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Depressive symptoms and correlates among village doctors in China

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ABSTRACT

Background: Village doctors are primary care physicians at the grass root-level of rural medical and health institutions in China. Their depression can increase medical errors and affect quality of medical care services. This study aims to examine depressive symptoms and their correlates among Chinese village doctors.

Methods: A total of 616 village doctors were recruited from Zoucheng County of Shandong province. The Center for Epidemiologic Studies Depression Scale (CES-D), the Duke Social Support Index (DSSI) and the Simplified Coping Style Questionnaire (SCSQ) were used to measure depressive symptoms in the last week, social support and coping styles, respectively. Logistic regression model was conducted to identify the associated factors of depressive symptoms among village doctors.

Results: The prevalence rate of depressive symptoms was 27.4% (28.54% for males, 24.69% for females). Logistic regression analysis found that body mass index (BMI), poor physical health, low educational level, and negative coping styles were associated with increased risk of depressive symptoms. Positive coping styles were associated with decreased risk of depressive symptoms in village doctors.

Conclusions: Depressive symptoms are prevalent among village doctors in China. They need to adopt more positive coping strategies to respond to negative emotions. More professional and medical trainings may be important to reduce risk of depressive symptoms and improve their quality of healthcare among village doctors in China.

1. Introduction

Every country has its own health care systems to provide safe, effective, convenient and affordable health care services for its population. The Health Care System Reform in China was carried out in 2009 and addressed the basic health services in rural areas for filling the obvious urban-rural gap of health services. In rural China, primary medical and public health services are delivered by 1.303 million village doctors, approximately 2.05 village doctors in each village on average (National Health and Family Planning Commission of the PRC, 2016). Village doctors are at the grass root-level of rural medical and health institutions in China, providing primary preventive health care and medical care of common diseases.

Village doctors were called barefoot doctors before 1980s (Watts, 2008), because they are farmers and doctors to provide primary health care to village residents. Most village doctors did not get normal medical education but a short-term medical training for several months. Village doctors are the basic type of healthcare providers in rural China. The village doctors' clinics are very simple, having limited medical equipment and medicines. Most village patients come to see the village doctors for basic treatment and for information to get specialty care at high-level medical institutions. Village doctors play an important role in villagers' health in China.

Depression is a negative emotion, which could cause passive effects on individuals' life and work (Holden, 2000). More seriously, depression can lead to suicidal behavior (Frank and Dingle, 1999; Phillips et al., 2002). The prevalence of depression varies from 10% to 55% across different countries among medical workers (Compton and Frank, 2011; Coomber et al., 2002; da Silva et al., 2015; Ofili et al., 2004; Schwenk et al., 2008; Thommasen et al., 2001; Wada et al., 2011). In China, studies suggest that the prevalence rates of medical staffs' depressive symptoms range from 28% to 65% (Gong et al., 2014; Shen et al., 2012; Wang et al., 2010; Wu et al., 2010). Moreover, physicians have lower proportion of treated depression than the general

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population (Huang et al., 2015). Studies have reported that depression among medical workers are closely linked with increasing medical errors and worse quality of medical care services (Fahrenkopf et al., 2008; West et al., 2006, 2009).

Previous studies have mainly focused on the depression in residents, physicians or medical students (Bernburg et al., 2016; Wang et al., 2010; Yousuf et al., 2011). Little is known about depression in village doctors. Low income, heavy workload (both farming and medical services) and limited medical knowledge and training all may make them stressful (Xu et al., 2014) and increase their risk of depression.

Based on previous studies of depressive symptoms in medical workers (Al-Maddah et al., 2015; Clarke and Currie, 2009; Rusli et al., 2008; Weigl et al., 2012), we hypothesized that poor social support and negative coping styles may increase the risk of village doctors' depressive symptoms. The aims of this current study were to assess the depressive symptoms and related factors in village doctors in China.

2. Material and methods

2.1. Participants and procedure

Village doctors are basic health workers who hold the certificate issued by administrative departments of local health governments at or above the county level. This study was conducted in Zoucheng county of Shandong Province. There were 892 village doctors in the county. A total of 624 village doctors who attended township health center meetings between October 8 to December 4 in 2015 were invited for the study and 616 (452 males, 162 females) returned their questionnaires (response rate = 98.7%). Before the survey, participants were informed the purpose of this study and their verbal permissions were obtained. This study was approved by the ethics committee of Shandong University School of Public Health.

2.2. Measurement

2.2.1. Socio-demographic information questionnaire

Socio-demographic information included gender, age, education level, marital status, economic status, self-reported physical health status, smoking and drinking.

