



A Cross-sectional Analysis of Prevalence, Coping Strategies and Potential Causes of Depression among Doctors of Karachi

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Authors' contributions

This work was carried out in collaboration among all authors. Authors SB, JD, MFHQ and SS planned the basic framework for manuscript, conducted the analysis and improved the final version of manuscript. Authors ANB, MM, SA, ML and QUAS collected the data and prepared the initial manuscript. All authors have read and approved the manuscript.

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ABSTRACT

Aims: The aim of current study is to find out the prevalence of depression in doctors in different hospitals of Karachi and its association with lifestyle, the field of specialty and coping mechanisms.

Place and Duration of Study: The sample was collected from 10 different hospitals of Karachi, in a period of one Year i.e., March 2019 to February 2020.

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Methodology: A descriptive cross-sectional study design using non-probability consecutive type of sampling technique was used. Sample size was calculated at 95% confidence interval and was found to be 368. The sample was classified in two broader categories Surgery & Allied and Medicine & Allied. For identification of depression level, Public Health Questionnaire (PHQ-9) was used. A 28-item questionnaire Brief COPE was used to assess coping mechanisms.

Results: In total 400 forms were used for data analysis. The mean age of doctors was 35 ± 4 years, 65% were males while 35% were females, there was a statistically significant association of female gender with depression. Chi-Square was applied to determine the association of depression and departments and it was found to be highly significant with a $P < .001$. Highest level of depression was found in Orthopedics and Psychiatry departments followed by Surgery and Gynecology. While Otolaryngology was the least depressed department. Chi-square was applied and a statistically significant association of low monthly income and depression with a p-value of 0.02. In Surgery and allied there was a statistically significant association of depression with extensive working hours and lack of facilities with a p-value of 0.01 and 0.04. While in Medicine and allied there was a statistically significant association of depression with a harsh attitude of seniors and an uncomfortable working environment with a p-value of 0.02 and 0.03. A linear regression model comparing depression and its associations with coping strategies was applied.

Conclusion: Our study shows that depression is present in a vast majority of doctors from multiple specialties. Various risk factors for depression have also been identified so appropriate coping strategies should be formulated to deal with it.

Keywords: Depression; medical professionals; suicide; interdepartmental comparison.

1. INTRODUCTION

Depression is a medical disorder affecting the mood of a person negatively, including the feelings, thinking and behavior. Its characteristic features are losing interest in daily activities, a sense of losing hope, sadness, feeling helpless, irritable behavior, anger, stress and thought to suicide [1,2]. It usually affects the individuals having stressful working environment or prolonged working hours like doctors [3,4].

Depression is highly prevalent globally and is a major contributing factor in the global disease burden, affecting about 264 million individuals globally with prevalence of 3.4%. Considering different professions, the 14.6% of the affected ones are from social services while 11.4% are from health care profession [5]. Looking over South Asia, survey done in 2016 reported that 3.9% of the population are suffering from depressive symptoms [6]. Focusing specifically Pakistan, the prevalence of depression is very high i.e. about 34% [7]. A study done in Lahore reported that out of total affecting population, the 24.8% are doctors by profession [8].

There are multiple risk factors that can lead to depression including poor physical health, stressful environment of work place, prolonged working hours i.e. ≥ 60 hours in a week, night shifts more than twice in a week, excessive job burden and lack of exercise [9]. Stress, anxiety

and depression go side by side, if it remains undiagnosed or untreated can affect the person's performance [10], specially doctors, their poor performance or negligence can lead to fatal situations [11]. So, it is very important to identify the depression in doctors and its timely management to avoid major loss. Multiple studies have been done to report either prevalence or risk factors or coping strategies for depression among doctors worldwide but unfortunately very few of them focus the Pakistani doctors who are facing the depressive symptoms.

The aim of current study is to find out the prevalence of depression in doctors in different hospitals of Karachi and its association with lifestyle, the field of specialty and coping mechanisms.

2. METHODS

2.1 Characteristics of Study

A descriptive cross-sectional study design was selected for this study. Non-probability consecutive type of sampling technique was used. Sample size was calculated from Openepi and was found to be 368 at 95% confidence interval with 5% margin of error. The study was approved by the ethical review board of Baqai Medical University and was conducted for a period of 1 year, i.e., March 2019 to February 2020.

