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Abstract

Due to lack of attention to mental healthcare services, awareness of the Palestinian population of mental health problems is relatively insufficient. The main objective of this study is to assess the prevalence of depression symptoms among Palestinian deaf adults. Cross-sectional design and Patient Health Questionnaire (PHQ-9 scale) were used to assess the symptoms of depression. The population of the study consisted of 217 adults. After data collection and analysis, the results showed four levels of depression: minimal (OR=2.0) (95% CI, 1.2-3.4), mild (OR= 1.7) (95% CI, 1.2-2.3) moderate, (OR=1.4) (95% CI, 1.1-1.9), and severe (OR=0.9) (95% CI, 0.7-1.2). Depression symptoms were found to be a common health problem among the deaf adult population.

Keywords

Deaf, Symptoms, Palestinian., Depression, Prevalence

Depression among Palestinian Deaf Adults: A Cross-sectional Study

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ABSTRACT

Due to lack of attention to mental healthcare services, awareness of the Palestinian population of mental health problems is relatively insufficient. The main objective of this study is to assess the prevalence of depression symptoms among Palestinian deaf adults. Cross-sectional design and Patient Health Questionnaire (PHQ-9 scale) were used to assess the symptoms of depression. The population of the study consisted of 217 adults. After data collection and analysis, the results showed four levels of depression: minimal (OR=2.0) (95% CI, 1.2-3.4), mild (OR=1.7) (95% CI, 1.2-2.3), moderate, (OR=1.4) (95% CI, 1.1-1.9), and severe (OR=0.9) (95% CI, 0.7-1.2). Depression symptoms were found to be a common health problem among the deaf adult population.

KEYWORDS: Symptoms, Prevalence, Depression, Deaf, Palestinian.

BACKGROUND

Depression is considered a very important cause of non-fatal burden both socially and economically worldwide (1). In the primary care setting, it is estimated that 13 to 25% of patients had sought care for depressive symptoms, and 80% of those actually treated for depressive symptoms had previously visited their principal care provider (2). In Palestine, the political situation, including the conflict with the Israeli military occupation and the Intifada, has always put Palestinians under huge psychological stress, causing many mental health troubles like anxiety, Post Traumatic Stress Disorders (PTSD) and depression. Mental health disorders were found to be major health issues in young adults between ages 18-24 (3). Hereditary causes accounted for 50% to 75% of all children complaining from deafness (4). Several surveys have found that the main mental health problems among deaf adult population were depression and anxiety resulting from the challenge of adjustments (5).

Deafness in Palestine is a challenge for many households due to several reasons including the use of some medications during pregnancy, some types of antibiotics, and other types used to treat meningitis infections and chronic diseases. A previous study showed that hearing impairment in Palestine was about 1.7 per 1,000 and was

higher in some areas (3). Another study carried out to assess prevalence of depression among school adolescents showed that deafness increased the person's exposure to mild degrees of depression (6). The risk factors for depression include being female, of minority status, single, unemployed, and of low-income status (7). Studies conducted in the United States of America, Bangladesh and Brazil found that females had higher depression levels (8). Another study conducted in Australia found that depression, anxiety, and strain were more rampant females than males (9).

A study of psycho-social characteristics of deaf male students in Saudi Arabia showed that depression was higher among the blind (14%) than among the deaf (6.5%) students (10). Another study, done in the United Arab Emirates, found that the deaf women were sensitive and shy (11). In addition, one study found that students with hearing impairments were likely to stay away from others and to exhibit externally directed behaviors like aggression (12).

The objectives of this study were to assess depression symptoms and to find out if they are attributed to specific demographic characteristics among the Palestinian deaf adult population.

METHODS

A descriptive, cross-sectional design was used in the current study. Data were collected using self-reported format. The researchers also used structured interview for data collection. Further, face to face structured interviews, using questionnaire method, were used. The population of the study consisted of 217 deaf adults in three government centers. The study population included all deaf adults belonging to the three centers. A convenient sample of 10% (n=15) was selected for a pilot study from the Charitable Society for the Deaf, Nablus. This center has the highest registered deaf cases; it has 500 deaf people out of the total of 53,000 in the West Bank and the Gaza Strip (13). All deaf people who were not officially registered and non-competent in using Palesinian Sign Language (PSL) and non-competent in (reading and writing) were excluded from the study.

