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## **BİR HUZUREVİNDE ARKADAŞLIK AĞI ANALİZİ**

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■ **Özet** Dünya nüfusu yaşlanırken, daha çok insan sosyal çevrelerinin önemli derecede değiştiği huzurevlerinde yaşamaya karar vermektedir. Yeni sosyal bağlar kurulması bu insanların sağlıklarını koruyabilmeleri için gereklidir. Arkadaşlık bu sosyal bağların ana kısmını oluşturmaktadır. Bu çalışmada, huzurevinde yaşayan yaşlılar arasındaki arkadaşlık yakından incelenmektedir. İlk olarak, 92 yaşlıyla arkadaşlıkları hakkında görüşme yapılmış; sonra da huzurevinin kayıtları aracılığıyla bu kişilerin bilişsel durumları hakkında bilgi elde edilmiştir. Akabinde, görüşme yapılan yaşlılar ve onların arkadaşlarının bilişsel durumları arasındaki ilişkiler istatistiksel yöntemlerle değerlendirilmiştir. Arkadaşlık ağı analizi insanların yakınsal benzerliğe dayanarak arkadaşlık kurabileceğini göstermiştir. İstatistiksel analizler de yaşlı insanların arkadaşlarını bilişsel benzerliği temel alarak seçebileceğini ortaya çıkarmıştır. Sonuç olarak, huzurevi sakinlerinin arkadaş çevresi (3 kişiyle limitli olarak) bu sakinlerin bilişsel durumlarını tahmin edebilir.

**Anahtar Kelimeler:** Huzurevi, Yaşlı insanlar, Arkadaşlık, Ağ, Biliş

## **A Friendship Network Analysis in a Nursing Home**

■ **Abstract** As the world population is getting aged, more people decide to live in nursing homes where their social environment changes dramatically. Forming new social ties becomes necessary for them to keep their wellbeing. Friendship forms main branch of these social ties. In this study, we scrutinize the friendship among older people who reside in a nursing home. Firstly, 92 older people were interviewed for their friendships; then, data for mental status obtained via records of the nursing homes. Afterwards, the associations among the cognitive abilities of these interviewees and their friends were statistically evaluated. Friendship network analysis showed that older people may form friendships based on proximal similarity. Statistical analyses indicated that older people may choose friends based on cognitive similarity. Therefore, residents' circle of friends (limited to 3 people) may predict the cognitive status of the resident.

**Keywords:** Nursing home, Older people, Friendship, Network, Cognition

## **INTRODUCTION**

World population tripled in last 100 years. Same trend is seen in the number of older people. In 2015, one in eight people was 60 years old or older; however, in 2030, it will change to one in six people (WHO, 2015). As the population is aging, the need for the facilities that serve for the elders will be increased and more people will be served in these facilities. While several studies are going on to find solutions to aging issues; these facilities became one of the focused areas of these issues that need to be scrutinized in the aim of obtaining a healthy population.

After an older individual starts to live in a nursing home, almost everything in his/her life changes. He/she finds his/herself in a new social environment in a term when the need for social support is really high because of the big change he/she experienced. Making friends is a crucial step for adaptation to this new environment. However, there are many questions about how these friendships are formed and how older people choose their friends.

As it is known, friends are most prominent actors of our life. Not surprisingly, many research in social sciences focus on that actor to understand it better. However, in literature, older people could not draw attention as much as the other age groups such as children, adolescents and young adults. In this research, it is intended to focus on this age group particularly the ones who reside in nursing homes. Understanding friendship ties among older people in nursing homes may bring better approaches to the quality of life in these facilities.

### **Friendship**

People who communicate each other in a society for a long time may bond connections which may lead to friendships. In friendship, two individuals use their time for another to know each other in particular (Sias & Bartoo, 2007). These friendships may start as dyadic and each party may influence another one in many aspects such as private life and ideational perspective (Zeggelink, Stokman & Van De Bunt, 1996). Moreover, in order to have a friendship tie, three processes are executed: it starts, it is developed, and it is maintained (Zeggelink, 1995). Thus, the ability to carry out these processes is crucial in order to have a healthy mental and physical status in the long term (Hartup & Stevens, 1997; Winkielman, Berntson, & Cacioppo, 2001).

