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RESEARCH

GENERAL HEALTH AND DISABILITY STATUS: A COMPARATIVE STUDY BETWEEN NURSING HOME RESIDENTS AND ELDERLY LIVING AT THEIR OWN HOMES

ABSTRACT

Introduction: The objective of this study is to compare the general health and disability status of the elderly living in nursing homes or in their own homes.

Materials and Method: The study was carried out in July, 2000 on 367 elderly, aged ≥60, living in two nursing homes in Ankara and at their own houses in three villages of Gölbaşı. A survey form including descriptive questions, the General Health Questionnaire (GHQ-12), the Brief Disability Questionnaire (BDQ), and the Geriatric Depression Scale (GDS) was administered to participants.

Results: There was a statistically significant difference in the GHQ-12 and BDQ mean scores between those living in nursing homes and at home ($p<0.05$). Scores were higher for those living at nursing homes for both conditions. For those living in nursing homes, the risk factors for increased BDQ scores were being female, suffering from a chronic disease and to having a depression disorder. The risk factor for GHQ-12 was having a depression disorder ($p<0.05$).

Conclusion: We found that the GHQ-12 and BDQ scores were higher for those living in nursing homes compared to those living at home. The GHQ-12 and BDQ should be used as screening tools for the early diagnosis of psychological problems, especially for those living in nursing homes.

Key Words: Aged, Depression, Disability, Nursing home, Questionnaires.*

ARAŞTIRMA

GENEL SAĞLIK VE YETİ YİTİMİ DURUMU: HUZUREVİNDE VE EVDE YAŞAYANLARDA KARŞILAŞTIRILMALI BİR ÇALIŞMA

ÖZ

Giriş: Bu araştırmanın amacı huzurevinde ve evde yaşayan yaşlılarda genel sağlık ve yeti yitimi durumunun karşılaştırılmasıdır.

Gereç ve Yöntem: Bu çalışma, 2000 yılının Temmuz ayında, Ankara'daki iki huzurevi ve üç köyde, 60 yaş ve üzeri 367 kişiye uygulanmıştır. Anket formunda incelenenlere tanımlayıcı sorular, Genel Sağlık Anketi -12 (GHQ-12), Kısa Yeti Yitimi Anketi (BDQ) ve Yaşlılar İçin Depresyon Ölçeği (GDS) uygulanmıştır.

Bulgular: Bu çalışmada huzurevi ile evde yaşayan yaşlılar arasında GHQ ve BDQ puanları arasında istatistiksel olarak anlamlı fark saptanmıştır ($p<0.05$). Her iki skorun da huzurevinde yaşayan yaşlılarda daha yüksek olduğu görülmüştür. Huzurevinde yaşayanlarda yüksek BDQ puanı için kadın olmak, kronik hastalığın olması ve depresyonda olmak risk faktörü iken, yüksek GHQ-12 için depresyonun olması risk faktörüdür ($p<0.05$).

Sonuç: Bu çalışmada huzurevinde yaşayan yaşlılarda GHQ-12 ve BDQ skorları evde yaşayan yaşlılara göre daha yüksek saptadık. Huzurevinde yaşayan yaşlılarda evde yaşayanlara göre GHQ-12 ve BDQ tarama testlerinin daha sıklıkla kullanılması önerilmektedir.

Anahtar Sözcükler: Yaşlılık, Depresyon, Yetiyitimi, Huzurevi.

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INTRODUCTION

Old age is a period of life in which mental problems frequently accompany physical ones. Depression is the most common psychological problem among older persons (1,2). According to the Turkish National Burden of Illnesses study, depressive disorders marked by unipolarity rank first among the causes of years lost owing to disability in the group aged 60 years and over (3).

The prevalence of major depression can increase by 6% to 26%, minor depression by 11% to 50%, and depressive symptoms by 30% to 55% for those living in nursing homes (4-10). In Turkey, the prevalence of depression is 24% to 29% for those living at home, increasing to 41% to 48% for those living in nursing homes (5,8,9). The reason for the high prevalence of depression in those living in nursing homes may be the stigma associated with living in nursing homes within the community, and the importance of the family in the Turkish society.