The researchers visited and included participants from the following centers: the Charitable Society for the Deaf, Nablus (500 registered deaf cases), Amal Center for the Deaf, Ramallah (380 registered deaf cases), and the World Deaf Center, Hebron (310 registered deaf cases). We chose these three centers because those were the only centers serving the deaf adults in the West Bank.

Data collection process

The data collection process started with a pilot study conducted in the Charitable Society for the Deaf, Nablus. A total of 15 participants from this center were included in the pilot study. The field-sampling frame was limited to registered deaf people at the three centers in the West Bank.

Two licensed and qualified persons in Palestinian Sign Language were trained to gather information and communicate with the interviewer in accordance with the signs of the deaf in the centers.

Field procedure

Direct face-to-face interviews, using a structured questionnaire, were conducted with the deaf people. The questionnaire collected comprehensive information on depression among the deaf people and its prevalence. Personal visits were paid by researchers to the targeted centers in Nablus,

Ramallah and Hebron. Information from interviewed deaf people were taken with help from translators. Each interview lasted between 30 to 45 minutes. Before the interview, the researchers paid many initial visits to the deaf people to reinforce a relationship of trust.

Instrument of the study

Data were collected via a complementary questionnaire developed in the native language of the respondents (Arabic). We used the Arabic version of the multicultural mental health resource center. Permission to use the Arabic version of the PHQ-9 was not required from them. The cutoff point for depression status was having scores of depression above 11, so a depression variable was created that discriminated scores less-than-or-equal to 11 as not depressed and above 11 as depressed. The questionnaire consisting of three parts: 1) Description of the study and consent form, 2) Demographic information including gender, age, level of education, place of residence and district, income, marital status, kind of job, kinship between parents, family history of mental health problems, and other disabilities, and 3) Patient Health Questionnaire (PHQ-9) scale to measure the symptoms of depression (14).

Pilot study

A pilot study was conducted to evaluate and to test the questionnaire's reliability and validity, and it was taken out for 15 participants chosen from Charitable Society for the Deaf, Nablus. After two weeks, the same questionnaire was administered to the same individuals. The participants experienced no trouble in understanding the points or the instructions to complete the questionnaire. The researchers conducted reliability test on the pilot study sample. The Cronbach α equal to 0.89. It is considered satisfactory for the use of the study.

Statistical Analysis

Data were prepared for analysis using SPSS (Version19). Multivariate logistic regression analysis was used to identify variables significantly related to depression status of deaf adults; then it was applied to

measure the association for each variable on the outcome.

Two certified translators were employed during the interviews. Criteria for picking out the translator included PSL- Arabic certification, 5 or more years of experience as a certified translator, availability for interviews during times and dates of data collection.

The researchers had tested the internal harmony of the questionnaire by calculating the correlation coefficients between each point and the related item fields. Coefficients denoted significance at 0.05 level. This implies that there is a content validity for this segment of the questionnaire for what is being valued.

Ethical approval and consent to participate

The study was approved by the Institutional Review Board of An-Najah National University in March 2015. Full verbal and written consents were obtained from all patients.

Table (2): Characteristics of deaf adults.

	Category	Frequency (%)	P value
Sex	Male	136(62.7)	<0.244
	Female	81(37.3)	
Age (years)	> 20	22(10.1)	<0.066
	20-29	81(37.3)	
	30-39	55(25.3)	
	>39	59(29.2)	
Marital Status	Unmarried	128(59)	<0.008
	Married	85(39.2)	
	Divorced	2(0.9)	
	Widow	2(0.9)	
Parents kinship	Cousins	6(2.8)	<0.317
	Uncle's sons	58(26.7)	
	Distant relative	44(20.3)	
	No relation	109(50.2)	
Family Income	<\$300	107(49.3)	<0.001
	\$300-600	80(36.9)	
	>\$600	30(13.8)	
Educational level	Primary	160(73.7)	<0.680
	Middle	50(23)	
	Secondary	7(3.3)	

RESULTS

Participants aged 15 to about 65 years. Males represented 62.7 % of the sample, while females represented 37.3 %. The demographic details of the participants are shown in Table 2. It was found that 59% of the deaf adults were unmarried, 70.5% of them were living with their families, and 50.2 % had a family income of \$300. The proportion of deaf adults who had a full-time job was 42.4 %. In terms of family mental illness history, 83.9% had no previous mental illness.

Table (1): Distribution of the sample according to deaf centers.

