World Applied Sciences Journal 14 (5): 739-744, 2011
ISSN 1818-4952

The Correlation Between Depression and Life Quality in Players of the Regional Wheelchair Basketball League*

[1]Mehmet Çağrı Çetın, [2]Hakan Salim Çağlayan, [1]Hüseyin Kirimoğlu and [3]Gülşen Fılazoğlu Çokluk

[1]Department of Physical Education and Sports Teacher, School of Physical Education and Sports, Mustafa Kemal University, Hatay, Turkey
[2]Department of Sports Management, School of Physical Education and Sports, Selcuk University, Konya, Turkey
[3]School of Special Education and Rehabilitation of Zirveye İlkadım, Hatay, Turkey

Abstract: The present research was conducted in order to explore whether there was correlation between depression levels and quality of life levels of players who played in the regional wheelchair basketball league. The population of the research conducted with relational survey method was composed of players of 37 teams who played in groups A, B, C, D and E of Regional Wheelchair Basketball League under the management of Turkish Sports Federation for the Physically Disabled during 2010-2011 seasons. The sample of the research was made up by 224 players from 18 Team's recruited using random-sampling. Beck Depression Inventory and World Health Organization Quality of Life BREF (Turkish) were used as data collection tools. Pearson product-moment correlation coefficient was used for data analysis and significance was tested at 0.01. As the finding of the research, it was found out that there was a negative and moderate correlation between mean scores of the Beck Depression Inventory and physical health, psychological health, social relationships and environment domains of WHOQOL-BREF (TR) Scale ($P \leq 0.01$). As a result, we can say that the level of quality of life of the athletes may decrease in parallel with an increase in depressive mood states.

Key words: Depression · Quality Of Life · Wheelchair Basketball · Disabled · Sports

INTRODUCTION

"Today, factors that affect the quality of life and satisfaction from life have been questioned more and more with the increasing number of the researches that assess the quality of life in healthy and disabled individuals" [1]. The term of quality of life generally focuses on "economical, social, physical and emotional factors associated with negative physical effects of the disease because the physical condition of the individual affects his psycho-social functions and thus quality of life becomes in close relation with the well-being made up by the combination of these factors" [2, 3, 4]. Quality of life symbolizes not only "a general state of well-being but also a kind of satisfaction." "The objective and subjective evaluation of physical, economical, familial and emotional good state of the health" is expressed by the term of quality of life. Objective evaluations are based on "the identification of such living conditions as physical health, income, the quality of the residence, friend-relations, physical activities, social roles, political settings of the individual" whereas subjective evaluations cover "the satisfaction that the individual takes from these conditions above" [5].

Depression is described as the emotional conditions in which "individual loses the desire and pleasure to live and feels a deep sorrow, has pessimistic thoughts about the future and experiences deep regretful and guilty feelings and thoughts about the past." Also, "a serious decrease in self-respect and self-value together with a decrease and loss of interest in the world, loss of the capacity to invest in or to develop relationship with other people; self disapproval, self-blame and self-humiliation, insult" is experienced in depression [6].

Basic reasons for which disabled people are under risk for depression are "difficulties posed by the living-conditions, employment-difficulties in finding jobs, social prejudices, economical shortcomings in case of health problems" [7].

*This study was presented as a verbal statement in I. International Participated Physical Education and Sports Congress for Disabled Persons in Konya/Turkey between the dates of 05-07 May 2011.

Corresponding Author: Hakan Salim Çağlayan, Department of Sport Management, School of Physical Education and Sports, Selcuk University, Konya, Turkey. Tel: +90 332 2233127.

"There are researches that claim that depression and physical disabilities affect deeply the quality of life" [8, 9]. "Physical disability is one of the main reasons for function loss. It is very important to detect the quality of life about health and functional state in chronically physically disabled people (cerebral-palsy, spinal cord injuries, muscular diseases, brain traumas)" [10].

