ORIGINAL INVESTIGATION

Psychological distress among a sample of Iranian older adults

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Introduction. Psychological distress is one of the most important predicting factors of mental health among older adults. Therefore, this study aimed to identify status and associated factors of psychological distress among older adults in Gorgan City.
Method and material. A cross-sectional design was conducted on a convenience sample of 190 community-dwelling older adults aged 60 years and over in Gorgan, Iran. The Kessler psychological distress (K10) was used to measure psychological distress. Data analysis was conducted using the Statistical Package for Social Science (SPSS) version 22.
Results. Out of 190 participants around 53% were female. The mean age of the respondents was 69.88 ± 7.58. The prevalence of severe psychological distress was found to be 13.2%. The results of multiple linear regression showed a significant model ($F_{(8,181)} = 9.02$, $p < 0.001$), wherein sex, subjective income, and chronic disease were significantly associated with psychological distress.
Conclusions. The results of this study indicate slightly a high level of psychological distress among older adults, particularly in vulnerable groups including women, the poor, low educated people, and older adults with co-morbidity. Therefore, it is recommended that policy-makers take into account vulnerable older adults when providing comprehensive mental health programs for aged population.

Key words: Psychological distress, Older adults, Iran

INTRODUCTION

Population aging is a global phenomenon which is accompanied by substantial economic and social consequences [1]. The growth of aged population will be expected to increase from 694 million in 1970 to 1.2 billion in 2050 [2]. Iran, like other countries around the world, is experiencing aging population. Although aged population now accounts for 9.3% of the Iran population, it is projected to reach 20% by 2050 [3].
Regarding high life expectancy, the prevalence of chronic illnesses is being increased among elderly people, therefore well-being from different aspects including psychological or physical would be the most important issue at advanced ages [4]. There is a significant relationship between psychological well-being and health outcome. Low level of psychological well-being could result in higher allocation rate budget on health and social care in aged population [5]. In light of mentioned above, early identification of psychological distress in later life not only could shorten the duration of suffering but also promote the quality of life [6].Psychological distress is generally defined as *"emotional suffering characterized by symptoms of depression and anxiety that may be tied in with Somatic symptoms"* [7].
From aspect of holistic approach, psychological distress would substantially originate from specific socio-economic background including marital status

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(separated, widowed and divorced), low educated people, lower income, unemployment, mental distress, substance abuse, social network, family structure and living in village or small town [8]. Furthermore, previous studies have indicated that there is strong association between psychological distress and increased risk of mortality [9], cardiovascular disease [10], diabetes [11], hypertension [12] and epilepsy [13].

Some individuals are so vulnerable towards psychological distress. For example, elderly women are sensitive group especially who have primary education, because poor education may be major obstacle for having predominant participation in society and being active from aspect of cognition. As a result, the mentioned issue will lead to psychological distress among old women [14 15]. Older women experience the impact of events including widowhood, isolation, feeling of insecurity, sense of helplessness, substandard health, physical illness, and lack of attention more intensively than older men [16]. The aim of this study was to identify the status and associated factors of psychological distress among older adults in Gorgan City.

MATERIAL AND METHOD

A cross-sectional study design was conducted on a sample of 190 Iranian community-dwelling older adults using a convenience sampling technique in Gorgan. The city of Gorgan is located in north-eastern part of Iran which leads to Caspian Sea from south-east. Her total area is 40 km^2 and has a Mediterranean climate [17]. According to the last National Iranian census in 2016, total population of Gorgan city is 365682 which has 30635 elderly persons at the age of 60 and over [18].

Data collection was conducted from July 2016 to September 2016. The participants were 190 aged people 60-year-old and over who were recruited from a day care center and community-dwelling older adult in Gorgan city. The exclusion criteria were as cognition impairment (based on abbreviation mental test (AMT) and not willing to continue the process of project.

The majority of the participants attended to daycare center on Sundays and Thursdays, because most leisure activates and educational programs were commonly held during those days. Therefore, two trained-enumerators involved in data collection. A face-to-face technique was carried out.

