

Effects of depression and life factors on social network score in elderly people in Çankaya, Ankara

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Aim: Social interaction is an important factor in the physical and mental health of seniors. This study was performed in order to evaluate the effects of depression and life factors on the social networking scores of elderly people.

Materials and methods: Tests for the Lubben Social Network Scale (LSNS) and Geriatric Depression Scale (GDS) were given to 116 elderly people (≥60 years) in the Çankaya area of Ankara between March and May of 2010. The effects of life factors and GDS scores on LSNS scores were explored.

Results: Among the study group, 46.5% of the individuals were male and 53.5% were female. LSNS scores were lower in the group with higher GDS scores. There was a positive correlation between the floor of the building on which the individual lived and LSNS family scores, and there were negative correlations between the number of persons in the household and GDS scores and age in males. In women, relations between GDS scores and LSNS neighborhood and friend scores were statistically more pronounced. Chronic renal failure was the most effective factor on GDS scores. GDS scores were higher among men living below the second floor of their buildings.

Conclusion: The use of screening tests, such as the GDS and LSNS, and preventive and therapeutic practices may help in psychosocial services in geriatric healthcare.

Key words: Aged, social support, depression

Ankara Çankaya bölgesindeki yaşlılarda depresyonun ve yaşam faktörlerinin sosyal ilişkilere etkisi

Amaç: Yaşlılarda sosyal ilişkiler, fiziksel ve mental sağlıkları açısından önemlidir. Çalışmada, yaşam faktörleri ve depresyonun sosyal ilişkilere olan etkileri incelenmiştir.

Yöntem ve gereç: Mart-Mayıs 2010 tarihleri arasında Ankara - Çankaya bölgesinde 60 yaş ve üzeri 116 kişiye Lubben Sosyal Ağ Ölçeği ve Geriatrik Depresyon Ölçeği uygulandı. Yaşam faktörleri ve Geriatrik Depresyon Ölçeği skorlarının, sosyal ilişkilere etkisi araştırıldı.

Bulgular: Çalışmaya katılanların % 46,5'i erkek, % 53,5'i kadındı. Geriatrik Depresyon Ölçeği skorları yüksek olan grubun Lubben skorları düşüktü. Evin bulunduğu kat ile Lubben aile skorları arasında pozitif korelasyonlar vardı. Erkeklerde evdeki kişi sayısı ile Geriatrik Depresyon Ölçeği skoru ve yaş arasında negatif ilişki vardı. Kadınlarda ise evdeki kişi sayısı ile yaş arasında negatif ilişki devam etmekle birlikte Geriatrik Depresyon Ölçeği skorları ile Lubben komşu ve arkadaş skorları arasındaki ilişkiler erkeklerden daha belirgin idi. Depresyon skorları üzerine kronik böbrek yetmezliğinin en etkili faktör olduğu görüldü. Evin bulunduğu kat sayısı 2 den düşük olan erkeklerin Geriatrik Depresyon Ölçeği skorları diğerlerinden daha yüksek idi.

Sonuç: Yaşlı sağlığı bakımından Geriatrik Depresyon Ölçeği ve Lubben gibi tarama testlerinin kullanılması ve depresyon için koruyucu ve tedavi edici çalışmalar yaşlılara verilecek psikososyal hizmetlerde yararlı olacaktır.

Anahtar sözcükler: Yaşlı, sosyal destek, depresyon

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Introduction

Social interaction is an important factor in the physical and mental health of elderly people. Deteriorations in social function have impacts on ability to cope with problems in daily life (1). By evaluating the data gained by examining social networks, information about physical and mental health can be obtained and can be helpful in solving problems in these areas. Low social network scores have been associated with hospitalization and depression (2). Leading a solitary life was shown to be associated with decreased social relations (3). Another study showed a partial association between depressive symptoms and social support (4). Improvements in depressive moods and cognitive functions have also resulted in improvements in social isolation (5).

