Asian pearls

Prevalence of depression among middle aged women in the rural area of Kerala

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1. Introduction

Depressive disorders are the most common mental health problem in any human community with 10% of the population afflicted by Depression at any given time (WHO, 2008). According to the World Health Organization, unipolar depressive disorders were ranked as the third leading cause of the global burden of disease in 2004 and was expected to move into the number one place by 2030 (WHO, 2012). More than 300 million people are presently living with depression, an increase of more than 18% between 2005 and 2015 (WHO, 2017). As per the Global Burden of Disease Study 2013, depressive and anxiety disorders are the most common mental illnesses, for which very few people ever seek treatment (Friedrich, 2016). According to the World Health Organization, major depression also carries the heaviest burden of disability among mental and behavioral disorders. Specifically, major depression accounts for 3.7% of disability-adjusted life years (DALYs); and, 8.3% of years lived with disability (YLDs) in whole USA (www.nimh.nih.gov). Depression is the also most frequently encountered mental health problem affecting woman's overall health. Prevalence rates are approximately twice among women than men with 30% has been reported among women in South East Asia (WHO, 2001). Very recently conducted The National Mental Health Survey (Gururaj et al., 2016) also proved that Depression was higher in females, separated or widowed (Gururaj et al., 2016). Poverty, stigma, differences in socio-economic factors, including abuse, education and income set up a vicious cycle thereby placing the rural women at a greater risk of Depression (Ali et al., 2002; Albert, 2015). Thus efforts targeted to reduce Depression among women would make an important contribution to lessening the global disease burden.

Likewise, the prevalence of Depression is found to be on the rising trend in India. Population based prevalence rates of Depression in different settings of India varied from 0.17 to as high as 45.9% (Nandi et al., 2000; Poongothai et al., 2009). According to The National Mental Health Survey (NMHS) of India-2016, weighted percentage of depressive disorder current and life time was 2.7% and 5.2% respectively (Gururaj et al., 2016).

Despite having established state mental health policy, mental health action plan, good health care facility in private and public sector, highest number of clinical psychologists and psychiatrists, wide human resources, properly running District Mental Health Programme (DMHP), prevalence of mental illness is 11.4% (Gururaj et al., 2016). Even though women's life expectancy, maternal mortality rate, infant mortality rate and fertility rate in Kerala are all favourably comparable with those of many wealthy developed countries, the suicide rate among women is reported to be twice the national average (27 per 100,000). A study conducted by V Shimmy in Kerala found that nearly 1 out of 10 women suffered from Depression in Kerala (Shimmy, 2016). Determination of the precise burden of Depression among women and understanding its risk factors will help formulate strategies for mental health promotion. It can also provide locally relevant data to train the primary care providers for the management of Depression at primary care level.

Therefore, in this study, an attempt has been made to determine the prevalence of Depression among women aged 40–60 years in Ambalappuzha North Panchayat using Patient Health Questionnaire 9(PHQ-9). Also, the study will try to find out the determinants of Depression among women aged 40–60 years in Ambalappuzha North Panchayat using Patient Health Questionnaire 9(PHQ-9).

2. Methodology

2.1. Study design and setting

It is a cross-sectional study for a period of 1 year.

The study was conducted in Ambalappuzha North Panchayat of Alappuzha which is a field practice areas of Community Medicine Department of Government medical college, Alappuzha. Also, Ambalappuzha North Panchayat represents the population of varied

composition with those living in the coastal area and midland area.

2.2. Sampling

Sample size was calculated using the formula Zα2PQ/L2, where Zα = 1.96 is the standard normal deviate at 5% level of significance, P is 21.5(the estimated prevalence from the Chennai study (Bhatia and Bhatia, 1999), Q is 100-P, and L is 20% of P which the precision of the estimate; the sample size was estimated to be 350.66. The sample size estimated was 579 after assuming a design effect of 1.5 and non-response rate of 10% (350.68 × 1.5 = 525.99; 525.99 + 10% of 525.99 = 579). In order to ensure a geographical representation, all the 18 clusters were included to get the required sample. But this made a cluster size of 32.166 (579/18). Rounding off to 33 and including all the 18 clusters, final sample size became 33 × 18 = 594.

Cluster sampling was done. The smallest administrative unit, the ward was chosen as the cluster. Ambalappuzha North Panchayat was divided into administrative units known as wards. There were 18 wards in the Panchayat and ward was chosen as the cluster. In each ward the first household was selected by rotating a bottle at the point of entry to the ward. Head end of the bottle was selected as the direction of entry. From this house nearest next house in the right side of the previous house was selected in the sequence. In case of a by road, the same road was entered and the first house near to the last one was entered and thereafter continued in the right hand side direction. When the road stops, the house on the opposite side was entered and the same right hand side rule was followed. This rule was followed until the required sample sizes of 33 were obtained in each of the 18 wards. All women eligible in a house were enrolled into the study after obtaining written informed consent.

