Screening for Depression Levels among Adult Female Resident at King Faisal National Guard Residential City in Jeddah (KFNGRCJ), From 18 Years Old and More, 2016

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Abstract
Background: Depression is one of the growing chronic diseases due to modernization and risk factors like poverty and unemployment. Almost 4.4% of the world population complaining of depression according to the World Health Organization (WHO). Depression need early screening and intervention to pick up the cases and prevent the complication associated with depression like suicide. Depressed patient cannot recognize the symptoms of depression although depression can affect the functioning and quality of life for the depressed patient. This is why screening is a necessary action also to measure the prevalence of depression in a community and to plan a public health care intervention supporting the community to cope with depression.

Aim: The aim of this study is to build up a data base that could be utilized in the development of mental health program.

Objectives: As there is a lack in the community based estimate of depression this study was conducted to assess the female’s depression prevalence and building a data base about depression status.

Methods: This is a cross-sectional study design to measure the prevalence of depression among females 18 years and more, living at KFNGRCJ in Jeddah using the Arabic version of the Beck Depression Inventory II (BDI-II) tool.

Result: Out of 727 distributed questionnaires, there were 443 included in the study showing the prevalence of depression was 12.4%. According to the severity the mild cases were 76.4%, the moderate cases were 20% and the severe cases were 3.6%.

Conclusion: This study shows the magnitude of depression among female resident at KFNGRCJ in Jeddah is almost equal to the WHO estimates and near other studies done in Saudi Arabia. Single and divorced females are associated with depression.

Keywords: Depression; Community; Population

Introduction
Now a day depression becomes one of the commonest and growing chronic disorders worldwide. According to the WHO over 322 peoples suffering from depression worldwide [1]. Major depression disorder found to be 8.2% of global YLDs in 2010 [2]. So depression is a public health problem that affect the individual in every perspective of life causing the decrease in the functionality and productivity and may lead to the most concerning outcome for depression witch is suicide [1,3]. The increase in the prevalence of depression could be due to the modernization and the life style associated with it. The risk factors associated with depression are the GDP of the country, physical and mental wellbeing, chronic disease, loneliness due to modernization, work overload, sedentary life style, overfed, malnourished, deficiency of sun exposure and sleep disturbance [3]. There is other risk factors like poverty, unemployment, bereavement, break up, physical illness, problems associated with alcohol, problems associated with drug abuse and low marital quality [1,4].

The prevalence of depression varies a cross countries, the prevalence range of an international study among Germany, US, Canada, France, and Mexico that showed the midpoint prevalence ranging from 3% to 9.6% [5]. According to the world health organization estimate the prevalence of depression found to be 4.4% globally, male to female ratio was 3.6%: 5.1% [1]. Depression prevalence in the Middle East region found to be 16% [1]. A community survey about the sex difference in the prevalence of depression disorder held at Al Ain, the life time rate in male to female was 2.8:10.3 [6]. Regarding Saudi Arabia, depressions were estimated at several: studies, setting, population, age group, and different geographical location, but there was not a single study done at the same setting of this study. Regarding the Saudi elderly, in 1994-1995, the prevalence of depression was 39%, and the associated risk factors were found to be: being divorced or
widowed, having a low education level, having poor physical health, being limited in activities of daily living, rapid modernization associated with dissatisfaction with housing standers for elderly that lead to unemployment, having low income, experiencing social isolation, and being dependent on others [7]. From 2000-2001, a study done at King Khalid University Hospital's-Primary Clinic showed the prevalence of depression to be 20% and 67.4% were female [8]. In Ali- Ibrahim et al's systematic review in 2010, the prevalence of depression in Saudi Arabia was 41% [9,10]. A study done with King Saud University students showed the prevalence of depression to be 9.9% [11]. Another study with female medical students at King Abdulaziz University from 2010 to 2011 showed the prevalence to be 14.7% [12]. The prevalence of depression in general and female specifically was not measured in KFNGRCJ and the objective of this study is to estimate the prevalence of depression among female residents of KFRCNGJ during 2016.