Layard (2005) says that social relations are one of the strongest predictors of our well-being; because, happiness and well-being are among our desires in life and social bonds are indicated as one of the sources that may help these desires happen (Khattab & Fenton, 2009; van der Horst & Coffe, 2012). If a group of strangers are put in a mutual context for a certain time and place, a friendship network may appear (Zeggelink, 1995). Generally, these distinguishable friendships show homogeneity; because, people mostly select their friends according to the similarity between them (see Leenders, 1996). Furthermore, people who have social support have better cognitive functioning (Barnes et al., 2004; Liu & Guo, 2007; Routasalo, et al., 2006). These social interactions can improve and maintain individual's cognitive status (Zunzunegui et al., 2003; Barnes et al., 2004). Hence, people with poor social support are prone to low cognitive functioning (Gurung et al., 2003; Seeman et al., 2001).

Individuals do not choose their friends in a random way (Zeggelink, 1995). Then, why do people select certain people to form friendship? This is one of the frequently asked questions in social sciences. To answer that question it is stated that cognitive similarity may provide interpersonal attraction and therefore

influences selection of friends (Byrne, 1971). Furthermore, many theories such as social comparison theory (Festinger, 1954) and social exchange theory (Blau, 1964) assert that people select their friends if they are attracted to them. This attraction is not only related with appearance but also related to similarity in attitudes, values, beliefs and abilities.

### **Friendship in Nursing Homes**

World populations are getting aged (United Nations, 2015). Same trend shows itself in Turkey. Ageing population older than 65 years is 8.2 % of total population in 2015; however it was 8 % in 2014 (TUİK, 2016). This increase leads to higher number of people who need long term health care (Jacobzone, 2000; Kiata, Kerse & Dixon, 2005). Therefore, the number of facilities such as nursing homes is rising. Thus, these living areas need special attention in order to give better service to the older people.

Although older people's social networks were examined in several studies (Hall & Wellman, 1985; Hooyman, 1983) and many research findings found out the importance of friendship for older people, most of these findings represent data from elders who live in the community not in nursing homes (Gutheil, 1991). However, older people's social and emotional needs may become stronger due to losing social contacts from past living environment (Gutheil, 1991); so, the issue of friendship in nursing homes has to be illustrated.

Under normal conditions, typical social support sources for older people are family and friends (Hooyman, 1983). However, in contrast to older people who live in the community, institutionalized ones usually have no spouse or children (Palmore, 1976). In addition to that situation, these people's social ties were already diminished prior to life in nursing home due to some mental and physical deficits related to aging (Brown, 1981). After institutionalization, friends who still live in community can have difficulties to keep the social contact with the ones who started to live in nursing home because of same concerns related to aging (Gutheil, 1991).

This situation can make the social life of the nursing home more complex. Nevertheless, research show the strong influence of friendship for older people whether they have a cognitive impairment (Bergland & Kirkevold, 2008) or not (Leedah, Chapin & Little, 2015). According to Roberts and Bowers (2015), the friendship between older residents in the nursing homes enhances their perception of social support. Therefore, friendships support elders for a healthy aging (Adams & Blieszner, 1995).

Most of older people lose some social contacts and experience impairment in their friendship networks in community life; however, older people in nursing homes experience this case more intensely (Winningham & Pike, 2007). So, older people in nursing homes perceive loneliness more in comparison to the ones living their own (Pinquart & Sorensen, 2001).

Cognitive abilities such as orientation to time and place, memory, reasoning and language can be considered as complementary parts of a functional friendship (de Medeiros et al., 2011). As it is stated above that in the perspective of similarity attraction approach, people have inclination to be friends with people who have similar characteristic and mental situation. In line with this approach, we propose the following hypotheses:

**Hypothesis:** Older people in nursing homes choose their friends from older people who are similar to them.

*Hypothesis 1a:* Older people in nursing homes choose their friends from older people who live in similar side of the floor of the building.