Biological, psychological, and social factors are regarded to be in continuous and dynamic interaction in the biopsychosocial model (6). Biological factors include age, sex, genetic factors, and physical features, while social factors include family, social values, and different social aids (7).

In this study, we evaluate the impact of various biopsychosocial factors, including age, sex, number of persons in the household, and depressive mood, in biopsychosocial approach and care.

Materials and methods

This study was performed in the scope of the “General Health Problems in Old Age Research Project” by the Department of Family Medicine Clinic of a university hospital in Çankaya, Ankara, Turkey. The ethical committee of the School of Medicine approved the study. Participants included 116 individuals, age 60 or older, who presented to the hospital during the period between March and May of 2010. They were evaluated with the Lubben Social Network Scale (LSNS) and the Geriatric Depression Scale (GDS). The age, sex, previous profession, number of persons in the household, existence of chronic diseases, floor on which the individual lived and existence of an elevator in the building, and whether the individual lived in an apartment building were also assessed and noted.

The LSNS can be used in examining social relations in elderly people (2,8,9). The LSNS-18 consists of 18 questions, which can be answered in 5 to 10 min. This scale has 3 sections about family, friend, and neighbor relations. Every section consists of 6 questions. The highest possible score is 90 and higher scores show better social relations (2,9). This scale has been translated into different languages and has been extensively used in both everyday practice and studies about elderly people. Healthcare providers also increasingly highlight social relations in the care of elderly people.

The GDS is a validated scale developed by Yesavage et al. in 1983. It consists of 30 sentences that are assessed by “yes” or “no” answers, and it has a cut-off value of 13. Values higher than the cut-off value are significant for depression in the elderly (10,11).

GDS scores and the scores of LSNS sections were recorded. SPSS 13.00 for Windows was used for statistical analyses. Participants were divided into 2 groups according to GDS scores: group 1 consisted of patients with scores of 13 or higher, and group 2 consisted of patients with scores lower than 13. Correlations between the LSNS scores and GDS scores were explored with Spearman’s correlation test. The Mann-Whitney U test in independent groups was used for other comparisons. The effects of other factors such as the number of persons in the household and the floor of the home within the apartment building were explored by factorial analysis of variance (ANOVA) (10). P-values smaller than 0.05 were accepted as statistically significant.

Results

The total number of subjects enrolled in the study was 116, and 54 (46.5%) of them were males and 62 (53.5%) were females. The mean ages for males and females were 72.5 ± 7.6 and 69.3 ± 7.5 years, respectively. The number of persons in the household, floor of the home within the apartment building, LSNS scores, and GDS scores by sex are shown in Table 1. There were no statistical differences for these values between males and females.

The group with higher GDS scores had lower LSNS scores, and this difference was statistically significant (Table 2).

Table 1. Demographic and lifestyle features, LSNS scores, and GDS scores of the participants.

	Males		Females		P
	n	Mean / percent	n	Mean / percent	
Age	54	72.5 ± 7.6	62	69.3 ± 7.5	NS
Number of persons in household	54	2.5 ± 0.95	62	2.3 ± 1.3	NS
Floor of the home	54	2.9 ± 2.3	62	2.3 ± 2.7	NS
Elevator	54	23 (2.6%)	62	15 (24.2%)	NS
Lubben scores					
Family	54	13 ± 6.9	62	12.6 ± 5.8	NS
Friends	54	11.3 ± 6.9	62	12.3 ± 7.2	NS
Neighbors	54	8 ± 5.9	62	8.3 ± 5	NS
GDS scores	54	8.69 ± 7.5	62	9.6 ± 6	NS

Table 2. Impact of GDS scores on LSNS scores.

	Group 1		Group 2		P
	n	Mean / percent	n	Mean / percent	
Age	83	70.8 ± 7.5	33	70.7 ± 8.3	NS
Number of persons in household	83	2.4 ± 0.9	33	2.36 ± 1.5	NS
Floor of the home	83	2.58 ± 2.2	33	2.52 ± 3.3	NS
Lubben scores					
Family	83	13.5 ± 6.5	33	11 ± 5.7	0.050
Friends	83	12.9 ± 7	33	9 ± 6.3	0.007
Neighbors	83	8.7 ± 5.2	33	6.8 ± 5.8	0.032

Group 1: GDS score < 13.

