The Prevalence and Correlates of Depression of the Elderly in Local Community Centers in Nantou, Taiwan

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Abstract

Objectives: Depression in the elderly has become a serious health-care issue worldwide. In this study, we intended to evaluate the prevalence of depressive tendency among community-dwelling elderly in Nantou Prefecture, to assess sociodemographic factor in relation to depression, and to compare the characteristics of different community centers. **Methods:** We enrolled 133 old adult dwellers in five community centers in Nantou City and Zhongliao Township in Nantou Prefecture, Taiwan. Demographic and medical information was collected and participants filled Chinese versions of the Geriatric Depression Scale-Short Form (GDS-15). **Results:** The cutoff point of GDS-15 was set above 5. The prevalence of depressive tendency in community centers in Nantou was 24.1%. Multivariate logistic regression analysis demonstrated that having financial strain (odds ratio [OR] = 4.698, 95% confidence interval [CI] = 1.90–12.70, $p < 0.01$) and physical illness (OR = 2.144, 95% CI = 1.09–4.24, $p < 0.01$) were significant risk factors of depressive symptoms in this sample. However, no significant difference was found in depression in seniors between suburban and rural community. **Conclusion:** This result showed that depression was common in Nantou City and Zhongliao Township. Having financial strain and physical illness were the significant risk factors for depression in seniors. The intervention to reduce depressive symptoms in the elderly should include strategies about addressing those risk factors in local community.

Key words: community center, financial strain, physical illness, Taiwan

Introduction

The population in Taiwan is getting old. According to the data of the Ministry of the Interior, people aged 65 years or older account for 14.05% of Taiwan population. The aging index of Taiwan hits 107.4% in 2018 (https://www.moi.gov.tw/stat/news_detail.aspx?sn=13742). Among the elderly, depression is a major public health concern and is associated with disability, increased morbidity, and poorer outcomes from physical illness [1, 2]. However, older adults seek professional mental health treatment at a rate lower than that in any other adult age groups, and stigma continues to be a barrier to help-seeking among the elderly with depression [3].

The prevalence of depressive symptoms is ranged from 3.7% to 27.5% according to community studies from Taiwan [4-8]. In those previous studies, the investigators collected data in the general community population. Few studies have estimated the prevalence and risk factors for depression among the local community-dwelling old adults in Taiwan. In this study, we intended to evaluate the prevalence and risk factors associated with depression among the elderly and to investigate the impacts of different community centers through analyzing data from five community centers in Nantou City and Zhongliao Township.

Methods

Participants and procedures

Participants in this study were recruited from five community centers in Nantou, Taiwan. The participants aged 65 years or above, lived nearby the local community centers. Five community centers are located in Nantou City and in Zhongliao

Access this article online	
Quick Response Code:	
	Website: www.e-tjp.org
	DOI: 10.4103/TPSY.TPSY_20_19

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Township. The study was carried out in February 2012. The study protocol was approved by the institutional review board at the Nantou Hospital and the Ministry of Health and Welfare without the need of obtaining signatures for informed consents from the study participants due to the minimal risk.

Community centers are public facilities where members of a community can gather for group activities, social support, public information, and other purposes. The local community centers also provide health-care services such as health lecture, medical clinic, cancer screen, and home care. We randomly selected four from Nantou City and one from Zhongliao Township where were under medical collaboration with Nantou Hospital, Ministry of Health and Welfare. Community center A, Fulong temple, is a local religious center for worshiping The Village Deity in Nantou City. Community center B, Guanghui Village community center, is near military dependents' villages and Chungxing Village. Community center C and community center D were Zhangxing and Fangmei Community Centers, respectively. Community center E was a day care center of Long-Yan-Lin Welfare Association in Zhongliao Township. After excluding individuals under 65 years old and individuals with poor cognitive function, we recruited 133 seniors for participating in the study.

Mearsurements

The study used the on-site self-administered questionnaire to gather the basic demographic and clinical data including gender, age, marital status, education, financial strain, living condition, religion, physical illness, substance use, and physical activity. The personal data such as name, home address, phone number which could be recognized the identity would not be recorded. If the participants could not recognize the words in the questionnaire, we would assist the participant to finish the questionnaire. If the participant was not satisfied with the financial situation or had not enough money for daily expense, it would be classified to "yes" of having financial strain. If the participant had physical illness such as type 2 diabetes mellitus, cardiovascular disease, renal disease, chronic obstructive pulmonary disease, Parkinson's disease, chronic pain, and so on, they would be recorded as such. If the participant had one of the habit of smoking, alcohol drinking, and betel nut chewing, it would be classified to "yes" of substance use.