2.2 Sample Selection

Doctors working in different departments of 10 hospitals of Karachi were selected for this research. In order to reduce bias House Officers, Dentist, Doctor of Pharmacy, Doctor of Physiotherapy, PhD doctors in biomedical sciences etc. were excluded because of different filed of specialization, lifestyle, working hours and environment. Consultants and residents were only recruited for this study without any diagnosed medical and mental disorder. For ease of analysis sample was further classified in two broader categories Surgery & Allied (Cardiothoracic Surgery, Orthopedics, General Surgery, Gynecology, and Otolaryngology) and Medicine & Allied (Family Medicine, Internal Medicine, Pediatrics, Oncology, and Psychiatry).

2.3 Data Collection Tool and Procedure

For identification of depression level, a scale Public Health Questionnaire (PHQ-9) was used with additions in regards with demographic information, signs and symptoms and risk factors for depression. PHQ-9 scores each of the nine DSM-IV criteria as "0" (not at all) to "3" (nearly every day). Participants having scores between 0 and 4 were labelled as normal, scores between 5 and 9 were labelled as mild, scores between 10 and 14 were labelled as moderate, scores between 15 and 19 were labelled as moderately severe and scores above 20 were labelled as severe. PHQ-9 has 61% sensitivity and 94% specificity in adults.

A 28-item questionnaire Brief COPE was used to assess coping mechanisms for a wide range of situations including stress, depression, anxiety, natural disasters, assault etc. Questionnaire evaluates coping mechanisms on the basis of 14 dimensions which are further categorized as approach, avoidant and neutral coping mechanisms. Questionnaire uses a Likert scale where 1 means "I haven't been doing this at all" (score one) to 4 means "I've been doing this a lot".

Cronbach Alpha (co-efficient of reliability) value for questionnaire was 0.869 which further declare the scale reliable for use in this research. The questionnaire was distributed among doctors of different hospitals, and responses were recorded on questionnaire and then coded for analysis.

2.4 Data Analysis

Statistical Package for Social Sciences (SPSS) version 22 was used for data coding and analysis. Doctors were divided into two basic disciplines Medicine and Surgery. For qualitative variables frequency and percentages were calculated while mean with standard deviation were calculated for quantitative variables. Linear Regression Model and chi-square were used to establish associations between depression scores, demographic data, potential risk factors and coping mechanisms. p value < 0.05 was considered as significant.

3. RESULTS

In total 455 forms were distributed and 400 forms were filled completely and used for data analysis. The response rate was 88.8%. The mean age of doctors was 35 ± 4 years. Out of 400 participants, 65% were males while 35% were females, there was a statistically significant association of female gender with depression. The sample was collected from 10 different disciplines and was classified as two broader categories Surgery & Allied (Cardiothoracic Surgery, Orthopedics, General Surgery, Gynecology, and Otolaryngology) and Medicine & Allied (Family Medicine, Internal Medicine, Pediatrics, Oncology, and Psychiatry). Chi-Square was applied to determine the association of depression and disciplines and it was found to be highly significant with $P < .001$. Fig. 1 shows the highest level of depression were found in Orthopedics and Psychiatry departments followed by Surgery and Gynecology. While Otolaryngology was the least depressed department.

When doctors from different departments were asked about the possible risk factors for depression the most common was low monthly income in both categories. When Chi-square was applied there was a statistically significant association of low monthly income and depression with a p -value of 0.02. In Surgery and allied there was a statistically significant association of depression with extensive working hours and lack of facilities with a p -value of 0.01 and 0.04. While in Medicine and allied there was a statistically significant association of depression with a harsh attitude of seniors and an uncomfortable working environment with a p -value of 0.02 and 0.03 as shown in Fig. 2.

A linear regression model comparing depression and its associations with coping strategies was applied. Coping strategies were divided into three broader categories; avoidant coping,

approach coping, and neutral coping as shown in Table 1. It was observed that the majority of doctors were using avoidant coping strategies which may further add to their depression.