2.3. Study population

2.3.1. Inclusion criteria

Women aged 40–60 years who were residing for more than six months in the selected households of all the 18 wards of Ambalappuzha North Panchayat.

2.3.2. Exclusion criteria

1. Not willing to give consent
2. Obviously mentally challenged
3. Bed-ridden

2.4. Procedure

Depression was assessed using the validated Malayalam version of Patient Health Questionnaire 9(PHQ − 9) (Kochhar et al., 2007). PHQ-9 is a scale to detect depression as a clinical or research tool. It can be used in primary care setting as well as epidemiological study among racially and ethnically diverse population (Huang et al., 2006; Kroenke et al., 2001; Poongothai et al., 2009). For obtaining a dichotomous diagnosis of Depression and for determination of risk factors, a single cut point of a PHQ-9 score of 10 or greater was used, which has a high sensitivity(88%) and high specificity(88%) and a positive likelihood ratio of 7.1 for diagnosing Major Depression (Kroenke et al., 2001). In an epidemiological study in Mexico, the Cronbach's alpha coefficient was found to high (0.81) for the overall PHQ-9; 0.85 for men and 0.80 for women with good predictive validity. Using the PHQ-9 results as a gold standard, the optimal PHQ-2 cut off score for screening of depression was 3 with sensitivity of 80.00%, specificity of 86.88% and area under receiver operating characteristic curve of 0.89; 95% under confidence interval of [0.84, 0.94]. (Arrieta et al., 2017). In Indian epidemiological study, the positive predictive value was 76.7%, and the negative predictive value, 97.1% and the area under the ROC curve, 0.979 (95% Confidence Interval: 0.929 − 0.997, p < 0.0001)

(Poongothai et al., 2009). The Perceived Stress Scale/PSS −10 (Internal consistency: Cronbach's α = 0.81 and the test-retest reliability after an interval of 2 weeks was 0.86.), was used for measuring the perception of stress (Yu and Ho, 2010).

2.5. Consent

Informed consent from the Panchayat office was sought before the commencement of the study to ensure community participation. On each day, 12 to 15 women were interviewed. The study took a total duration of 45 days spanning over a 4 month period.

2.6. Ethical approval

The ethical approval was taken from Institutional Ethics Committee and the protocol was also assessed by the research committee.

3. Analysis

All the statistical analyses were performed using the Statistical Package for the Social Sciences software (SPSS) Version 16.0 for Windows.

4. Results

The mean age of the study population was 48.67 years with a standard deviation of 6.59 years. The majority of women, 66.7% belong to Hindu religion, 42.6% had only primary school education, 50.2% engaged in daily wages jobs, 60.8% belonged to APL status (Table 1).

4.1. Prevalence of depression

As per the PHQ-9 diagnostic criteria, the present study revealed a prevalence of 26.09% with a standard error of 1.8 (155 out of 594) for Major Depression among women (Fig. 1). PHQ-9 scores of 5, 10, 15, and 20 represents mild, moderate, moderately severe, and severe depression, respectively (Kroenke et al., 2001). Severe Major Depression, with the PHQ-9 score ranging from 20 to 27, had a prevalence of 2.7%. Moderately severe Major Depression (score 15–19) had a prevalence of 8.6%. Moderate Major Depression (score 10–14) with a prevalence of 13% and Mild Depression (score 5–9) with a prevalence of 19.5%. (Fig. 8). Prevalence of any Depression using this scoring system is 43.8% including those with Minimal Depression (Fig. 2) (Table 2).

Table 1
Sociodemographic Profile of the subjects (N = 594).

Variables	Category	No of patients n (%)
Age in years	40–45	233 (39.2%)
	46–50	141 (23.7%)
	51–55	100 (16.8%)
	56–60	120 (20.2%)
Religion	Hindu	398 (67%)
	Muslim	166 (28%)
	Christian	30 (5%)
Educational Profile	Illiterate	41 (6.9%)
	Primary School	253 (42.6%)
	High School	239 (40.2%)
	Predegree/degree	59 (10%)
	Professional	2 (0.3%)
Occupation	Homemakers	260 (43.7%)
	Daily wagers	298 (50.2%)
	Service sectors	34 (5.7%)
	Professionals	2(0.4%)
Socioeconomic Status	Above Poverty Level(APL)	362(61%)
	Below Poverty Level(BPL)	232(39%)