It may be possible to prevent physical and social disabilities in older persons by detecting mental problems at an earlier stage; detecting disabilities at an early stage may even prevent depression. It may be possible at times to easily treat both problems with early diagnosis. Two of the tests developed to detect psychological disorders and their accompanying physical and social disabilities are the General Health Questionnaire GHQ-12 (11), and the Brief Disability Questionnaire (BDQ) (12,13). The Turkish validity and reliability of these tests have been confirmed (14,15). The objective was to compare the general health and disability condition of the elderly living in 2 nursing homes in Ankara (the capital of Turkey) and in their own houses in 3 villages of Gölbaşı, which is 20 kilometers from Ankara, using the GHQ-12 and BDQ screening tests.

MATERIALS AND METHOD

Population Study

In July 2000, we studied individuals aged 60 and older living in two nursing homes in Ankara (the capital of Turkey) and in their own homes in three villages of Gölbaşı, which is 20 kilometers from Ankara. In the year the study was done, there were a total of three large nursing homes of the Social Services Institution in Ankara. The villages and the nursing homes were chosen by a cluster sampling method. In total, 215 of the 302 older persons living in the two nursing homes (71.2%) and 152 of the 184 older persons living at home (82.6%) participated in the study.

Ethical Considerations

Since this was a non-invasive, questionnaire-based study of the elderly, there was no requirement to seek approval of the ethics committee. However, the research proposal was approved by the Directorate of the Ankara Social Services Institution, and written consent was obtained from the pertinent institution. Additionally, an explanation of the study was given to the patients, and oral consent was obtained from the participants before the interview and the administration of the questionnaires and other forms.

Tests Used for the Study

Mini Mental State Examination (MMSE): The MMSE is a widely used method for assessing the mental cognitive condition; it provides a total score that places the individual on a scale of cognitive function (16). Cognitive functional limitation was assessed using the Turkish modified version for the illiterate elderly population section of the Mini-Mental State Examination (MMSE). A score of 9 or less signifies severe cognitive disorder, 10 to 23 signifies moderate-mild cognitive disorder, and 24 to 30 is considered normal (16).

Brief Disability Questionnaire (BDQ): This survey evaluates physical and social disabilities. A score of 7 or less indicates no disability to mild disability, and a score of 8 or more is indicative of moderate to severe disability (12-14).

General Health Questionnaire (GHQ-12): This survey was developed to detect frequently observed acute psychological disorders, to evaluate the general level of psychopathology, and to detect the number of persons with psychiatric disabilities at the time of a community survey. The evaluation indicates normal for those who score 2 points or lower, and at risk for psychological disorders for those who score 3 points or more (11,15).

The Geriatric Depression Scale (GDS): The GDS is a screening test for depressive symptoms in the elderly. It needs no prior psychiatric training and has been validated in many environments - home and clinical. The GDS is a 30-item dichotomous scale with possible scores ranging from 1 to 30, in which higher scores indicate higher levels of depression. Those having a GDS score of 14 or higher were considered to be depressive (17,18).

Study Procedure and Survey Form

Data collection was performed by two research assistants and 15 intern doctors of the Public Health Department. Before the study, they were trained by the authors for three hours on the objective of the study, the tests to be used and the evaluation of the tests. The questions were read by the research practitioners to the elderly who found it difficult to read.

All participants were first administered the MMSE. Those obtaining a score of 10 or more were thought to be able to decide cognitively whether they should participate in the study or not, and were included in it. Those obtaining scores of 9 or less (30 elderly from nursing homes and 2 living in their homes) were thought to be unable to decide cognitively whether they could participate in the study or not, even if they had agreed to participate, and were not included in the study. The instruments were then administered to the participants using a face-to-face interview technique, asking the questions one at a time. The survey contained the descriptive questions, the GHQ-12 (11,15), the BDQ (12-14), and the GDS, for which Turkish validity and reliability have been confirmed (17,18). Chronic diseases were defined in the questionnaire as the illnesses diagnosed by a medical doctor as requiring continuous treatment.

Statistical Analyses

The GHQ and BDQ were evaluated with a chi-square test. Values for *p* less than 0.05 were considered statistically significant.