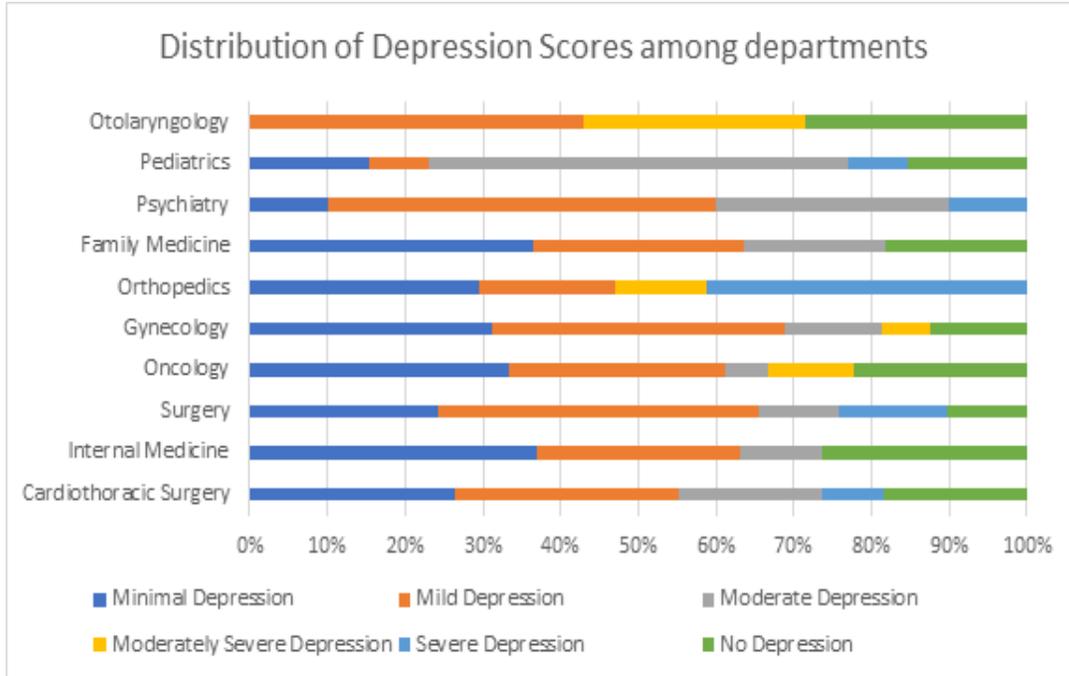


Fig. 1. Distribution of depression scores among different departments

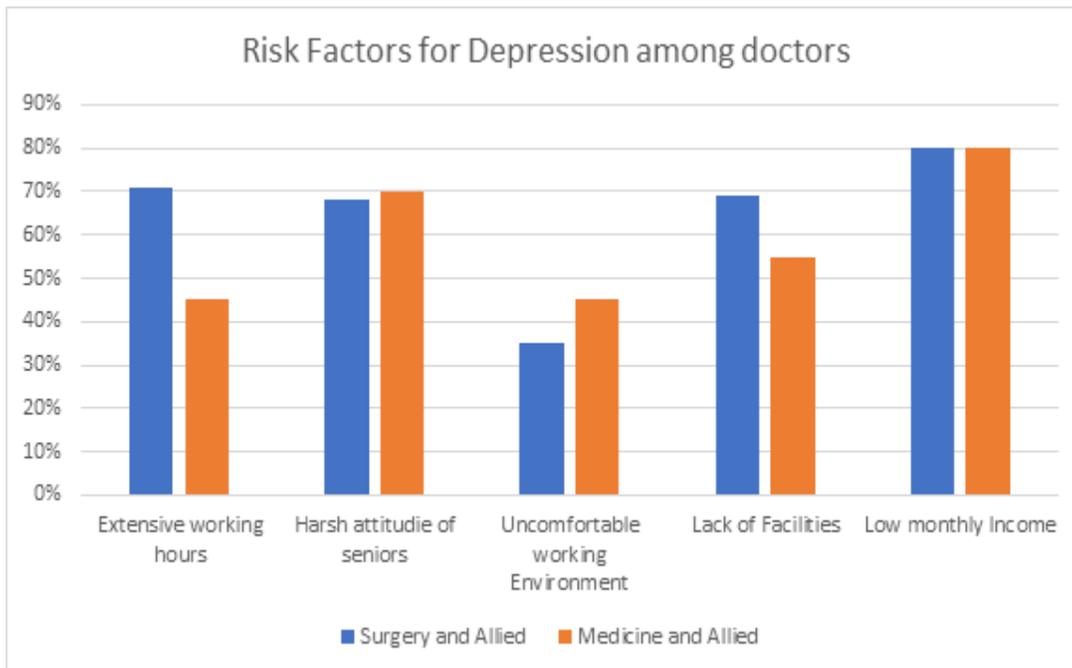


Fig. 2. Risk factors for depression among doctors

Table 1. Linear Regression model comparing depression scores with coping mechanisms

Coping Mechanism	Depression Score	
	B	p-Value
Avoidant Coping		
Self- distraction	0.325	0.003
Denial	-0.129	0.522
Substance Abuse	0.301	0.089
Behavioral Disengagement	0.759	0.000
Venting	0.412	0.004
Self-blame	1.309	0.001
Approach Coping		
Positive Reframing	-0.369	0.031
Planning	0.049	0.881
Active Coping	-0.199	0.152
Emotional Support	-0.133	0.281
Informational Support	0.119	0.469
Acceptance	0.219	0.209
Neutral Coping		
Humour	0.069	0.698
Religion	-0.421	0.002

4. DISCUSSION

Depression is a very common condition in the modern era but unfortunately, it is under diagnosed and undertreated. Depressive symptoms are usually evaluated by using scales for screening. The overall prevalence of mild depression in our setup was 32% while a similar study in Austria showed that 10.3 % of doctors experienced depression [12]. Our study also identified that the highest levels of depression were found in Psychiatry department. A study carried out in North America also supported this in which 16.1% psychiatrists were shown to have major depression [13]. A similar research carried out in Germany revealed that 44.6% of psychiatrists suffered from at least one depressive episode [14].

A study conducted in Istanbul revealed that female gender is an important risk factor for the development of depression [15]. These results were consistent with our research. One of the reasons why females are predisposed to depression is that females are more empathetic towards their patients [16,17].

Several other risk factors of depression amongst our doctors were also identified. Low monthly income was identified as a major risk factor in our set up. A survey conducted in Southern China revealed that 28.13% physicians had depressive symptoms and the major risk factor for it was doctor-patient relationship [9]. In our set up, extensive working hours specially in