Group 2: GDS score ≥ 13.

The relationships among these values were explored with multivariate analyses. In general, there were negative correlations between the number of persons in the household and GDS scores and age (Spearman $n = 116$; $r = -0.190, -0.294$; $P = 0.041, 0.001$). There was a positive correlation between the floor on which the home was located and LSNS family scores (Spearman $n = 116$; $r = 0.183$; $P = 0.050$), and there were negative correlations between GDS score and LSNS family, neighbor, and friend scores (Pearson $n = 116$; $r = -0.198, -0.218, -0.251$; $P = 0.033, 0.019, 0.007$). There were negative correlations between the number of persons in the household and GDS scores

in males (Spearman $n = 54$; $r = -0.281, -0.307$; $P = 0.039, 0.024$). While the negative correlation between the number of persons and age also existed in women (Spearman $n = 62$; $r = -0.394$; $P = 0.002$), there were statistically significant correlations between GDS and LSNS neighbor and friend scores (Pearson $n = 62$; $r = -0.556, -0.547$; $P < 0.001$).

Factorial ANOVA analyses were performed to explore the effects of sex, chronic diseases, age, number of persons in the household, and floor of the home within the apartment building on LSNS scores. In general, the depression factor had more impact on LSNS family and friend scores (Tables 3 and 4).

Table 3. Impact of lifestyle features and GDS scores on LSNS family scores.

Dependent variable: LSNS family score.

Source	Type III sum of squares	df	Mean square	F	P
Corrected model	572.063 ^a	10	57.206	1.462	NS
Intercept	258.387	1	258.387	6.605	0.012
Sex	0.520	1	0.520	0.013	NS
Hypertension	3.115	1	3.115	0.080	NS
Diabetes mellitus	106.947	1	106.947	2.734	NS
COPD	0.047	1	0.047	0.001	NS
Osteoarthritis	15.515	1	15.515	0.397	NS
CRF	50.905	1	50.905	1.301	NS
Depression	154.606	1	154.606	3.952	0.049
Age	57.574	1	57.574	1.472	NS
Number of persons in household	20.469	1	20.469	0.523	NS
Floor of the home	134.555	1	134.555	3.439	NS
Error	4107.764	105	39.122		
Total	23,716.000	116			
Corrected total	4679.828	115			

^aR-squared = 0.122 (adjusted R-squared = 0.039),

COPD: chronic obstructive pulmonary disease, CRF: chronic renal failure.

Table 4. Impact of lifestyle features and GDS scores on LSNS friend scores.

Dependent variable: LSNS friend scores.

Source	Type III sum of squares	df	Mean square	F	P
Corrected model	691.948 ^a	10	69.195	1.433	NS
Intercept	124.749	1	124.749	2.584	NS
Sex	4.260	1	4.260	0.088	NS
Hypertension	7.121	1	7.121	0.148	NS
Diabetes mellitus	23.008	1	23.008	0.477	NS
COPD	122.346	1	122.346	2.534	NS
Osteoarthritis	1.903	1	1.903	0.039	NS
CRF	40.764	1	40.764	0.844	NS
Depression	284.499	1	284.499	5.894	0.017
Age	50.642	1	50.642	1.049	NS
Number of persons in household	14.944	1	14.944	0.310	NS
Floor of the home	7.939	1	7.939	0.164	NS
Error	5068.604	105	48.272		
Total	21,988.000	116			
Corrected total	5760.552	115			

^aR-squared = 0.120 (adjusted R-squared = 0.036),

COPD: chronic obstructive pulmonary disease, CRF: chronic renal failure.