Kessler psychological distress scale (k10) was used to measure non-psychological distress in the anxiety- depression spectrum. The responses were classified into five point Likert Scale ("all of the time" = 5, "a little of the time = 2", some of the time = 3, most of the time = 4, "none of the Time = 5"); the total score was ranged between 10 (no distress) 50 (sever distress) [19]. The reliability of this scale in other studies that were conducted in other countries was 0.84-0.94 [20-23]. In this study the internal reliability of this scale was obtained 0.88.

Socio-demographic variable

Socio-demographic variables were including age, sex, marital status, living status, level of education, employment status, income satisfaction, chronic disease (Hypertension, diabetes, Cardiovascular disease, Gastrointestinal disease, Cerebrovascular disease, kidney disease, Pulmonary disease, musculoskeletal disorders, Anemia) – information related to chronic disease was obtained through self-report technique. Furthermore, variables such as sex, marital status, living status, level of education and employment status were coded in a binary format, male (coded as 1) in comparison with female (coded as 0), marital status (unmarried coded as 0, married coded as 1), living status (alone coded as 0, others coded as 1), Level of educational (No formal education coded as 0, formal education coded as 1), employment status (unemployment coded as 0, employment coded as 1).

Statistical analysis

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS 22). Descriptive analysis such as ranges, frequency distribution, percentage, means and standard deviation were used. Analytic statistic including bivariate analyses were performed using Pearson correlation, independent t-test, multiple linear regression. Preliminary exploratory data was carried out to determine missing value, detect outliers and access for normality.

RESULTS

In this survey, 190 older adults were studied. The mean age was 69.88 ± 7.58 with a range between 60 and 90 years old. In terms of gender distribution, the sample was equally distributed (52.6%, n = 100) Table I presents the distribution of the aged population based on socio-demographic and health characteristic.

The total score related to psychological distress was between 10 and 50, which 12.1% and 13.2% were likely to have a moderate disorder and likely to have a sever disorder, respectively. Table II reports specific classification of Kessler psychological distress (K10) and the mean score was 19.41 ± 8.65.

A series of bivariate analyses including Pearson correlation, independent-samples t-test and multiple linear regression were conducted to assess association between socio-demographic characteristics and psychological distress.

Table I. Distribution of the study population by each socio-demographic and health characteristics.

Variable	Category	N	%	M	SD
Sex	Male	90	47		
	Female	100	53		
Age	60-74 young-old	139	73		
	75-84 old-old	43	22	69.9	7.6
	+85 oldest-old	9	4.7		
Income satisfaction	Absolutely dissatisfy	34	18		
	Dissatisfy	31	16		
	Don't have any opinion	8	4.2		
	Satisfy	86	45		
	Absolutely satisfy	31	16		
Marital status	Married	119	63		
	Unmarried	71	37		
Living status	Alone	42	22		
	With others	148	78		
Level of educational	No formal education	112	59		
	Primary education	52	28		
	Secondary and tertiary education	24	13		
Employment status	Unemployed	146	77		
	Employed	44	23		
The number of chronic disease	0	46	24		
	1	51	27	1.6	1.3
	2	47	25		
	3	46	24		

Table II. Classification of Kessler psychological distress on elderly population.

Categories	N	%	M	SD
10-19 Likely to be well	122	64		
20 = 24 Likely to have a mild	20	11		
Disorder			19.4	
				8.7
25-29 Likely to have a moderate	23	12		
disorder				
30-50 Likely to have a severe	25	13		
disorder				

As Table III shows. The results related to independent t-test were revealed that there was a significant difference between women (M = 22.81, SD = 8.82), men (M = 15.63, SD = 6.68), t (152) = 6.35, $p < 0.001$ and psychological distress.