Methodology

This is a cross-sectional study to screen the females 18 years and more those living in King Faisal National Guard Residential City in Jeddah (KFNGRCJ) for depression using the Arabic version of the BDI-II questionnaire [13]. The screening was held in a four months period during 2016. All females 18 years and older were screened. The sample size for estimating the population proportion at a 95% confidence level and a 5% margin of error was calculated. Based on the needed target sample size was calculated to be 310 using the http://www.calculator.net website and determine it by knowing the total number of the population of 1588 females 18 years and older lives in the KFRCNGJ residential city. Data collection conducted in a cluster sampling randomly according to the district type of the residential city, data collected door to door, the researcher visited the residential city with the assistance of specialized nursing and a driver from the Preventive Medicine Department of the KFRCNGJ, using the BDI-II and the standardized method of collection. Regarding the data entry and statistical analysis a specialized person in the Preventive Medicine Department of KFRCNGJ entered the data through excel software. SPSS software version 24 used for the analysis by a specialized statistician in the Preventive Medicine Department of KFRCNGJ. A quantitative analysis statistics was performed to measure the descriptive statistics including (frequency, mean, and standard deviations) were used to determine the prevalence of depression and an overview of the sample. Appropriate tests, including Pearson's Chi-square test, were used to determine if there was a significant relationship between the variables. Regarding the ethical consideration, the research had been conducting after the approval from the IRB of the Joint program of the community medicine in Jeddah and the approval of King Abdullah International Medical Research Center was received (Appendix 3). All depressed females had been transferred to the psychiatric department for standard management. The consent was explained and taking verbally as the females agree to fill the questionnaire.

Result

Out of 727 distributed BDI-II questionnaires and after excluding the incomplete questionnaires from the statistics and the total number, there were 443 responded females aged 18 years and older, from KFRCNGJ who completed the BDI-II during the screening phase included in the study and this number is higher than the required sample size as calculated to achieve 95% CI were 310 females. Out of the screened 443, prevalence of depression was calculated to be 55 (12.4%) and non-depressed participants were 388 (87.6%) (Figure 1). Regarding the level of severity of the BDI-II results among the 55 depressed participants, the severe cases for depression were 3.6% (two participants with severe depression), the moderate cases were 20.0% (11 participants with moderate depression) and the mild cases were 76.4% (42 participants with mild depression) (Figure 1).

By applying qualitative statistics to measure the association between depression and socio demographic characteristics like (age, education, occupation and marital status) using the Pearson's Chi-square Test, The age of screened females ranged from 18 to 65 years of age with the mean age of 37 and the P=0.130. Majority of the screened females 46.2% had a university degree followed by high school education 24.6% and the P=0.739. More than half of the screened females 64.8% was a housewife followed by 29.5% employee and the P=0.148. Most of the screened females were married 92.2%, the marital status distribution was significantly different among the depressed individuals and the non-depressed individuals P=0.013, giving the percentage of divorced and single women were more frequently among the depressed group (Table 1 and Figure 2).

| Variables | Depressed individuals | Non-depressed | *P Value |
|-----------|-----------------------|---------------|----------|
| Age group | n         | Percentage (%) | n         | Percentage (%) | ***P Value |
| <20 years | 4        | 1.10%            | 0         | 0.00%          |          |
| 20-29 years | 53   | 14.20%          | 12      | 22.20%         | 0.130    |

Figure 1: Prevalence of depression and severity using BDI-II.
| Age Group   | Number (n) | %        | Number (n) | %        |
|------------|------------|----------|------------|----------|
| 30-39 years| 206        | 55.20%   | 21         | 38.90%   |
| 40-49 years| 93         | 24.90%   | 20         | 37.00%   |
| 50-59 years| 13         | 3.50%    | 1          | 1.90%    |
| 60+ years  | 4          | 1.10%    | 0          | 0.00%    |

| Education  | Number (n) | %        | Number (n) | %        |
|------------|------------|----------|------------|----------|
| Illiterate | 13         | 3.40%    | 1          | 1.90%    |
| Read and write | 7  | 1.90%    | 1          | 1.90%    |
| Primary    | 37         | 9.80%    | 9          | 16.70%   |
| Intermediate | 52    | 13.80%   | 6          | 11.10%   |
| High School | 93      | 24.70%   | 13         | 24.10%   |
| University | 175        | 46.40%   | 24         | 44.40%   |
| Post Graduate | 0   | 0.00%    | 0          | 0.00%    |

***0.739

| Occupation | Number (n) | %        | Number (n) | %        |
|------------|------------|----------|------------|----------|
| Housewife  | 213        | 63.80%   | 36         | 69.20%   |
| Employee   | 104        | 31.10%   | 10         | 19.20%   |
| Student    | 15         | 4.50%    | 6          | 11.50%   |
| Retired    | 1          | 0.30%    | 0          | 0.00%    |

***0.148

| Marital Status | Number (n) | %        | Number (n) | %        |
|----------------|------------|----------|------------|----------|
| Married        | 358        | 93.20%   | 47         | 85.50%   |
| Single         | 15         | 3.90%    | 4          | 7.30%    |
| Divorced       | 5          | 1.30%    | 4          | 7.30%    |
| Widow          | 6          | 1.60%    | 0          | 0.00%    |

**0.013

Significant difference among the depressed individuals and non-depressed individuals (p=0.013), where, the percentage of divorced & single women are more among the depressed group.

