Original Article

Determining the Quality of Life, Social and Emotional Loneliness of Physically Disabled Individuals[a]

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Abstract

***Background and purpose*:** This study aimed to examine the relationship between the life quality of physically disabled individuals and their social and emotional loneliness.

***Materials and Methods*:** This study was a cross-sectional type of research in which "Physically Handicapped Life Quality Measurement Tool (WHOQOL-DIS)" was used to determine the quality of life, and "Social and Emotional Loneliness Scale (SELSA)" and "Personal Information Form" were also used to examine the levels of loneliness. The data were collected through face-to-face interviews with 316 people. Pearson Correlation and Multiple Linear Regression analysis were also used to test the relationship between quality of life and loneliness.

***Results*:** 33.3% of the study group was in the age range of 40-49 and their average age was 41.90 ± 12.86 years. A significant relationship ($p<0.05$) was documented between the WHOQOL-DIS sub-dimensions and the social and emotional loneliness sub-dimensions. There was also found a weak negative relationship between physical domain and social loneliness, a very weak negative relationship between emotional loneliness and family relationships, a weak negative relationship between the mental domain and social loneliness and loneliness in family relationships, and a very weak relationship in the negative direction with emotional loneliness. It was determined that there was a weak negative relationship between social domain and social loneliness, emotional loneliness and loneliness in family relationships. There was also a weak negative relationship between the environmental domain and social loneliness, emotional loneliness and loneliness in family relationships. The results also showed a moderate negative relationship between the quality of life module and social loneliness, and a weak relationship in the negative direction between emotional loneliness and family relationships.

***Conclusion*:** A significant relationship was found between the sub-dimensions of the quality of life scale and the sub-dimensions of the loneliness scale. Also, loneliness was found to be a significant predictor of the quality of life. Any increase in the feeling of loneliness in the lives of disabled people was observed to reduce their quality of life.

***Keywords*:** Physical Disability; Quality of Life; Loneliness
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1. *Introduction*

Today, the global disability prevalence is 10% higher than the World Health Organization (WHO) estimations in 1970s. Currently, about 15% of world population has a type of disability, while 2-4% experience significant challenges in functionality. It is suggested that this is due to aging population and rapid increase in chronic disease as well as advances in the methods used to quantify disability (1). Based on 2019 data on disability in Turkey, the disability prevalence was reported as 15.3% in general population whereas 11.1% among men and 19.4% among women. It has been suggested that disability prevalence is higher in advanced age groups (2).

The disability denotes the loss of an ability to perform an activity within a normal range for individuals or restriction of activities as a result of a deficiency or handicap. This definition implies the loss of physical or mental function at an individual level (3). The term "physically disabled individual" denotes individuals who experience difficulties in adaptation to social life and meeting daily requirements, and require care, protection, rehabilitation, support and counseling due to loss of physical function at varying levels as a result of impairment in muscle, nervous and skeletal systems which can be caused by any antenatal, perinatal and postnatal reasons (4). As mentioned in the definition, physical disability can occur due to several causes (5).

In 1993, the concept of quality life has been introduced by WHO in order to address "health" and "disease" concepts in a broader frame, attempting to discuss complex health-related events by different disciplines, such as social sciences and economy (6). One of the motivations underlying studies about quality of life is the recognition of the fact that health interventions not only influence human body but also affect social life of an individual. This is highly important for individuals with chronic, disabling or life-threatening disorders which may affect physical, psychological and social well-being of these individuals living without the expectation of recovery (7).

The quality of life is individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. This broad definition is influenced by social interactions, physical health, psychological status, independence level, economic status, inadequacy/disability, age, gender of individuals, and the primary characteristics of the environment they live (8, 9). It has been assumed that improvement in health or functionality of an individual results in direct improvement in the quality of life (10). Based on scientific data, the quality of life should be one of the intervention domains in preventing disability problems and determining the content of services targeting individuals facing persistent disability. This will allow intervention to domains important for individuals and improvement in the quality of life of disabled individuals (11). Although there are many indicators that determine the quality of life, it should be suggested that the quality of life may vary by age, marital status, gender, education, economic status, health status, residency characteristics, work, social support opportunities, leisure activities, and disability rate (12, 13). To determine the quality of life, it is highly important to attain problems experienced

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by individuals regarding their disorders; to understand how disease affects daily life, occupation and movements; and to reveal how the patient will reach expectations about recovery (14).