As expected, older women reported significantly higher level of psychological distress. Furthermore, independent sample t-test was performed to investigate psychological distress between marital statuses among elderly individuals. There was no significant difference in psychological distress between unmarried group (M = 20.76, SD = 8.38) and married group (M = 18.60, SD = 8.73), t (188) = 1.67, $p > 0.05$. However, a significant difference was found from aspect of living status, education level.

In order to assess bivariate association, Pearson correlation was used, the findings showed that there was a negative and significant association between age and psychological distress ($r = -0.16$ $p \leq 0.05$), income satisfaction and psychological distress ($r = -0.22$, $p \leq 0.05$). Nevertheless, there was a significant and positive correlation between chronic disease and psychological distress ($r = 0.3$, $p < 0.001$).

The most surprising aspect of the data is that identify socio-demographic and health predictors of psychological distress. Regression analysis was used to predict that socio-demographic and health characteristics could have significant relationship with psychological distress. The results, as shown in Table IV. Indicates that multiple linear regression analysis to predict the psychological distress by socio-demographic factors.

Finding from multiple linear regression analysis revealed a significant model ($F(8,181) = 9.02$, $p < 0.001$) with sex ($\beta = -0.4$, $p < 0.001$), income satisfaction ($\beta = -0.2$, $p < 0.001$) and chronic disease ($\beta = 0.2$, $p < 0.01$) as socio-demographic and health predictor of psychological distress. However, the multiple linear regression test did not show any significant differences between

Table III. Mean score of psychological distress based on socio-demographic factors.

Variable	Category	N	Mean	SD	t
Sex	Female	100	22.81	8.8	
	Male	90	15.63	6.7	6.35**
Marital status	Unmarried	71	20.76	8.4	
	Married	119	18.6	8.7	1.67*
Living status	Alone	42	21.98	8.5	
	Others	148	18.68	8.6	-2.18
Education level	No formal	112	20.5	8.7	
	Formal	78	17.85	8.4	2.09
Employment status	Unemployed	146	19.82	8.8	
	Employed	44	18.02	8.3	1.21

Note: **p < 0.001, p ≤ 0.05*

Table IV. Results of multiple linear regression analysis to predict psychological distress by socio-demographic factors.

Variable	B	SE	β	t	Collinearity statistics	
					Tolerance	VIF
Age	-0.1	0.1	-0.1	-0.95	0.85	1.2
sex	-7.1	1.5	-0.4	-4.65*	0.51	1.9
Marital status	2.13	1.6	0.12	1.35	0.5	2
Living status	1.62	1.7	0.07	0.96	0.6	1.7
Level of education	-0.6	1.2	-0	-0.48	0.83	1.2
Employment status	1.55	1.5	0.07	1.03	0.74	1.4
Income satisfaction	-1.4	0.4	-0.2	-3.4**	0.97	1
Chronic disease	1.3	0.4	0.23	3.05**	0.89	1.1

Notes: F (8,181) = 9.02, *P < 0.001, **P ≤ 0.05. Sex (male = 1, female = 0), marital status (unmarried = 0, married = 1), Living status (alone = 1, others = 0), Level of education (no formal = 0, formal = 1), Employment status (employed = 1, unemployed = 0).

age, marital status, living status, educational level and employment status and psychological distress among Iranian elders.

DISCUSSION

This study was conducted in a sample of 190 community-dwelling Iranian elderly population in Gorgan city so that investigate significant socio-demographic and health predictors of psychological distress in old age.

The results of this study indicate that five socio-demographic and health factors including age, sex, and marital status, level of educational, living status, income satisfaction, and chronic disease were significant predictors of psychological distress in later life.

The current study found a significant and inverse relation between age and psychological distress among Iranian aged people. This finding detects that with increasing age, psychological distress will be decreased. Therefore, the present findings seem to be consistent with other researches which supported this correlation [24 25]. The possible explanation for positive influence of aging on psychological distress may be related to appraising coping strategies in later life which were more likely resulted in declining of psychological ailments [26 27].