*Hypothesis 1b:* Older people in nursing homes choose their friends from older people who have similar cognitive abilities.

*Hypothesis 1c:* Older people in nursing homes choose their friends from older people who have similar age.

## **METHODOLOGY**

### **Sample**

Data were collected from older individuals who reside in 3 distinct residential buildings in the campus of one of the biggest nursing homes in Istanbul, Turkey. One of these residential buildings is in use of serving for 103 older females. The other two are in use of serving for older males. The number of residents being served in one of the buildings is 57 and in the other one is 64. For the friendship survey, 40 females from the first building, 26 males from second building and 28 males from third building were reached in a random way. 1 male and 2 females refused to be interviewed. The mean age of all elders whose data was used is 71.8 (N=146, SD= 9.3); for males the mean age is 69.2 (N=82, SD=7.5); for females the mean age is 75.1 (N=64, SD=10.4).

### **Procedure**

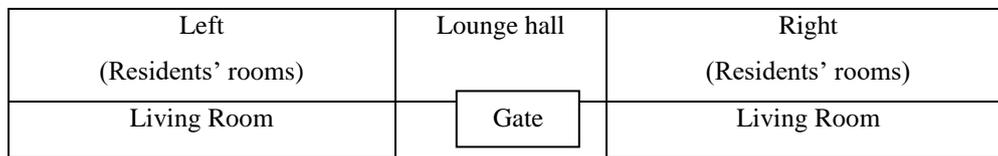
In the first step, a friendship survey was carried on in order to determine the names of residents' friends. In each building, individuals were interviewed with a question one by one "please tell me the names of three of your best friends who you like and spend most time with". Names of friends were noted for the second step. In the second step, the demographic information and the mental state examination results of both people who were given friendship survey and people whose names were given by these individuals were reached via records in the nursing home's files. Additionally, these mental state examinations results were selected from last 6 months.

After friendship survey process, 146 names were reached in total including the interviewees and their friends. These obtained data were grouped into three.

Except 2 males, respondents gave at least one name for their best friend; so, the first group consisted of interviewed individuals (N: 92). As some of respondents didn't give a third name, the second group consisted of interviewed individuals who gave at least 2 names of friends (N: 74). Finally, the third group consisted of individuals who stated names of three of their best friends (N: 61).

Residents' and their friends' room numbers were noted according to the records of the nursing home. Afterwards, these rooms grouped according to the settlement plan of the building. Although these all three buildings were identical in terms of interior design, the building for females has two floors but the others have one floor each. In main plan of the buildings, each floor was divided into two: right and left (see Figure 1). Therefore, every individual was grouped according to which side of the floor they live.