The most significant factor on depression scores in factorial ANOVA was chronic renal failure (CRF) (in patients without CRF, $n = 100$, mean = 8.43 ± 6.5 ; with CRF, $n = 16$, mean = 13.75 ± 6.9 ; $P = 0.003$) (Table 5). When analyzed by groups based on sex, the CRF status, number of persons in the household, and floor of the home were significant factors for GDS scores (in patients without CRF, $n = 43$, mean = 7.23 ± 6.7 ; with CRF, $n = 11$, mean = 14.36 ± 8.2 ; $P = 0.004$). The relation between the number of persons in the household and GDS scores in males was noted above. The GDS score was inversely related to the number of persons in the household. Although no correlation was found between the floor on which the home was located and the GDS scores, when the relation found by factorial ANOVA was explored by grouping the patients by the floor of the home as “lower than the second floor” and “second floor or above,” results were significant in men (lower than the second floor: $n = 15$, mean = 12.6 ± 9 ; second floor or above: $n = 39$, mean = 7.18 ± 6.3 ; $P = 0.049$). Men living in homes on the second floor or above had lower GDS scores (Table 6).

Discussion

The relation between depressive moods and social isolation has been emphasized, and improvements in depressive moods have been associated with improvements in social isolation (3). Our findings also show similar associations, as patients with significant GDS scores had lower LSNS scores. This finding was consistent with the effects of depression.

Leading a solitary life was found to be associated with decreased social relations in another study, and depressive moods have been associated with levels of social support (3,4). Our results are consistent with these findings, as a decreased number of persons in the household correlated with increased GDS scores, especially in males. There was also a negative association between GDS scores and LSNS scores, especially in women. The impact of depression on LSNS scores was more prominent than other factors in multivariate analyses. When we explored the factors associated with depression, CRF was the most important chronic disease. The number of persons in the household was inversely associated with

Table 5. Impact of lifestyle features on GDS scores.

Dependent variable: geriatric depression.

Source	Type III sum of squares	df	Mean square	F	P
Corrected model	906.570 ^a	8	113.321	2.760	0.008
Intercept	151.593	1	151.593	3.692	NS
Sex	34.014	1	34.014	0.828	NS
Hypertension	70.479	1	70.479	1.717	NS
Diabetes mellitus	38.954	1	38.954	0.949	NS
COPD	7.814	1	7.814	0.190	NS
Osteoarthritis	188.677	1	188.677	4.595	NS
CRF	412.505	1	412.505	10.047	0.002
Age	10.417	1	10.417	0.254	NS
Number of persons in household	73.900	1	73.900	1.800	NS
Error	4393.318	107	41.059		
Total	15,041.000	116			
Corrected total	5299.888	115			

^aR-squared = 0.171 (adjusted R-squared = 0.109).

COPD: chronic obstructive pulmonary disease, CRF: chronic renal failure.

Table 6. Impact of lifestyle features on GDS scores by sex.

Dependent variable: geriatric depression.

Sex	Source	Type III sum of squares	df	Mean square	F	P
Males	Corrected model	1151.623 ^a	8	143.953	3.464	0.003
	Intercept	296.728	1	296.728	7.140	0.010
	Hypertension	27.135	1	27.135	0.653	NS
	Diabetes mellitus	138.958	1	138.958	3.344	NS
	COPD	1.116	1	1.116	0.027	NS
	Osteoarthritis	131.426	1	131.426	3.163	NS
	CRF	425.877	1	425.877	10.248	0.003
	Age	25.677	1	25.677	0.618	NS
	Number of persons in household	198.083	1	198.083	4.767	0.034
	Floor of the home	247.163	1	247.163	5.948	0.019
	Error	1870.025	45	41.556		
	Total	7095.000	54			
	Corrected total	3021.648	53			
Females	Corrected model	297.723 ^b	8	37.215	1.008	NS
	Intercept	16.616	1	16.616	0.450	NS
	Hypertension	64.323	1	64.323	1.742	NS
	Diabetes mellitus	5.107	1	5.107	0.138	NS
	COPD	58.027	1	58.027	1.571	NS
	Osteoarthritis	52.528	1	52.528	1.422	NS
	CRF	35.351	1	35.351	0.957	NS
	Age	55.450	1	55.450	1.501	NS
	Number of persons in household	2.503	1	2.503	0.068	NS
	Floor of the home	26.915	1	26.915	0.729	NS
	Error	1957.374	53	36.932		
	Total	7946.000	62			
	Corrected total	2255.097	61			

^aR-squared = 0.381 (adjusted R-squared = 0.271), ^bR-squared = 0.132 (adjusted R-squared = 0.001).