2.2.2. Depressive symptoms

The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) includes 20 items measuring depressive feelings and behaviors during the past week. The answers for each item range from never or rarely (< 1 day) = 0, sometimes (1–2 days) = 1, occasionally or often (3–4 days) = 2, to always or all the time (5–7 days) = 3. Item 4, 8, 12 and 16 are reversely scored. The total score is the sum of all the items. A higher score indicates a higher degree of depression. The score of less than 16 means no depressive symptom, 16–19 means mild to moderate depression, and over 19 means possibility of major depression. A cutoff of 16 or above was used to define depressive symptoms (Radloff, 1977; Saijo et al., 2007; Wang et al., 2010). The CES-D has been proved to be a reliable and valid instrument for depression among Chinese population (Chin et al., 2015; Yang et al., 2015).

2.2.3. Social support

The Duke Social Support Index (DSSI) (Koenig et al., 1993) includes 23 items, which are categorized into three dimensions: social interaction scale (SIS, 4 items), subjective social support (SSS, 7 items), and instrumental social support (ISS, 12 items). The total score is the sum of scores of the three dimensions, ranging from 11 to 45. Higher scores are indicative of greater levels of social support. The DSSI has acceptable psychometric properties for the measurement of social support (Jia and Zhang, 2012; Koenig et al., 1993; Mao et al., 2015).

2.2.4. Coping styles

The developing of the Simplified Coping Style Questionnaire (SCSQ) (Xie, 1998) in China based on the coping theory (Lazarus, 1993). This scale is comprised of 20 items, which are divided into positive coping styles (12 items) and negative coping styles (8 items). The responses from "never" to "often" are coded from 0 to 3. Higher scores represent higher frequencies of the relevant coping styles. The SCSQ is a well-validated and recognized instrument to assess coping styles in Chinese populations (Han et al., 2011; Xie, 1998).

2.3. Statistical analysis

All statistical analyses were performed by the Statistical Package for Social Sciences (Version 16.0). Descriptive analysis was carried out for the distribution of socio-demographic and other variables. The t test and Chi-square test were conducted to compare the differences of variables between depressive symptoms group and non- depressive symptom group. Multivariable logistic regression analysis was used to examine the risk factors of depressive symptoms. Odds ratios (ORs) and 95% confidence intervals (CIs) of ORs for each variable were calculated in the multivariable logistic regression model. Differences were tested using two-tailed tests and P values less than 0.05 were considered statistically significant.

3. Results

Mean age of the 616 village doctors were 46.20 (SD = 10.83) years, and 73.38% were males. The working years of all subjects as a village doctor ranged from 1 to 57 years, with a mean of 25.33 (SD = 11.62) years. Village doctors with bachelor or above degree accounted for 28.57%. About 95% village doctors were married and lived with their spouses. More than 10% of the subjects reported poor economic status and 3.90% reported poor physical health status.

The mean CES-D score of all participants was 11.85 (SD = 8.66), while the mean score was 12.25 (SD = 8.66) in males and 10.75 (SD = 8.56) in females. Males had significantly higher mean CES-D score than females ($Z = -2.16$, $P = 0.030$).

About fourth of village doctors (27.4%) had depressive symptoms (10.1% was mild to moderate and 17.4% might have major depression). Males were more likely to have depressive symptoms than females (28.54% vs 24.69%), but there was no significant difference in depressive symptoms between males and females ($\chi^2 = 1.04$, $P = 0.308$).

Chi-square test and t test were used to assess the associations between village doctors' characteristics and depressive symptoms (Table 1). There were significant associations between body mass index (BMI), educational level, economic status, self-reported physical health status, physical exercise, social support, coping styles and depressive symptoms.

Multivariate logistic regression analysis showed that BMI (OR = 1.11, 95% CI: 1.03–1.18) and negative coping styles (OR = 1.12, 95% CI: 1.08–1.18) were positively associated with depressive symptoms. Compared with high educational level, village doctors with low educational level were more likely to experience depressive symptoms (OR = 1.64, 95% CI: 1.01–2.65). Compared with good physical health, fair (OR = 2.30, 95% CI: 1.51–3.48) and poor physical health (OR = 4.27, 95% CI: 1.65–11.07) were significantly associated with risk of depressive symptoms. Positive coping styles (OR = 0.93, 95% CI: 0.90–0.96) were associated with reduced risk of depressive symptoms (Table 2).

4. Discussion

The major findings of this study are: (1) village doctors were at high risk of depressive symptoms; (2) village doctors with depressive symptoms were more likely to have high BMI, low educational level and poor physical health; (3) negative coping was associated with increased