Surgery department contributed to depression. A survey carried out in Delhi also revealed that low income and long working hours contributed to dissatisfaction and depression in doctors which supported our study [18]. This was also supported by other studies [19,20]. Some lifestyle factors also contribute to depression like lack of physical exercise and disruption of sleep as indicated by Wang-et al. [21].

Our research also looked into the coping strategies used by doctors. The most common one was avoidant strategy which includes substance abuse, denial, venting etc. Substance abuse is a major cause of morbidity in doctors. A study carried out in Melbourne showed that 70% of doctors experiencing depressive symptoms were involved in substance abuse [22].

Mental health of doctors has become a major concern and organizations need to take appropriate measures to improve it like improving the working environment, less working hours etc [23]. The limitations of this study includes small sample size as we have only collected data from Karachi. People in Karachi are also hesitant to talk about depressive symptoms so it was difficult to ask questions and complete the survey forms.

We would like to further recommend country wide studies determining the prevalence and associated risk factors of Depression among doctors in different provinces of Pakistan and comparing the risk factors and making policies accordingly. Moreover, a cohort study should be

performed which mild doses of pharmacological agents should be used and their effectiveness should be compared with Cognitive behavioral therapy as doctors are one of the essential yet venerable group and immediate intervention is needed for betterment of their mental health.

5. CONCLUSION

Our study shows that depression is present in a vast majority of doctors from multiple specialties. Various risk factors for depression have also been identified so appropriate coping strategies should be formulated to deal with it.

CONSENT AND ETHICAL APPROVAL

The study was approved by the ethical review board of Baqai Medical University. Written informed consent and confidentiality of research data were ensured.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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