcohol or drugs (3%), grief (55.4%), social isolation (60.2%), bullying (60.2%), consumption of fast food per week: 0-5 times (74.1%), 6-10 times (20.5%), 11-15 times (3.6%), 16-20 times (1.8%).

4. DISCUSSION

The total number of participants in this study was 166. The rate of response was 83%. The majority of respondents reported mild depression, consistent with a study in Ethiopia (Molla et al., 2016; Chambliss et al., 2003). According to a 2014 study by Al-Qadhi et al., (2014), about one-third of PHC visitors suffer from mild depression. In contrast to a study by Al-Qaisy, (2011) conducted in Jordan, the majority of female participants had mild depression. Depression is one of the leading causes of disability worldwide, especially among women (11% of years lived with disability worldwide) and accounts for 4.3% of the global illness burden (Kaner et al., 2015). Around 40 percent of participants were diagnosed with depression (Padayachey et al., 2017). The majority of college students exhibited minor symptoms of depression.

Anxiety disorders typically manifest during childhood, but depressive disorders typically do not manifest until puberty. There is some evidence that after experiencing an anxiety condition, females are more prone than boys to develop depression later in life (Hausman et al., 2018). This contradicts a 2012 study conducted in Nepal by Basnet et al., (2012). This discrepancy is due to the fact that the study was conducted in a different nation. The majority of participants reported a stressful incident, which is consistent with a study conducted in Spain by Cervilla et al., (2007). The majority of individuals were bullied or socially isolated, consistent

with Dao et al., (2018) study in Vietnam. In contrast to a study conducted in Tanzania by Moledina et al., (2018), the majority of participants had mild depression during university. This discrepancy was caused by the fact that the research was conducted on a different population.

5. CONCLUSION

The majority of participants reported low to mild depression and there was a strong association between depression and level of education, as the incidence of depression increased with university education.

Ethical Considerations

Prior to the commencement of data collection, the ethical approval of the IRB (IRB06-27032022-28) at Almaarefa University's College of Medicine was obtained. Participants were informed of the purpose of this study and all data were kept secret.

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Authors' contribution

All authors had substantial contribution to the paper, AAR and AMA and BZR designed the study and prepared the proposal. HIO and ABAH analyzed and interpreted data. MMA and RSA wrote results. SAA and KRM wrote discussion. MABE and RMA checked the paper from plagiarism and did proof reading. AFMK and AAA checked and revised every step of this paper. All authors critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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