The factors affecting GHQ and BDQ scores were evaluated using a logistic regression analysis. The analysis was performed separately for those living in the nursing homes and those living in their own homes. Sex, age, marital status, presence of chronic illnesses and depression condition were put in separate regression models to determine the risk factors affecting the GHQ score and disability in the elderly.

RESULTS

The sex distribution of the study participants staying at nursing homes or at home was similar. For those staying in nursing homes, the mean age was 75.8±8.2 years, and the median age was 75.0 years (range, 60-100 years), while for those staying at home, the mean age was 67.9±5.9 years, and the median age was 67.0 years (range, 60-90 years). The mean age was 72.4±8.3 for women, and 72.6±8.3 for men. Among residents in nursing homes, 38.6% had never attended school, while 61.9% of those living at home had. Of residents in nursing homes, 76.8% were widowed or divorced, while 27.0% of those living at home were.

There was a statistically significant difference with regard to GHQ and BDQ mean scores between those living in nursing homes and those living at home ($p<0.05$). Scores were higher for those living in nursing homes for both tests.

When we analyzed the GHQ scores of older persons living in nursing homes or at home according to sex, age, marital status, chronic illness, and depression, the only group in which we did not find a difference between older persons living in nursing homes and those living at home was the group without depression. The same analysis was carried out for disability, and the relevant score for all groups (except the group aged 75 or over and not married) was higher for older persons living in nursing homes. This difference was statistically significant ($p<0.05$) (Table 1).

Multivariate logistic regression analyses allowed us to examine how low BDQ (score ≥ 8) and GHQ 12 results (score≥3) were influenced by sex, age, marital status, presence of chronic illness, and depression for those living in nursing homes and at home (Tables 3 and 4). For those living at home, age and marital status had no effect on disability (score ≥ 8) while female sex, presence of chronic illness, and depression did have an effect. Also for those living at home, disability (score≥8) was 3.1 times higher in women (95% CI, 1.2-8.3), 3.5 times higher in those with a chronic illness (95% CI, 1.2-10.0), and 4.0 times higher in those with depression (95% CI, 1.7-9.7). The multivariate logistic regression model showed that sex, age, marital status, and presence of chronic illness had no effect on GHQ 12 score (score≥3), while presence of depression led to a 4.9-fold increased risk of a GHQ 12 score higher than 3 (95% CI, 1.4-17.3) (Table 2).

For those living in nursing homes age, marital status, and presence of chronic illness had no effect on increased BDQ scores (score≥8), while female sex and presence of depression did. Also for those living in elderly homes, disability (score≥8) was 2 times higher in women (95% CI, 1.1-3.8) and 5.6 times higher in those with depression (95% CI, 2.9-10.7). A multivariate logistic regression model showed that sex, age, marital status, and presence of chronic illness had no effect on the GHQ 12 score (score≥3), while presence of depression led to an 18.1-fold increased risk of a GHQ 12 score ≥3 (95% CI, 7.4-44.7) (Table 3).

Table 1— Distribution Of BDQ And GHQ-12 Scores In Older Persons Living In Nursing Homes Or At Home According To Sex, Age, Marital Status, Chronic Illness And Depression Condition, 2000, Ankara, Turkey

	BDQ Score			GHQ-12 Score		
	Elderly Home ≥8 n (%*)	Home ≥8 n (%*)	p**	Elderly Home ≥3 n (%*)	Home ≥3 n (%*)	p***
Total	119 (56.4)	39 (26.0)	<0.0001	85 (41.7)	17 (11.3)	<0.0001
Sex						
Male	42 (44.7)	8 (12.3)	<0.0001	38 (41.8)	4 (9.5)	<0.0001
Female	77 (65.8)	31 (36.5)	<0.0001	47 (41.6)	13 (15.3)	<0.0001
Age						
60-74	52 (50.5)	29 (22.7)	<0.0001	38 (38.4)	12 (9.4)	<0.0001
75 or more	67 (62.0)	10 (45.5)	0.14	47 (44.8)	5 (22.7)	0.04
Marital Status						
Married	13 (43.3)	20 (18.5)	0.005	12 (40.0)	8 (7.4)	<0.0001
Not married****	106 (56.6)	19 (45.2)	0.11	73 (42.0)	9 (21.4)	0.01
Chronic Illness						
Absent	30 (47.6)	6 (11.5)	<0.0001	22 (36.7)	5 (9.8)	0.001
Present	87 (60.0)	33 (33.7)	<0.0001	61 (43.3)	12 (12.1)	<0.0001
Depression#						
Absent	25 (31.2)	11 (12.2)	0.002	7 (9.1)	4 (4.4)	0.186
Present	94 (71.8)	28 (46.7)	0.001	77 (61.1)	13 (21.7)	<0.0001