It can be suggested that social and emotional loneliness is one of the major problems in both disabled and healthy individuals, and it might be predicted that such loneliness may be more experienced in physically disabled individuals in several disability groups who are isolated or excluded or unable to participate in social environment due to several reasons (15). There are several definitions for loneliness. It is defined as "distressing feeling due to inconsistency between social relations experienced and expected" (16). Rokach describes loneliness as a universal feeling which humankind experiences since creation (17). Weiss describes loneliness as reaction to lack of social relations which an individual requires or lack of intimacy and emotionality despite the presence of different social relations (18). None of the social categories are completely immune against loneliness. However, it can be suggested that loneliness is more common among teenagers. The likelihood of loneliness is higher in individuals with childhood traumas, fragment family, deficiency of esteem (especially for adults), and those children who live alone, experience social alterations, and experience persisting health problems (disability, chronic disease, etc.) (19). It was reported that emotional distress, social incompetence, alienation, and self-alienation are higher in individuals with disability when compared to those without disability (20). In previous studies, it was reported that there was a negative correlation between the quality of life and loneliness, i.e. decreasing loneliness caused improving quality of life (21, 22).

2. *Materials and Methods*

The present study was a cross-sectional survey using face-to-face technique. Data were collected through face-to-face interviews with 316 people. Pearson Correlation and Multiple Linear Regression analyses were used to test the relationship between the quality of life and loneliness. It was conducted with physically disabled individuals at Erzincan Province between January, 2018 and September, 2019. The study universe included physically disabled individuals (ages≥18 years) dwelling at Erzincan Province. As of study period, there were 3608 disabled individuals in the registry of Erzincan Provincial Directorate of Family, Labor and Social Services. Based on Problems and Expectations of Disabled Individuals Study by TURKSTAT, the number of physically disabled individuals registered is estimated as 317 in Erzincan. Based on the study findings, there was mental disability in 29.2%, chronic disease in 25.6%, miscellaneous disability in 21.9%, orthopedic disability in 8.8%, visual disability in 8.4%, hearing disability in 5.9% and language disability and speech block in 0.2% of the registered disabled individuals (5). No study sample was defined since it was aimed to include all individuals in the study universe.

2.1 WHOQOL-DIS

The WHOQOl-DIS is a disability module developed for disabled individuals and includes a 26-item main instrument and 12-item "disability module". The WHOQOl-BREF has 4 primary domains including physical, psychological, social, and environmental domains. Section scores are calculated over a total of 20

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points. The increase in the mean score indicates an increase in the quality of life (23).

2.2 Social and emotional loneliness scale

The scale was developed by Di Tommasso, Brannen and Best. The Turkish version was developed by Çeçen in 2007. The Social and Emotional Loneliness Scale (SELSA) includes 15 items rated by a Likert scale (1=strongly disagree to 7=strongly agree). The SELSA includes 3 sub-domains. In the scale, emotional loneliness is measured by loneliness in family and romantic relations subscale, while social loneliness is measured by loneliness in social relations. The social loneliness dimension of the scale, questions 2, 5, 7, 9 and 13 are within the scope of social relations; the 3rd, 6th, 10th, 14th, and 15th questions measure the 33 dimensions of emotional loneliness within the scope of emotional relationships, and the 1st, 4th, 8th, 11th and 12th questions are within the scope of family relationships. The 2nd, 3rd, 5th, 6th, 8th, 9th, 11th, 12th and 14th questions in the scale are evaluated with reverse scores. The higher total score in sub-domains indicates higher levels of loneliness. There is no total score in the scale (24).

2.3 Statistical analysis

The collected data were analyzed using SPSS, version 21. The normal distribution was tested using Kolmogorov-Smirnov test, which indicated normally distributed data. The comparisons were made using Pearson's correlation coefficient and multi-linear regression analysis. The correlations were defined as very weak (0.00-0.25), weak (0.26-0.49), moderate (0.50-0.69), strong (0.70-0.89), and very strong (0.90-1.00) (1). A p value<0.05 was considered as statistically significant for all analyses.