Location	Center	No (%)
Nablus	Charitable Society for the Deaf	80(37)
Ramallah	Amal Center for the Deaf	77(35)
Hebron	World Deaf Center	60(28)
Total		217(100)

...continue table (2)

	Category	Frequency (%)	P value
Residence	City	95(43.8)	<0.370
	Village	103(47.5)	
	Camp	19(8.8)	
House nature	Separate house	59(27.2)	<0.047
	Live with my family	153(70.5)	
	Other	5(2.3)	
Sponsored job	Full time	92(42.4)	<0.001
	Part time	61(28.1)	
	Student	20(9.2)	
	Jobless	44(20.3)	
Family disorder	Schizophrenia	3(1.4)	<0.001
	Mood disorder	1(0.5)	
	Anxiety disorder	29(13.4)	
	Alcohol and drug addiction	2(0.9)	
	No History	182(83.9)	

Prevalence of depressive symptoms

Of the entire sample, 26.4% of participants' scores placed them in the minimal depression category, 16.5% of participants scored in the mild depression category, while 2.3% scored in the moderately severe depression category and 3.2% scored in the severe depression category as shown in Table 3. The results of logistic regression analysis of depression status and independent variables are presented in Table 4. Unmarried deaf adults had 1.759 (95% CI. 1.2 – 2.3) times higher odds of having depression when compared to married deaf adults. Having a family income of less than \$300 increased the unadjusted odds 2.694 (95% CI. 1.50 – 6.35) times for depression when compared to those deaf who had family income of more than \$300. Living in separate homes produced unadjusted odds of depression of 1.603 (95% CI. 1.1 – 1.9) times higher odds than the deaf who lived with their families. Jobless deaf adults had 1.409 (95% CI. 0.83 – 2.34) times higher odds of experiencing depression as compared to those deaf people working full time. Those deaf adults who had family history of mental disorder (specifically anxiety disorder) had

5.147 (95% CI. 1.75 - 6.27) times higher unadjusted odds of suffering depression than those with alcohol and drug addiction disorder.

Table (3): Interpretation of total score.

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderate-severe depression
20-27	Severe depression

Table(4): Prevalence of depressive symptoms among Palestinian deaf adults

Depression level	Frequency (%)
No symptoms	89(41%)
Minimal Depression	57(26.4%)
Mild Depression	36(16.5%)
Moderate Depression	23(10.6%)
Moderate-severe depression	5(2.3%)
Severe Depression	7(3.2%)
Total	217(100%)

Table (5): Multivariate logistic regression analysis of factors associated with depressive symptoms among deaf adults.

Variable	Level	B	S.E	OR (95% CI)	P Value *
Marital Status	Unmarried	0.565	0.446	1.759 (1.2 – 2.3)	<0.008
	Married (Ref.)				
	Divorced	1.603	0.753	0.201(0.19 – 0.95)	<0.000
	Widow	2.753	1.711	0.77 (0.50 – 1.09)	<0.003
Family Income	<\$300 (Ref.)	0.680	1.173	2.694 (1.50 – 6.35)	<0.001
	\$300-600 (Ref.)				
	>\$600	0.100	2.113	0.309 (0.23 – 1.09)	<0.000
House nature	Separate house	0.472	0.492	1.603 (1.1 – 1.9)	<0.047
	Live with my family (Ref.)				
	Other	1.511	0.649	0.221 (0.19 – 0.95)	<0.000
Sponsored job	Full time (Ref.)				
	Part time	0.677	0.501	0.508 (0.23 – 1.09)	<0.000
	Student	2.694	1.173	0.680(0.50 – 1.94)	<0.002
	Jobless	0.343	0.196	1.409 (0.83 – 234)	<0.001
Family disorder	Schizophrenia	0.490	0.194	0.613 (0.83 – 2.34)	<0.000
	Mood disorder	2.694	1.173	0.680 (0.50 – 1.94)	<0.002
	Anxiety disorder	1.638	0.567	5.147 (1.75 - 6.27)	<0.001
	Alcohol and drug addiction (Ref.)				
	No History	3.200	2.113	0.013(0.16 – 0.85)	<0.000

*Statistically significant difference, $p \leq 0.05$.

DISCUSSION

The greatest number of the deaf adults was found in the Charitable Society for the Deaf, Nablus. It had 37% of the entire sample population. The bulk of participants were males: 136 or 62.7% of the entire sample as opposed to 81 or 37.3% the female participants. The difference in the total number of females and males is attributed to the type of sampling (the convenience method). Mental health problems are not exclusive to any specific group of people; mental problems, such as depression, are found in people of all regions and nations. Estimates indicate that approximately 450 million people worldwide suffer from mental disorders, and that one person in four is likely to produce single or more mental or behavioral disorders during their lifetime (15).