**Figure 1.** The basic plan of each floor of the buildings



**Measures**

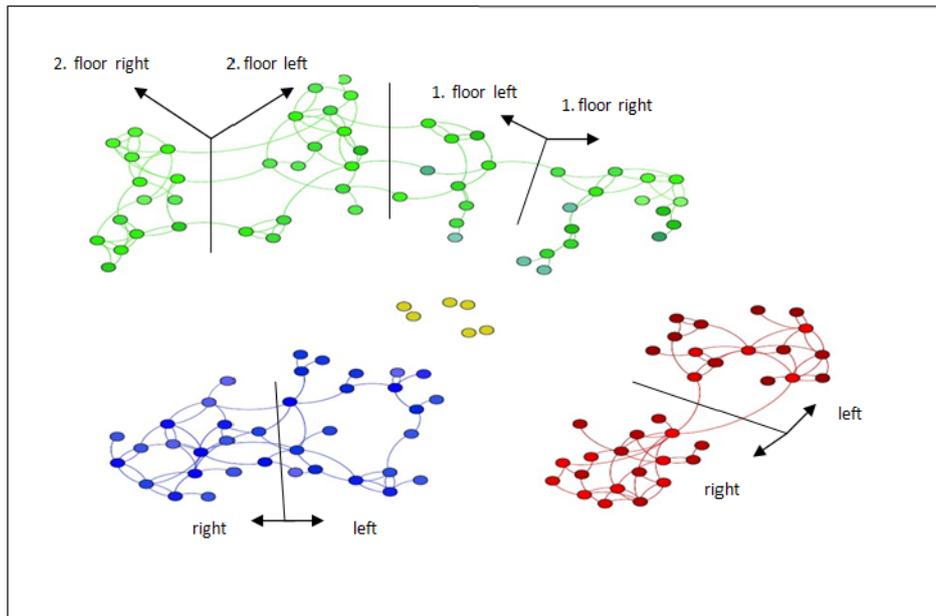
**Mini Mental State Examination** The most popular way of detecting changes in cognitive functions of older people is executing mini-mental state examination (MMSE) which is developed by Folstein and colleagues (1975) (Brayne, 1998). The basic cognitive functions in MMSE are time orientation, place orientation, registration, attention and calculation, remote memory and language. In language section there are some distinct activities that require language ability as well as attention. Besides, two intersecting pentagons are required to be copied. It consists of 11 items. The total score of the measure is 30. Reliability of the measure and sensitiveness to exact changes are provided; so, major impairments can easily be revealed via this test. The Turkish version of the test was adapted by Güngen and colleagues (2002). Reliability of the test confirmed in Turkish version.

**Data Analysis**

Friendship network analysis and visualization were carried on through Gephi 0.9.1 open-source software package to explain the influence of spatial proximity for friendship choices. The SPSS 21.0 statistical package was used in order to find out the associations between the cognitive abilities and age. The associations were analyzed via correlation coefficients and linear regressions.

**RESULTS**

As friendship survey process enabled us to reach 146 names, a friendship network analysis (133 nodes and 230 edges) was carried on to visualize the network (see Graph 1).

**Graph 1.** The friendship network visualization of three buildings

Note. Green color represents 1<sup>st</sup> building, blue color represents 2<sup>nd</sup> building, red color represents 3<sup>rd</sup> building; yellow color represents people who have friends from other buildings. Nodes (individuals) with more edges (friendship ties) have more intense colors.

As it is seen in the graph that supports the first hypothesis, people mostly choose their friends from similar spatial area; and, it is the floor's left or right side in this case. In the first and third buildings, a few edges were reported between floor's left and right side. In the second building the edges between the sides of the floor are more than the other buildings. Therefore, it can be said that, in first and third buildings friendship preference from same side of the floor is very distinctive; however, in second building this distinction is not clear as much as the other buildings. Moreover, among residents from different buildings, even they are in the same campus, there is no friendship reported.

In this study, statistical analyses were carried on for three groups which were formed according to the number of friends' names given. For the first group, interviewees who reported at least one friend were evaluated. Their MMSE scores were compared with their first friends' MMSE scores. For the second group, interviewees who reported at least 2 friends were evaluated. Their MMSE scores were compared with the mean of their first and second friends' MMSE scores. For the third group, interviewees who reported three friends were evaluated. Their MMSE scores were compared with the mean of their three friends' MMSE scores. In the Table 1, descriptive statistic of all interviewees with their friends and these three groups were stated.