3. Results

The mean age of the participants was 41.9±12.9 years and 33.3% of study population was in the age group of 40-49 years. Of the subjects, 69.3% were males; 56% were married; and 56% were unemployed (including students, housewives and retired). Of subjects, 20.9% reported that they had no insurance, while 63.6% lived in a flat, and 22.5% reported that their economic level was poor. Of the subjects, 46.5% reported total monthly income<2000 TL; 67.4% had elementary family, while 31.3% were smokers, and 84.5% reported no alcohol consumption. In addition, of subjects, 55.1% reported that they had at least one chronic disease, and 16.1% were diagnosed by a psychiatric disease. Of the subjects, 52.8% had disability rate of 40-50%, and 67.7% had acquired disability. Unilateral disability of lower extremity was most common disability by 23.7%. In WHOQOL-DIS, the mean total score was 11.39 in physical domain, 12.63 in psychological domain, 12.59 in social domain, 11.90 in environment domain, and 11.79 in physical quality of life module. The highest mean score was noted in psychological domain, while the lowest mean score was documented in physical domain. The higher mean scores indicated improvement in the quality of life. In SELSA Scale, mean total score was 20.25 in loneliness in social relations, 22.07 in loneliness in romantic relations, and 14.58 in loneliness in family relations. The highest score was found in loneliness in romantic relations, while the lowest score in loneliness in family relations. The higher mean scores indicated increased loneliness.

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Table 1. The relationship between WHOQOL-DIS domains and social and emotional loneliness

Whoqol-dis Domains		Social and Emotional Loneliness		
		Loneliness in social relations	Loneliness in romantic relations	Loneliness in family relations
Physical domain	r	-0.352**	-0.137*	-0.194**
	p***	0.000	0.015	0.001
	N	316	316	316
Psychological domain	r	-0.457**	-0.211**	-0.297**
	p***	0.000	0.000	0.000
	N	316	316	316
Social domain	r	-0.483**	-0.322**	-0.261**
	p***	0.000	0.000	0.000
	N	316	316	316
Environmental domain	r	-0.465**	-0.266**	-0.276**
	p***	0.000	0.000	0.000
	N	316	316	316
Quality of life module	r	-0.541**	-0.261**	-0.301**
	p***	0.000	0.000	0.000
	N	316	316	316

***Correlation is significant at level of p<0.05**
**** Correlation is significant at level of p<0.01**
***** Pearson's correlation analysis**

A significant correlation was detected between WHOQOL-DIS sub-domains and loneliness in social and emotional relations ($p<0.05$). A weak, negative correlation was also detected between physical domain and loneliness in social relations, while very weak and negative correlations were detected between physical domain and social loneliness and loneliness in family relations. There was also found a weak and negative correlation between psychological domain and loneliness in social and family relations, while a very weak and negative correlation was observed between physical domain and loneliness in emotional relations. Meanwhile, a weak and negative correlation was observed between social domain and loneliness in social, emotional, and family relations. At the same time, a weak and negative correlation was documented between the environmental domain and loneliness in romantic and family relations. Moreover, there was a moderately negative correlation between the quality of life module and loneliness in social relations, while a weak and negative correlation was revealed between loneliness in romantic and family relations.

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Table 2. Multi-linear regression analysis on prediction of physical domain of quality of life by social and emotional loneliness

Variable	B	Standard Error	β	t	p
Constant	15.005	0.725		20.704	<0.001
Social loneliness	-0.171	0.031	-0.344	-5.445	**<0.001**
Emotional loneliness	0.022	0.031	0.043	0.714	0.475
Loneliness in family relations	-0.043	0.031	-0.080	-1.415	0.158
$F_{(3-315)}$=15.640	R=0.362	R^2 = 0.131		**p<0.001**	

As seen in Table 2, loneliness in social, romantic and family relations together predicted the quality of life in physical domain (p<0.05). It was observed that these subscales of SELSA explained 13.1% of the change in physical domain of quality of life. It was also found that only loneliness in social relations was a significant predictor for physical domain of quality of life (p<0.05). Thus, the quality of life in physical domain was worsened by increasing social loneliness.