We screened participants' depressive symptoms with Chinese versions of the Geriatric Depression Scale-Short Form (GDS-15). GDS has been developed for screening of depression and the validity has also been proven [9]. It has become easier to use after it has been modified into a short form [10]. The Chinese version has also been corrected for the culture bias and has good validity [11-14]. It uses the "yes"/"no" question to make seniors answer the questions more easily. The cutoff point of GDS-15 is 5 for the diagnosis of depression.

Statistical analysis

We used descriptive statistics to present the characteristics of the study samples. Univariate analysis of various sociodemographic variables was done in relation to depressive symptoms. We used Chi-square test to determine the differences among different populations with a significance of $p < 0.05$. Multiple logistic regression was conducted to examine the significant sociodemographic variable after adjusting for other confounders.

Differences between groups were considered significant if $p < 0.05$. For data analysis, we used Statistical Package for the Social Science software version 10.00 for Windows (SPSS Inc., Chicago, Illinois, USA).

Results

We had 133 participants in this study. Table 1 lists the characteristics of depressed and nondepressed elders in community centers. Those who scored five or higher on the GDS were classified as "depressed" and others were classified as "nondepressed." Of 133 elders in community centers, the prevalence of depressive tendency in community centers in Nantou was 24.1%.

Table 1. Characteristics of depressed and nondepressed elders in community centers

Variable	Nondepressed (GDS < 5), n (%)	Depressed (GDS ≥5), n (%)
Total	101 (75.9)	32 (24.1)
Gender		
Male	33 (71.7)	13 (28.3)
Female	68 (78.2)	19 (21.8)
Age*		
65-75	41 (85.4)	7 (14.6)
>75	60 (70.6)	25 (29.4)
Marital status*		
Married	57 (83.8)	11 (16.2)
Single/widow (er)	44 (67.7)	21 (32.3)
Education		
No	35 (67.3)	17 (32.7)
Yes	66 (81.5)	15 (18.5)
Having financial strain**		
No	90 (81.8)	20 (18.2)
Yes	11 (47.8)	12 (52.2)
Living conditions		
Alone	80 (76.2)	25 (23.8)
With family	21 (75.0)	7 (25.0)
Religion		
Yes	76 (74.5)	26 (25.5)
No	25 (80.6)	6 (19.4)
Physical illness*		
0	17 (89.5)	2 (10.5)
1	37 (84.1)	7 (15.9)
>1	47 (67.1)	23 (32.9)
Substance use		
No	82 (77.4)	24 (22.6)
Yes	19 (70.4)	8 (29.6)
Physical activity		
To move freely (n=120)	93 (77.5)	27 (22.5)
Assistance needed (n=13)	8 (61.5)	5 (38.5)

*$p < 0.05$; **$p < 0.01$, using Chi-square test ($N = 133$).
GDS, Geriatric Depression Scale

Table 2 shows the comparison of population characteristics of old adults with depression between suburban and rural group. The rural group included community center E located in Zhongliao Township and the others of community centers in Nantou City were classified to the suburban group. It revealed no significant difference between those two groups.

Table 3 describes factors significantly related to depression using multivariate logistic regression. In multivariable analysis, we included all variables into logistic regression model with forward conditional method. Having financial strain (odds ratio [OR] = 4.698, 95% confidence interval [CI] = 1.90 - 12.70, $p < 0.01$) and number of physical illness (OR = 2.144, 95% CI = 1.09 - 4.24, $p < 0.01$) demonstrated significance in the model.

Discussion

In this study, we analyzed the prevalence and sociodemographic factors in depression of the elderly in community centers in Nantou city and Zhongliao Township. As shown in Table 1, the prevalence of depressive tendency was 24.1% in this study. This finding is compatible with those from the previous studies conducted in Taiwan (3.7% – 27.5%) [4-8]. The prevalence from community centers in this study is near to that in the elderly living in veterans home (21.7% – 35.5%) [15, 16] and is lower than those seniors in nursing home (24.5% – 43.4%) [17-19] in Taiwan. Those data suggest that the prevalence of depression in community is lower than that in the institutions. The finding in our study is close to that in community in the Western study (7.2% – 49%) [20-22].