Clinicians confront many challenges with deaf persons, including communication, accurate psychiatric diagnosis, and the potential for cultural misunderstanding (16).

One study compared hearing impaired children with normally hearing peers. It was found that the hearing impaired children had more depression symptoms than normal hearing children (17). Also another study reported that about 25% of deaf individuals had mental health disabilities (18). Another study investigated the prevalence of depression symptoms among elderly prelingually deaf persons. The study found that one third of the deaf persons demonstrated depression symptoms (19).

The current study found that prevalence of depression among Palestinian deaf adults was 16.1%. This prevalence was comparable to the cross-sectional study among Norwegian deaf attending Erik Skodvin clinic. The prevalence rate of depression was found to be 27.7 % (20). Another retrospective study of patients with deafness in Germany showed a prevalence rate of 32 % of depression with different degrees (21). Lower prevalence of depression was reported among deaf adults than did our study; Prevalence rates of 5.4% and 8% were reported (22). Others found a higher

prevalence rates than our study. The rate of depression was 32.4% (23).

The other studies discussed above showed prevalence of more than 20% in general; but our study found prevalence below 20%. This degree of not high prevalence of depression symptoms among the Palestinian deaf respondents perhaps as a result of family and social support that the deaf adults can gain, when compared with others from other countries.

Among the entire sample of deaf adults, several demographic variables emerged as significant independent predictors of depression. Marital status, the nature of the household, family income, sponsors' job, and family history of mental disorder were all significantly associated with increased depressive symptoms.

Likewise, the outcomes indicated that there was no substantial relationship between depression and sex ($P=0.058$), which dissents from the conclusions of other studies which found the prevalence of depression in Palestine to be higher among adult males than among adult females because of the difference in time and type of sample (24).

The above-cited effects of different studies prove that human behavior can vary according to different factors such as space, time, culture, religion, rules, biological agents, and social or political factors. The prevalence of depression among different genders may have changed from the time of Sarhan's study (2011) until the time of the current study because of the past effect of checkpoints, socioeconomic problems and other factors that used to increase the prevalence of depression among males more than among females. The results also showed a significant relationship between depression and the nature of the household. Deaf adults who lived with family had the highest odds ratio ($OR=2.694$). Most homes in Palestinian cities have a few rooms and space to run. Additionally, Palestinian families have between 6-8 kids. In this study, we found that Palestinian homes of participants had small areas to move and to do many activities, thus leading to increased stress among the deaf living with their families.

In addition, students and parents living in the same house were found to suffer from stress to a greater extent than those who live independently (25). But among the Palestinian population, the family can be a supportive factor in preventing or decreasing the rate of depression or stress. Elevated probability of the depressive symptoms among the deaf adults who live with family might be a result of the overcrowded living situation rather than from the living style it self. Furthermore, the results revealed a significant relationship between depression and family income ($OR=1.603$). About 49.3% of participants' families earned \$ 300 per month, 36.9% of the deaf adults and their families earned between \$ 300-600 per month, while 13.8% of the deaf and their families earned \$ 600 each month. These family income amounts are very low, especially if the number of the family dependents is 6-8. Pertaining to the variables of age, gender, level of education, residence, and family kinship, no significant relationships were found between these factors and depression.

Our study results did not concur with the results of a study performed in Nigeria which found the prevalence of depressive disorder to be 8.3%, and found significant relationship between sociodemographic factors and depression (26).

Limitation of the study

The researchers faced several problems while completing this study. First, the sample did not include the non-registered deaf people. Second, transportation between Nablus, Ramallah and Hebron was costly and time-consuming. Third, this study was limited due to budgetary constraints, because it was personally financed.

CONCLUSIONS

The study found that the adult deaf population suffered from different levels of depression, and were affected by some variables which caused depression. These variables were marital status, nature of the household, family income, and a family history of mental disorders. The communication barriers intensified their problem. Isolation from peers, fellow

workers, and health care providers might also prolong the symptoms of depression.

COMPETING INTERESTS

The authors reported no conflicts of interest.

FUNDING

No funding was received for conducting the study.

AUTHORS' CONTRIBUTIONS

AS and IFA led the study conception and design, data collection, data interpretation, and manuscript drafting. AS performed the data analysis. The authors have reviewed the manuscript critically for important intellectual content. They have also read and approved the final manuscript for submission.

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