Table 3. Multi-linear regression analysis on prediction of psychological domain of quality of life by social and emotional loneliness

Variable	**B**	**Standard Error**	**β**	**t**	**p**
Constant	17.533	0.646		27.160	<0.001
Social loneliness	-0.192	0.028	-0.409	-6.880	<0.001
Emotional loneliness	0.007	0.027	0.014	0.255	0.799
Loneliness in family relations	-0.080	0.027	-0.155	-2.920	0.004
$F_{(3-315)}$=31.111	**R=0.480**	**R^2 = 0.230**		**p<0.001**	

As seen in Table 3, loneliness in social, romantic and family relations together predicted the quality of life in psychological domain (p<0.05). It was observed that these subscales of SELSA explained 23.0% of the changes in psychological domain of quality of life. It was also found that loneliness in social and family relations was a significant predictor for psychological domain of quality of life (p<0.05). Thus, the quality of life in physical domain was worsened by increasing loneliness in social and family relations.

Table 4. Multi-linear regression analysis on prediction of social domain of quality of life by social and emotional loneliness

Variable	**B**	**Standard Error**	**β**	**t**	**p**
Constant	19.268	0.743		25.935	<0.001
Social loneliness	-.215	0.032	-.392	-6.680	<0.001
Emotional loneliness	-.065	0.032	-.115	-2.067	0.040
Loneliness in family relations	-.060	0.031	-.101	-1.920	0.056
$F_{(3-315)}$=35.094	**R=0.502**	**R^2 = 0.252**		**p<0.001**	

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As seen in Table 4, loneliness in social, romantic and family relations together predicted the quality of life in social domain ($p<0.05$). It was observed that these subscales of SELSA explained 25.2% of the change in social domain of quality of life. It was also found that loneliness in social and romantic relations was a significant predictor for social domain of quality of life ($p<0.05$). Thus, the quality of life in social domain was worsened by increasing loneliness in social and romantic relations.

Table 5. Multi-linear regression analysis on prediction of environmental domain of quality of life by social and emotional loneliness

Variable	B	Standard Error	β	t	p
Constant	16.521	0.565		29.249	<0.001
Social loneliness	-0.162	0.024	-0.395	-6.649	**<0.001**
Emotional loneliness	-0.023	0.024	-0.053	-0.942	0.347
Loneliness in family relations	-0.057	0.024	-0.126	-2.371	**0.018**
$F_{(3-315)}$=31.503	R=0.482	R^2 = 0.232		p<**0.001**	

As shown in Table 5, loneliness in social, romantic and family relations together predicted the quality of life in environmental domain ($p<0.05$). It was also observed that social and romantic loneliness subscales of SELSA explained 23.3% of the change in environmental domain of quality of life. Meanwhile, loneliness in social and family relations was documented to be a significant predictor for environmental domain of quality of life ($p<0.05$). Thus, the quality of life in environmental domain was worsened by increasing loneliness in social and family relations.

Table 6. Multi-linear regression analysis on prediction of physically disabled quality of life module by social and emotional loneliness

Variable	**B**	**Standard Error**	**β**	**t**	**p**
Constant	16.994	0.563		30.164	<0.001
Social loneliness	-0.215	0.024	-0.497	-8.800	**<0.001**
Emotional loneliness	-0.005	0.024	0.000	0.003	0.997
Loneliness in family relations	-0.059	0.024	-0.125	-2.474	**0.014**
$F_{(3-315)}$= 45.928	R=0.553	R^2 = 0.306		p<**0.001**	

As depicted in Table 6, loneliness in social, romantic and family relations together predicted the disabled quality of life module ($p<0.05$). It was found that loneliness in social and family relations was a significant predictor for disabled quality of life module ($p<0.05$). At the same time, social and romantic loneliness subscales of SELSA explained 30.6% of the change in disabled quality of life module. Thus, the disabled quality of life module was worsened by increasing loneliness in social and family relations ($p<0.05$).

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4. *Discussion*

Based on the finding of the current research, it can be suggested that social loneliness is a significant predictor for subscales of WHOQOL-DIS quality of life scale which will decrease by increasing social loneliness (Table 2-6). It can also be suggested that loneliness in family relations is a significant predictor of psychological, environmental and physically disabled quality of life module (Table 3, 5, 6) which will decrease by increasing loneliness in family relations. It was also found that loneliness in romantic relations is a significant predictor of social quality of life (Table 4) which will decrease by increasing loneliness in romantic relations.