*Percentage for those living in nursing homes and at home for both characteristics.
**P shows the statistical significance of the chi-square test comparing BDQ scores of elderly living in nursing homes and Home.
*** P shows the statistical significance of the chi-square test comparing GHQ-12 scores of elderly living in nursing homes and home.
****The not-married group is the single and widow/divorced group.
#According to the results of "The Geriatric Depression Scale" screening test.

Discussion

As is true for the rest of the world, the older population in Turkey is increasing in size (19). In 2000, those aged 65 and older made up 5.6% of Turkey's population (3). This increase makes it necessary for healthcare services for older persons to be integrated with general health care services, beginning with primary care. Until now, mother and child health and family planning services have been the most important part of primary health care services in Turkey. Currently, there are no national health care services for older persons. However, given the changing demographics, this must change.

In Turkey, there are few studies about the mental condition of the elderly who are living in nursing homes (9,20). The present study compares two elderly groups living in their own homes and in nursing homes using the GHQ-12, GDS and BDQ scales evaluating mental health and disability condition. With this rationale, the study will contribute to the literature and may help the policy makers in the area of regulations for social and health services provided to the elderly.

Studies have shown that psychological disorders are found in a higher percentage among older persons (8,9,21). Studies at nursing homes have shown even higher prevalence (9,10,20). Many of the disorders encountered among older persons interact with each other in complex ways. Psychological disorders are often ascribed to the physical problems of old age itself, and treatment can be delayed (9).

Our study disclosed higher mean GHQ-12 and BDQ scores for older persons living in nursing homes compared to persons living at home. This is a predictable result. Depression has been found at a higher rate in older persons living in nursing homes (9). Many studies have also shown higher rates of depression in older persons living in nursing homes compared to persons in the general community (8-10). It is therefore to be expected that GHQ-12 and BDQ scores would be higher for those staying in nursing homes. Higher disability rates may be associated with depression, or depression itself may be a contributing factor to the development of disabilities. The concurrent presence of depression and disability is, therefore,

Table 2— Logistic Regression Analysis of the Factors That Affect the BDQ and GHQ Scores for Those Living at Home, 2000, Ankara

	BDQ Score ≥8			
	Constant: -2.396			
Risk Factors	**Beta**	**OR**	**95% CI**	**p**
Sex				
Male		1.0		
Female	1.143	3.1	1.2-8.3	0.02
Age				
60-74		1.0		
75 or more	1.085	2.9	0.9-9.3	NS
Marital Status				
Married		1.0		
Not Married	0.850	2.3	0.9-9.3	NS
Chronic Illness				
Absent		1.0		
Present	1.244	3.5	1.2-10.0	0.02
Depression#				
Absent		1.0		
Present	1.390	4.0	1.7-9.7	0.002
	GHQ SCORE ≥3			
	Constant: -3.642			
Risk Factors	**Beta**	**OR**	**95% CI**	**p**
Sex				
Male		1.0		
Female	0.624	1.9	0.5-6.6	NS
Age				
60-74		1.0		
75 or more	0.819	2.3	0.6-3.0	NS
Marital Status				
Married		1.0		
Not Married	0.673	1.9	0.6-6.0	NS
Chronic Illness				
Absent		1.0		
Present	-0.221	0.8	0.3-2.7	NS
Depression#				
Absent		1.0		
Present	1.581	4.9	1.4-17.3	0.01

OR, Odds ratio; CI, Confidence interval; NS, Not significant.
#According to the results of the screening of "The Geriatric Depression Scale" test.