**Table 1.** Descriptive statistics of the sample and formed groups

Interviewees' Data	Group 1				Group 2				Group 3									
	Resident			Interviewee	1 <sup>st</sup> Friend		Interviewee	Mean of 1 <sup>st</sup> and 2 <sup>nd</sup> Friend		Interviewee		Mean of 1 <sup>st</sup> , 2 <sup>nd</sup> , and 3 <sup>rd</sup> Friend						
	N <sup>1</sup>	M	SD	N <sup>2</sup>	M	SD	M	SD	N <sup>3</sup>	M	SD	M	SD	N <sup>4</sup>	M	SD	M	SD
Time Orientation	146	4.00	1.20	92	4.01	1.18	4.26	1.05	74	4.04	1.20	4.22	0.85	61	4.13	1.22	4.31	0.77
Spatial Orientation	146	4.56	0.89	92	4.54	0.96	4.51	0.91	74	4.51	1.00	4.59	0.63	61	4.66	0.81	4.62	0.64
Registration	146	2.94	0.33	92	2.92	0.40	2.95	0.34	74	2.90	0.44	2.96	0.21	61	2.90	0.47	2.96	0.18
Attention & Calculation	146	3.29	1.90	92	3.11	1.88	3.12	1.89	74	3.08	1.84	3.14	1.31	61	3.13	1.86	3.38	1.08
Remote Memory	146	1.99	1.09	92	2.02	1.10	2.03	1.08	74	2.13	1.09	2.11	0.80	61	2.25	1.03	2.05	0.74
Language	146	8.01	0.86	92	7.98	0.93	8.00	0.89	74	8.00	0.94	8.09	0.56	61	8.05	0.94	8.13	0.52
Total MMSE	146	24.80	4.20	92	24.60	4.20	24.87	3.99	74	24.67	4.26	25.11	2.95	61	25.11	4.26	25.46	2.81
Age	146	71.43	9.64	92	71.36	9.63	71.38	9.75	74	71.82	10.2	71.95	7.79	61	71.29	9.30	71.66	7.57

Note. N<sup>1</sup>: 80 Males, 66 Females; N<sup>2</sup>: 52 Males, 40 Females; N<sup>3</sup>:37 Males, 37 Females; N<sup>4</sup>: 33 Males, 28 Females.

To test the hypothesis 2 and 3, correlation analyses were carried on in the first step (see Table 2). Results of these analyses showed that there is only a weak correlation between interviewees' age and their first friends' age ( $r=0.284$ ,  $p<0.01$ ). Moreover, results indicated that there is a moderate correlation between interviewees' and the second groups' time orientation ( $r=0.340$ ,  $p<0.01$ ); a weak correlation between their total MMSE scores ( $r=0.269$ ,  $p<0.05$ ); and a moderate correlation between their age ( $r=0.445$ ,  $p<0.01$ ). For the correlation between interviewees' and third group's data, it was found that there is a moderate correlation for time orientation ( $r=0.368$ ,  $p<0.01$ ); language ( $r=0.315$ ,  $p<0.05$ ); and age ( $r=0.436$ ,  $p<0.01$ ); and a weak correlation for their total MMSE scores ( $r=0.274$ ,  $p<0.05$ ).

Simple regression analyses were used to test the hypothesis if the MMSE scores and age of the friends significantly predicted interviewees' MMSE scores and age. The results of the regressions for the first group showed that none of the MMSE scores predicted interviewees' MMSE scores. However, it was found that age of the first friends significantly predicted interviewees' age ( $\beta = 0.284$ ,  $t=2.805$ ,  $p<0.05$ ). The results of the regressions for the second group indicated that only mean of time orientation ( $\beta = 0.34$ ,  $t=3.063$ ,  $p<0.05$ ); total MMSE score ( $\beta = 0.269$ ,  $t=2.366$ ,  $p<0.05$ ); and age of the first and second friends ( $\beta = 0.445$ ,  $t=4.215$ ,  $p<0.001$ ) predicted interviewees' time orientation, total MMSE score and age respectively. The results of the regressions for the third group revealed that mean of time orientation ( $\beta = 0.368$ ,  $t=3.044$ ,  $p<0.05$ ); language ( $\beta = 0.315$ ,  $t=2.547$ ,  $p<0.05$ ); total MMSE score ( $\beta = 0.274$ ,  $t=2.187$ ,  $p<0.05$ ); and age of the first, second and third friends ( $\beta = 0.436$ ,  $t=4.723$ ,  $p<0.001$ ) predicted interviewees' time orientation, language, total MMSE score and age respectively (see Table 3).