The results also showed that loneliness in social, romantic and family relations can affect quality of life in physically disabled individuals. Disability itself, presence of limited mobility and environmental factors can limit socialization of individuals which may increase loneliness and decrease quality of life. The increased loneliness may then negatively affect quality of life of individuals (26, 27). In a study on adults in Turkey, it was found that quality of life had a significant negative effect on loneliness (28). In a study on elder individuals, it was also reported that the quality of life was improved by decreasing loneliness (29). In a different study on physically disabled individuals aged 13-18 years (Turkey), it was shown that restricted social life worsened the quality of life (30).

Overall, it can be suggested that loneliness negatively affects the quality of life in all social categories. It was also observed that physically disabled individuals have insufficient possibility for socialization and they have higher degrees of loneliness with poorer quality of life when compared to healthy individuals. In a previous study, it was reported that several factors, such as higher disability ratio, advanced age, female gender, lower educational status, being single and need for care by others decreased the quality of life through negative influences on socialization (31). In a study conducted on elder individuals in Turkey, it was found that the quality of life decreased by many factors, such as being female gender, having no formal education, low income, not being in a nursery home, not going on a vacation, shopping by others, loss of appetite, sedentary life style, hearing problem, having a disability report, feeling unhappy, and being alone (32).

According to the results, the lifestyle of physically disabled individuals and the competency for social life decreased loneliness, improving the quality of life. In another study on adult individuals in Turkey, it was found that socialization decreased by increasing loneliness. In addition, it was suggested that gender, education level and marital status have significant influences on loneliness and social integrity (33). In a study on individuals with disability of upper extremity in Turkey, it was found that social participation level was low in these individuals (34). In individuals with disability of upper extremity, the adaptation to social life and physical, emotional and psychological well-being also allowed social development of community. The increased community involvement positively affects general well-being and quality of life in disabled individuals (35). In a different study on disabled individuals in Turkey, for disabled individuals, the reasons of failure to socialize were functional independence

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level, mobility level, environmental conditions/structure, environmental barriers, accessibility, occupation, education, leisure activities, psychological factors and anxiety (36). In addition, it was suggested that other barriers against socialization of disabled individuals are lack of schools with appropriate physical infrastructure, inadequacy of social-physical support, and insufficient curricula (37). Optimization of physical environment for disabled individuals, environment fulfilling needs of disabled individuals and socialization without facing environmental barriers may improve the quality of life with decreased loneliness for disabled individuals.

5. Conclusion

In conclusion, a significant relationship was found between the sub-dimensions of the quality of life scale and the sub-dimensions of the loneliness scale, and loneliness was documented to be a significant predictor of the quality of life. According to the results of this study, any increase in social and emotional loneliness of disabled individuals can decrease their quality of life. As general recommendations, residency, social areas, commercial areas, work places and mass transportation should be accessible to physically disabled individuals, and the social barriers should be removed, allowing socialization of physically disabled individuals. Supportive and adjunctive devices which are required by physically disabled individuals should be supplied in a free of charge manner, and physically disabled individuals should be encouraged to suitable works without need for help from others in order to allow self-sufficiency of physically disabled individuals. The existence of physically disabled individuals should be enhanced in working life and free healthcare services should be provided to these individuals. This endeavor would improve social adaptation and quality of life and decrease loneliness of physically disabled individuals by providing the participation of social life. The reduction of loneliness would also improve the quality of life in physically disabled individuals.

Abbreviations

WHO: World Health Organization
SDYÖ: Social and Emotional Loneliness Scale
WHOQOL-DIS: Physically Handicapped Life Quality Measurement Tool

Authors' Contributions

The first author conducted the study and the second author served as planning and consultancy.

Declarations

Ethics approval and consent to participate

Ethics committee approval was obtained from the Human Research Ethics Committee of Erzincan University (dated 25.05.2017, number 44495147-050.01.04-E.25331 and protocol number 04/03).

Consent to publications

Not applicable

Conflicts of Interest

The authors declare that they have no conflict of interests.

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