Table 3— Logistic Regression Analysis of the Factors Influencing Disability and GHQ Scores for Those Living at Elderly Homes, 2000, Ankara

	BDQ Score ≥8			
	Constant: -2.188			
Risk Factors	**Beta**	**OR**	**95% CI**	**p**
Sex				
Male		1.0		
Female	0.703	2.0	1.1-3.8	0.02
Age				
60-74		1.0		
75 or more	0.456	1.6	0.8-2.9	NS
Marital Status				
Married		1.0		
Not Married	0.583	1.8	0.7-4.3	NS
Chronic Illness				
Absent		1.0		
Present	0.393	1.5	0.7-2.9	NS
Depression#				
Absent		1.0		
Present	1.731	5.6	2.9-10.7	0.0001
	GHQ SCORE ≥3			
	Constant: -2.396			
Risk Factors	**Beta**	**OR**	**95% CI**	**p**
Sex				
Male		1.0		
Female	-0.564	0.6	0.3-1.2	NS
Age				
60-74		1.0		
75 or more	0.384	1.5	0.7-2.9	NS
Marital Status				
Married		1.0		
Not Married	0.308	1.4	0.5-3.6	NS
Chronic Illness				
Absent		1.0		
Present	- 0.233	0.8	0.4-1.7	NS
Depression#				
Absent		1.0		
Present	2.898	18.1	7.4-44.7	0.0001

OR, Odds ratio; CI, Confidence interval; NS, Not significant.
#According to the results of the screening of "The Geriatric Depression Scale" test.

an expected result in older persons living in nursing homes (9,10,20).

The BDQ scores of older persons living in nursing homes and at home were compared according to demographic variables. The BDQ scores of older persons living in nursing homes were significantly higher than for those living at home in all age groups except those older than 75. Disability scores for those older than 75 are high for both those living in nursing homes and those living at home (10.0±7.09 and 7.27±5.67 respectively); these scores are similar as well. In other words, although place of residence does not have an effect on disability in those older than 75 years of age, this group shows increased disability. BDQ scores were higher for those living in nursing homes than living at home for each socio-demographic variable (sex, age groups, marital status) and the health variables (presence or absence of chronic illnesses and depression). These results indicate that living in nursing homes is a risk factor for a higher BDQ score. In reality, older persons already may have higher BDQ scores when they are admitted to nursing homes. Although one condition for admission to nursing homes, where the study was conducted, is that they be able to carry on with their daily living activities; a test or examination to detect a disability in this area is not conducted at the time of admission. Determining disability on admission and afterwards would show whether nursing homes are indeed risk factors for disability.

When factors that may lead to disability were analyzed for those staying in nursing homes, female sex led to a 2-fold increased risk of disability (95% CI, 1.1-3.8), while presence of depression led to a 5.6-fold increased risk (95% CI, 2.9-10.7). However, a previous study of those staying in nursing homes (9) showed that the variable that increases the prevalence of disability in nursing homes mostly may actually be depression, since most of the depressed elderly were women. The real reason can only be determined by monitoring the relation between cause and effect. However, according to the results of the current study, scores of 9 or over on the BDQ may indicate the presence of a psychological disorder. This also means that the BDQ may be used as a screening test for early diagnosis among those persons staying in nursing homes. Similarly, a study by Kaplan revealed an association between disability and psychological disorders (14,22,23).

Factors increasing the BDQ score for those living at home are female sex (3.1 times; 95% CI, 1.2-8.3), depression (4.0 times; 95% CI, 1.7-9.7), and having a chronic illness (3.5 times; 95% CI, 1.2-10.0) (Table 3). The fact that chronic illness was not a factor that increased disabilities in older persons living in nursing homes may be due to higher disability rates, whether chronic illness is present or not, because the presence of psychological disorders is perhaps a more influential factor. If the BDQ is used as a screening test for those living at home, it may be effective for the early diagnosis of both physical chronic illness and psychological disorders such as depression.