COPD: chronic obstructive pulmonary disease, CRF: chronic renal failure.

depression scores, especially in men, and the floor on which the home was located had a positive effect on depression scores.

Our findings by using the LSNS can be applied to services given to elderly people. Factors associated with LSNS scores may be used to improve the Lubben

test scores and thus may have an impact on the care of elderly people by improving their mental and physical health and their ability to cope with daily-life problems, and by decreasing hospitalizations and mortality (1,2). As an easy diagnostic tool, screening the elderly with the GDS and with appropriate

approaches to depression may improve their social situations. Another aspect that can be emphasized in the care of elderly people is the preventive effect of not letting them living alone at home during depression treatment. This approach should be particularly emphasized in males and in patients with chronic diseases, including CRF. The positive association between the floor of the home and depression in men may be related to activities in daily life (more physical activity may have a protective effect against

depression). Social and mental examinations of elderly people by using tests such as the LSNS and GDS may be helpful.

Depression in elderly people may deteriorate their social life. Men and patients with chronic diseases such as CRF have an especially increased risk. Use of screening tests, including the GDS and LSNS, and prevention and treatment of depression in the care of elderly people would be useful in the psychosocial services given to elderly people.

References

1. Wells M. Resilience in rural community-dwelling older adults. *J Rural Health* 2009; 25: 415-9.
2. Lubben J, Gironde M. Measuring social networks and assessing their benefits. In: Phillipson C, Allan G, Morgan D, editors. *Social networks and social exclusion: sociological and policy perspectives*. Aldershot (UK): Ashgate Publishing Company; 2004. p.20-34.
3. Blozik E, Wagner JT, Gillmann G, Iliffe S, von Renteln-Kruse W, Lubben J et al. Social network assessment in community-dwelling older persons: results from a study of three European populations. *Aging Clin Exp Res* 2009; 21: 150-7.
4. Cho KL. Effect of Tai Chi on depressive symptoms amongst Chinese older patients with major depression: the role of social support. *Med Sport Sci* 2008; 52: 146-54.
5. Iliffe S, Kharicha K, Harari D, Swift C, Gillmann G, Stuck AE. Health risk appraisal in older people 2: the implications for clinicians and commissioners of social isolation risk in older people. *Br J Gen Pract* 2007; 57: 277-82.
6. Ahmed SM, Lemkau JP. Psychosocial influences on health. In: Rakel RE, editor. *Textbook of family medicine*. 7th ed. Philadelphia (PA): Saunders Elsevier; 2007. p.35-41.
7. Engel GL. The need for medical model: a challenge for biomedicine. *Science* 1977; 196: 129-36.
8. Lubben J, Blozik E, Gillmann G, Iliffe S, von Renteln Kruse W, Beck JC et al. Performance of an abbreviated version of the Lubben Social Network Scale among three European community-dwelling older adult populations. *Gerontologist* 2006; 46: 503-13.
9. Lubben J, Gironde M. Centrality of social ties to the health and well-being of older adults. In: Berkman B, Harootyan L, editors. *Social work and health care in an aging society*. New York: Springer Publishing Company; 2003. p.319-50.
10. Brink TL, Yesavage JA, Rose TL. Screening tests for geriatric depression. *Clin Gerontol* 1982; 1: 37-43.
11. Sağduyu A. Yaşlılar için depresyon ölçeği: Hamilton depresyon ölçeği ile karşılaştırmalı güvenilirlik ve geçerlilik çalışması. *Türk Psikiyatri Dergisi* 1997; 8: 3-8 (in Turkish).