Another finding from the current study detected that there was a significant relationship between psychological distress and sex. The elderly women had reported higher level of psychological distress in comparison with older men. These present findings seem to be consistent with recently study which found several possible explanations for this results, for instance the rate of morbidity among elderly women is higher and numerous of elderly women spend a large partial of their life with disabilities and illnesses [28]. The aged women more likely to experience widowhood in later life and this factor may explain the relatively good correlation between sex and psychological distress [29]. Overall, old women suffer from lower socio-economic resources that leads to poverty, one possible explanation for this discrepancy is lack of security job among females [30]. Elderly women tend to expresses the negative feelings [31]. With advancing age, facial and physical attractiveness among women will be declined [32] which result in increasing psychological distress whereas men may obtain social prestige with

age. These expressed factors could be main cause of higher psychological distress among women [33]. Some authors have speculated that social network characteristics could have substantial influence on psychological distress between men and women [34 35]. There is, however, other possible explanations that might be related to lack of adequate access to economical and emotional resources by men and women across life course may lead to sex difference in psychological distress [34]. According to above mentioned, psychological distress among women is higher than men.

Marital status also could be one important predictor of psychological distress among older adults. Although there was no statistically differences between unmarried and married respondents but older people who were unmarried had higher psychological distress. This findings is in agreement with previous study which showed that being single was equally detrimental effects on level of psychological distress among two genders [36]. This result may be explained by the factor that marriage could provide powerful social support for couples that leads to lower level of psychological distress among men and women [37-39]. Other finding documented have reported that social contract may assemble individuals together in an intimate relationship which would be stress-buffering and socially integrative [40]. In sum, the findings of the current study do support the previous research [41]. One the other hand, a study indicated that psychological distress among married men is much less in comparison with married women [42].

Furthermore, another important finding which was emerged from this study is related to pivotal role of education status on psychological distress. The finding of current study is consistent with those of Brannlund and Hammarström using data collected from over the course of 27 years from Sweden participants, found that high education is positively linked to less psychological distress [43]. This result may be explained by the fact that older people who have high level of education could participate in cognitively stimulating activates, have better economic circumstance and engage in more physical activity, as a result these individuals have lower level of psychological distress [44].

In this study, being alone was found to cause psychological distress that is consistent with previous studies [45-47]. As people grow old, there is most likely to report the highest loneliness which is emerged from death of spouse and social disengagement after leaving work or a familiar neighborhood [48]. However, the finding of the current study do not support the previous research which was not indicated any significantly difference between older adults who lived alone and those who lived with others from aspects of psychological distress [49].

Income satisfaction and chronic disease had a significant correlation with psychological distress at a multiple linear regression. Previous studies have demonstrated that clear relationship of lower income with psychological distress [50-52]. Stabilization of income may increase subject's ability to cope with life crises and therefore will diminish psychological distress [53 54].

Further finding from the current study emerging from observed correlation between chronic disease and psychological distress might be explained that distress may contribute to disease progression [55]. This result provides further support for hypothesis that due to increase in chronic disease, demand for psychological treatment will be identified [56]. On the other words, psychological distress may originate from chronic disease may have adverse effect on health-related quality of life [57]. This produced result which corroborate the findings of a great deal of the previous findings in this field [58-61].

CONCLUSIONS

Returning to question posed at the beginning of this study, it is now possible to state that policy makers should pay much more attention to vulnerable elderly people.

LIMITATIONS

A number of important limitations need to be considered. First, the current research is limited by the use of a cross-sectional design, therefore a longitudinal study should be conducted to evaluated cause-and-effect relationships. Second, this project used a self-report technique for gathering data, which has some problems including honesty/image management, understanding and response bias as a result caution must be applied, as findings might not be transferable to aged population in Iran. It is recommended that the further research could be undertaken in the following settings including long-term institutions and hospitals in which older population with various characteristics from aspect of socio-demographic and health have been maintained**.**

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Conflict of interest

The authors declare no conflict of interest.

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