GHQ-12 is used during community screening to identify persons with an early diagnosis of common psychological disorders (11,15). When we compared the GHQ-12 scores of older persons living at nursing homes with those of older persons living at home, there was a statistically significant difference for all groups, except the group without depression ($p<0.05$). The main reason for the difference in all the analyzed variables was the higher GHQ-12 scores for older persons living in nursing homes. A recent study evaluating depression in the same study group (9) found a higher rate of depression in those living in nursing homes than for those living at home, which indicates that the main reason for higher GHQ-12 scores in those living in nursing homes is "presence of depression." The fact that we did not find a statistically significant difference concerning the GHQ-12 scores of older persons without depression living in nursing homes and living at home also supports this conclusion. The presence of a statistically significant difference between the 2 groups with regard to the presence of depression and higher GHQ-12 scores in older persons living in elderly homes indicates that there might be a factor in nursing homes that exacerbates depression, or perhaps promotes the appearance of psychological disorders or of disabilities.

In Turkey, the prevalence of depression in older persons is 24% to 29% for those living at home and 41%-48% for those living in nursing homes (8,9). The difference between the 2 rates can be explained by sociological factors. The family as a community institution still plays an important role in meeting the needs of individuals (24,25). While rural communities and the traditional extended family model were widespread in Turkey in the early 20th century, this model has disintegrated in the last 50 years owing to the migration from the villages to the city, where the nuclear family model has become the more common model. In the traditional extended patriarchal family model, male children and elder persons are the most important members of the family, while in the nuclear family model there is a more equalitarian relationship between males and females and older persons have relatively less authority than in the extended family model. Cooperation and psychological support mechanisms are still elements that pro-

mote continuity of the family institution in current Turkish society, and a collectivist model of relationships within the family is more common than an individualistic approach (25). Elder persons coming from families where collectivist family models are more common may become depressed when they become an "individual" in the nursing homes and are deprived of the family's psychological support mechanisms that they have been used to. However, the only way to clarify this is to use screening tests and mental state evaluations at regular intervals from the time an older person is admitted to a home for the elderly.

When older persons staying in nursing homes and at home were evaluated separately with logistic regression analyses, a score of 3 or more on the GHQ-12 was 18.1 times higher in those with depression in the nursing homes group (95% CI, 7.4-44.7) and 4.9 times higher for those living at home (95% CI, 1.4-17.3). Similar to other studies (9,12,13), this indicates that GHQ-12 can be used as a screening test for the early diagnosis of psychological disorders (e.g., depression), whether or not the patients are in nursing homes or at home. Living in nursing homes may lead to an increase in the severity of an older person's psychological disorder. Using the GHQ-12 survey at regular intervals with those living in nursing homes (beginning at admission) as well as with those living at home, and treating those of them found to have a psychological disorder risk after a definitive diagnosis has been made, may prevent the deterioration of an older person's mental and physical condition. Using the survey at regular intervals on older persons with scores of normal will also make it possible to diagnose psychological disorders early.

In Turkey, there are no tests for early diagnosis of psychological disorders for older persons admitted to nursing homes, nor are there tests at primary healthcare institutions for older persons living at home. The results of this study show that GHQ-12 is a very suitable screening test for persons in Turkey-a country with an increasing elderly population-and may be included in routine healthcare services owing to its ease of use and its ability to diagnose psychological disorders in the early stages.

Those who are in the groups determined as risk factor should be screened periodically using the GHQ, and those having high scores should be required to consult a psychiatrist because of the possibility of depression or disability.

Study Limitations

Since this present study is not a longitudinal follow-up, there is no baseline data about the GHQ-12, BDQ scores and the condition of depression of the elderly who participated in the study living in nursing homes. We think that it would be even more revealing and clarifying to know whether their mental and disability status were not abnormal or limited when they started to live in nursing homes.

In conclusion, we found that the GHQ-12 and BDQ scores were higher for older persons living in nursing homes compared to persons living at home. For the elderly living in nursing homes, the related factors with a score of 8 or over on the BDQ were female sex and depression. For older persons living at home, variables influencing a score of 8 or over on the BDQ included being a female, having depression, and having a chronic illness. For both those living in nursing homes and those living at home, depression was the factor influencing a score of 3 or over on the GHQ-12.

Routine inclusion of the GHQ-12 and BDQ as screening tests for elderly persons living in nursing homes or primary healthcare institutions and for those living in their own homes could prove to be effective for early diagnosis of psychological disorders in older persons.

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