* The significance level (a) was set at P<0.05, Pearson’s Chi-square test was used to determine if there was a significant relationship between the variables.

** P value <0.05; There was a significance difference between the depressed participants and non-depressed participants in relation to marital status (P=0.013).

*** P value >0.05; however, no correlation was found among the other sociodemographic characteristics.

**Table 1:** Significant difference regarding socio demographic characteristics for depressed and non-depressed participants, RCT conducted at KFRCNGJ, Jeddah, 2016-2017, n=443.

**Figure 2:** The percentage of divorced and single women were more frequently among the depressed group.

**Discussion**

The prevalence of depression was 12.4%; this prevalence is higher than the prevalence of an international study among Germany, US, Canada, France, and Mexico that showed the midpoint prevalence ranging from 3% to 9.6% [5]. The prevalence of this study is lower than the WHO estimate of the Middle East region [1]. By comparing the prevalence of this study with other studies done in Saudi Arabia, there were two studies that almost support the same prevalence [11,12]. A study with female medical students in the King Abdulaziz University showed a prevalence of 14.7%; this prevalence is a little higher and that might attributed to high level of stress and anxiety among female medical students due to information overload, exams, and academic failure [12]. The other study with King Saud University students had a prevalence of 9.9%, which is lower than the prevalence in this study and the reason could be due to that the population was for both genders, and being female is a risk factor for depression [11]. Otherwise in At Al-Ibrahim et al’s systematic review, the prevalence was 41% [9,10]. Another study done in Saudi Arabia at the community level shows the same prevalence of Al-Ibrahim study among secondary school girls in Abha City at 2007 of 41.5% [14]. The reported
prevalence of depression of these studies is extremely high from this study, this could have explained by source of samples used; these studies included populations of higher risk groups like elderly [7], Primary Health Care Center visitors [10,15] and females in Secondary School [14,16].

Regarding associated factors with depression, the age of onset for major depressive disorder in an international study showed the mean age of onset for major depressive disorder from 24.8 to 34.8 [5], and in this study mean age of the screened females was 37, near half of the depressed age group ranged from 30 to 39 and constituted 55.2% of depressed population. Although the majority of the screened females were educated, 46.2% with university degree and high school education constitute of 24.6%, the education level does not make any difference in the depression status in this study but education is related to depression according to the literatures [7]. Also majority of the females were house wife and almost third of them were employed, the occupation does not make any difference in the depression status in this study but low socioeconomic status could increase the chance of depressed patients at Primary Health Care Center. Single and divorced or single is a risk factor for depression by comparing it to an international study showing that marital disruption and low marital quality are risk factors for depression [4,5].

Conclusion
The result of depression prevalence among female in KFRCNJG in this study was 12.4% within the range of depression prevalence worldwide. Although this study represents special population of female residents lived in KFRCNJG, subsequent generalization cannot be claimed beyond this population. However, it could reflect the depression status in Saudi community in general. This study had value for the local population; it might reflect a future need to open a specialized easily accessible clinic for screening and management of depressed patients at Primary Health Care Center. Single and divorced females was significantly associated with depression.

Recommendations
Establishment of Mental Health Program at Primary Health Care Center to face the burden of depression and mental health conditions in general. Intensified the effort by Primary Health Care Management to increase the awareness of community members toward depression. Nationwide survey to accurately determine the prevalence of depression.

Utilization
It is widely believed that this study will be followed by a nationwide survey to accurately determine the prevalence of depression.

Conflict of Interest
This is a screening paper to determine the prevalence of depression and there is no conflict of interest with any of the authors.

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Citation: Alsharif AH, Al-Tayyeb F, Aljasir BA, Bargawi B (2018) Screening for Depression Levels among Adult Female Resident at King Faisal National Guard Residential City in Jeddah (KFNGRCJ), From 18 Years Old and More, 2016. J Community Med Health Educ: 8: 604. doi:10.4172/2161-0711.1000604