The selected samples in our study had the specific backgrounds. Four selected local community centers in this study were located in Nantou City and one from Zhongliao Township where were all in the disaster area of the 1999 Chi-Chi Earthquake. The previous study showed that older people who have experienced damage to their home during a disaster are at risk of experiencing depressive symptoms [23]. The time when we collected data had been over 10 years after the Earthquake. The prevalence of depression in old adults in this study was still in the range of the general population [4-8]. For example, community center E, a day care center of Long-Yan-Lin welfare association in Zhongliao Township, was close to the epicenter of the 1999 Chi-Chi Earthquake. Even if the prevalence of community center E is not the lowest in the five community centers, there was the character in community center E. The community had had active postearthquake rehabilitation and reconstruction and advanced elder care planning. A well-known program of "Meals on Wheels" existed to support the elderly in Zhongliao (http://www.lil20005.org.tw/aboutus.php). The previous study also showed that social support from the extended family and neighbors, and social participation can lessen depressive symptoms [24].

As shown in this study (Table 2), we found that the percentage of the elderly with depression in suburban group was 24.5%, which was higher than that (22.2%) in rural group. The comparison of population characteristics in the elderly with depression between suburban and rural group showed no significant difference. Chong et al. 2001 showed that there is a significant difference in area distribution in depressive disorder, with the trend from lower rate in rural and semi-urban communities to a much higher rate in the urban metropolis [4]. We suggest that our study data have insufficient sample size to cause the discrepancy in findings.

In a univariate analysis in this study (Table 1), we found significant differences existed between the depressed and nondepressed group in age ($p < 0.05$), marital status without spouse ($p < 0.05$), having financial strain ($p < 0.01$), and physical illness ($p < 0.05$). Age is associated with depression, and it has been reported before. When turned into the logistic regression of study data (Table 3), we found that having financial strain ($p < 0.01$) and physical illness ($p < 0.01$) remained to be significantly different, but that marital status without spouse and age were not significantly associated with the elderly with depression in community center in this study. The similar results that having financial strain and physical illness are the risk factors of the elderly depression in community can also be seen in some previous studies [4, 5, 7]. The variable of physical illness in univariate analysis revealed the individual who had at least two chronic illness had higher risk of depression ($p < 0.05$). Under test for linear trend, the number of illness and depression were correlated ($p < 0.05$). Based on this finding, we suggest that higher number of physical illness can cause higher prevalence of depression, emphasizing the importance of physical illness on in preventing depression in the elderly.

Table 2. The comparison of population characteristics in elderly depression between suburban group and rural group (n=133)

	n	Nondepressed (GDS < 5), n (%)	Depressed (GDS ≥5), n (%)	χ^2	P
Suburban	106	80 (75.5)	26 (24.5)		
Community center A	33	23 (69.7)	10 (30.3)	0.06	0.80
Community center B	29	24 (88.9)	5 (11.1)		
Community center C	30	20 (66.7)	10 (33.3)		
Community center D	14	13 (92.9)	1 (7.1)		
Rural					
Community center E	27	21 (77.8)	6 (22.2)		

Nonsignificantly different between suburban and rural community centers, using Chi-square test.
GDS, Geriatric Depression Scale

Table 3. Factors significantly related to depression in multivariate logistic regression

Variable	OR	95% CI
Having financial strain**	4.698	1.90 - 12.70
Physical illness**	2.144	1.09 - 4.24

*$p < 0.05$; **$p < 0.01$. OR, odds ratio; CI, confidence interval

Study limitations

The readers are warned not to overinterpret our study results because our study has three limitations:

- The study recruited participants from community centers, not from the general population. We should consider the possibility of underestimation for depression in the elderly because some depressive patients who did not go outdoors to attend the community center. It may induce selection bias.
- The data were collected from local five community centers in Nantou City and Zhongliao Township, so the findings of the study might not be readily generalized to different areas of Nantou Prefecture, Taiwan.
- This study did not assess participants for depressive disorder. Therefore, our finding cannot be generalized to old adults diagnosed with depression.

Summary

This is the report on depression of the elderly in population of community centers. It would help us understand mental health issues for this population.

Financial Support and Sponsorship

Conflicts of Interest

There are no conflicts of interest.

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