**Table 2.** Results from the correlation analyses

Interviewees' Data	Groups' Data																							
	Time Orientation			Spatial Orientation			Registration			Attention and Calculation			Remote Memory			Language			Total MMSE			Age		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Time Orientation	.158	.340**	.368**	.220*	.353**	.357**	.029	.164	.156	.147	.233*	.299*	-.069	.031	.091	.021	.186	.392**	.150	.333**	.404**	-.116	-.185	-.227
Spatial Orientation	.239*	.342**	.129	.119	.156	.099	.057	.035	-.068	.199	.265*	.076	-.091	-.105	-.070	.077	.309**	.311*	.181	.283*	.123	-.195	-.258*	-.160
Registration	-.031	-.034	-.127	.048	.055	-.014	-.031	-.041	-.052	.158	.036	-.023	-.070	-.048	-.080	.093	.253*	.342**	.077	.050	-.008	-.029	-.053	.035
Attention and Calculation	.030	.177	.296*	.044	.117	.276*	-.076	.060	.322*	-.131	-.090	.047	.031	.003	.003	-.092	-.106	.211	-.063	.021	.222	-.036	-.064	-.084
Remote Memory	.215*	.168	.014	.121	.102	-.110	.120	.111	-.184	.094	.129	.089	.147	.093	.077	.090	.125	-.048	.199	.185	.013	-.073	-.066	.105
Language	.149	.104	.063	.137	.197	.216	-.036	.000	-.087	.045	.167	.036	.022	.110	.116	-.013	.182	.315*	.091	.211	.164	-.076	-.187	-.173
Total MMSE	.199	.315**	.262*	.175	.262*	.261*	.008	.105	.102	.078	.163	.147	.010	.029	.049	.012	.177	.359**	.135	.269*	.274*	-.132	-.204	-.141
Age	-.257*	-.327**	-.409**	-.255*	-.402**	-.343**	-.101	-.075	-.073	-.114	-.239*	-.242	-.110	-.166	-.153	-.227*	-.347**	-.261*	-.269**	-.403**	-.377**	.284**	.445**	.436**
N	92	74	61	92	74	61	92	74	61	92	74	61	92	74	61	92	74	61	92	74	61	92	74	61

1. 1<sup>st</sup> Friend; 2. Mean of 1<sup>st</sup> and 2<sup>nd</sup> Friend; 3. Mean of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Friend; \*\*. Correlation is significant at the 0.01 level (2-tailed). \*. Correlation is significant at the 0.05 level (2-tailed).

**Table 3.** Results from the regression analyses show the linear regression between predictors and outcome variables.

Predictors	f	N	B	SE	$\beta$	t	p	R <sup>2</sup>
Time Orientation	1	92	.178	.117	.158	1.514	.133	.014
	2	74	.486	.159	.340	3.063	.003	.115
	3	61	.579	.190	.368	3.044	.003	.136
<i>Note.</i> Dependent Variable: Time Orientation								
Spatial Orientation	1	92	.126	.111	.119	1.133	.260	.014
	2	74	.245	.183	.156	1.338	.185	.024
	3	61	.126	.165	.099	0.761	.449	.010
<i>Note.</i> Dependent Variable: Spatial Orientation								
Registration	1	92	-.035	.122	-.031	-0.290	.773	.001
	2	74	-.084	.243	-.041	-0.346	.730	.002
	3	61	-.139	.347	-.052	-0.401	.690	.003
<i>Note.</i> Dependent Variable: Registration								
Attention and Calculation	1	92	-.130	.104	-.131	-1.253	.214	.017
	2	74	-.126	.165	-.090	-0.764	.447	.008
	3	61	.080	.224	.047	0.358	.721	.002
<i>Note.</i> Dependent Variable: Attention and Calculation								
Remote Memory	1	92	.149	.106	.147	1.410	.162	.022
	2	74	.127	.160	.093	0.794	.430	.009
	3	61	.107	.181	.077	0.595	.554	.006
<i>Note.</i> Dependent Variable: Remote Memory								
Language	1	92	-.014	.110	-.013	-0.126	.900	.000
	2	74	.302	.193	.182	1.568	.121	.033
	3	61	.564	.221	.315	2.547	.013	.099
<i>Note.</i> Dependent Variable: Language								
Total MMSE	1	92	.142	.110	.135	1.294	.199	.018
	2	74	.389	.164	.269	2.366	.021	.072
	3	61	.415	.190	.274	2.187	.033	.075
<i>Note.</i> Dependent Variable: Total MMSE								
Age	1	92	.280	.100	.284	2.805	.006	.080
	2	74	.583	.138	.445	4.215	.000	.198
	3	61	.536	.144	.436	3.723	.000	.190
<i>Note.</i> Dependent Variable: Age								

f. friend; 1. 1<sup>st</sup> Friend; 2. Mean of 1<sup>st</sup> and 2<sup>d</sup> Friend; 3. Mean of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Friend; MMSE. Mini-Mental State Examination; B. unstandardized beta; SE. standard error;  $\beta$ . standardized beta; p. significance level; t. t statistic; R<sup>2</sup>. Variance.

## DISCUSSION AND CONCLUSION

Friends are one of the main sources of our social life. Their being enhances our perception of social support which can directly influence our well-being. However, older people who leave their home in the community and start to live in a nursing home may need social support more than former community life. Relationships with people from former community life may be weakened in time and that may result in strong need of social support. In order to fulfill this need, older people may start bonding new ties with other people who reside in the same nursing home. However, these new ties may be under effect of some conditions. Hence, in the current research, the cognitive similarity factor on friendship choice was taken under examination as well as the age homogeneity factor.

In this study, the data is collected from interviewed residents and their self-reported friends by using data mining method. Afterwards, associations among cognitive similarities such as time and place orientation, registration, attention and calculation, remote memory and language scores of these individuals were evaluated statistically. Results showed that older individuals' friendships were formed with influence of similar cognitive abilities. Although this association for one friend shows itself only in time orientation, with adding the second and third friends this association becomes clearer. Moreover, age was also appeared as an important factor in this friendship circles. As the results of the study indicated the effect of similar cognitive abilities on friendship choices, former studies that proposed the influences of cognitive similarities in dyadic relationships were supported (see Burleson, Kunkel, & Szolwinski, 1997; Karney & Gauer, 2010).

The similarity attraction theory (Berscheid & Walster, 1969; Byrne, 1971) states that individuals' preferences for friendship are shaped according to perceived similarities. In line with statement, our results showed that the mean of cognitive abilities of a friendship circle (which was limited to 3 people in this study) may determine the individual's mental status. However, it is very important to catch three perspectives in this similarity. Firstly, the individual may choose his/her friends according to similar cognitive abilities. Secondly, an existing group of individuals may accept the individual with similar cognitive abilities to their group. Thirdly, friends may develop or keep in fit the mental status of the individual cognitively by progressive stimulating. Nonetheless, results indicated that an individuals' mental status may be predicted by examining his/her circle of friends. Hence, this study may contribute projects that intend to develop friendships in nursing homes regarding the

importance of cognitive similarity for friendship. Nursing home administration may settle new residents close to other residents who have similar cognitive abilities in order to enhance friendships in the facility.

One of the limits of this study is that this research was carried on in one nursing home. While all the information were obtained within only three buildings in the campus, these results may also be under influence of practice of care culture

or some other events which were particular for the time and the nursing home. Each individual is different at some point. So, it can't be said that each individual is open to new friendships. Especially people who are new in the nursing home may not need forming a new friendship because of former friendships may still exist. However, some others may have this need more strongly. Therefore, these needs of individuals should be taken into consideration while examining the friendship networks. The distribution of these individuals may affect the network.

The meaning given to the friendship may change from person to person. Nevertheless, research show that older people keep in view similar cultural and social stereotypes (similar interests, closeness, reciprocity, trustworthiness) while defining friendship (Moore, 1999; Powers, 1991). Therefore, it is assumed that interviewed older residents perceive friendship similarly. However, for further studies, interviewees' definitions of friendship can be also asked. This will increase the power of the analysis.

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