"Psychological disorders, functional losses and low quality of life may be experienced together among chronically physically disabled people. Depression, anxiety and functional loss undergone together with the increasing severity of the disability cause limited activities and social isolation and thus affecting negatively physical, physiological and social functions as well as quality of life" [11, 12]. "It was reported that these risk factors are reduced by regularly done exercises" [13]. Individuals who play sports learn how to use their bodies more economically and efficiently and lead a balanced life. Their reflexes and senses improve, their spasticity decreases, pains relieve and they can give an easy birth" [14]. "Supportive organizations and rehabilitation programs that include different sports and recreational activities (entertaining and pastime activities) minimize the negative effects seen in orthopedically disabled people and enrich their quality of life." which these people -in turn- draw away from depressive emotions [11, 15].

Upon the literature analysis, it was seen that there were studies related to depression levels and quality of life of the disabled individuals [10, 16, 17]. However, it was noted that the studies that investigated the disabled individuals who performed physical activities were limited in number and assessed the exercises from therapeutic perspectives and focused mostly on the correlation between such conditions as pain, movement restriction, loss of function and depression and quality of life. In light of the above-mentioned information, the aim of the research was to explore whether there was a correlation between depressive emotions and quality of life of the wheel chair basketball players who had trainings periodically on certain days of the week, participated in competitions in front of the spectators; namely, performing physical activities for sportive reasons rather than physical activities.

MATERIALS AND METHODS

Population and Sample: The population of the research which was designed as screening model was made up by the players of 37 teams who played in groups A (n=6), B (n=8), C (n=7), D (n=8) and E (n=8) of Regional Wheelchair Basketball League under the management of Turkish Sports Federation for the Physically Disabled during 2010-2011 season.

The sample of the research was consisted of 224 basketball players from 18 Team's recruited using random-sampling. The names of the teams that were included in the sample, their groups and the number of the players who answered the questionnaires were as follows:

Regional Wheelchair Basketball League Group A: The Disabled of Istanbul Bağcılar (n=12), the Disabled of Eskişehir (n=11);

Regional Wheelchair Basketball League Group B: The Disabled of Antalya (n=13), the Disabled of İzmir Karşıyaka (n=12), the Disabled of İzmir Bucalı (n=12), the Disabled of Konya (n=11), the Disabled of Niğde (n=16), the Disabled of Aydın (n=8), the Disabled of Denizli (n=8);

Regional Wheelchair Basketball League Group C: The Bodily Disabled of Samsun (n=9), the Disabled of Kayseri (n=11),

Regional Wheelchair Basketball League Group D: The Disabled of Mersin Silifke (n=9), the Disabled of Hatay Dörtyol (n=16), Gaziantep Municipality (n=11), Mersin Physically Disabled (n=11), the Disabled of Osmaniye 7 Ocak (n=19),

Regional Wheelchair Basketball League Group E: The Disabled of Diyarbakır Metropolitan Municipality (n=17), the Disabled of Sanlıurfa Ceylanpınar (n=18).

Data Collection Tools: Beck Depression Inventory developed by Beck [18] and adapted for Turkish -first by Teğin [19] and later Hisli [20, 21]- and WHOQOL-BREF TR were used as the data collection tools in the research.

Beck Depression Inventory (BDI): Beck Depression Inventory developed by Beck first in 1961 and revised in 1978 is a four-point Likert Type self evaluation scale with 21 items in order to assess symptoms of depression observed emotional, physical, cognitional and motivational dimensions. Each item contains sentences related to the depression-specific patterns graded from smaller to bigger numbers. The smallest score to be obtained from the inventory is 0 whereas the highest score is 63. Higher total scores indicate a higher level of depression or a higher severity of depression [22].

Two separate adaptation trials for the Beck Depression Inventory (BDI) were conducted in Turkiye. One was made by Teğin [19] and named as *Beck*

Depression Inventory 1961 version and the other one was made by Hisli [20, 21] and named as *Beck Depression Inventory 1978 version* [22].

In the study of validity and reliability conducted with policlinic patients by Hisli [20], cut-off points of the Beck Depression Inventory were evaluated, too and it was seen that scores ≥17 demonstrated correctly the depression that needs treatment with a 90% of exactness.

Whoqol-Bref-Quality of Life Scale TR (WHOQOL-BREF TR): WHOQOL-BREF (TR), developed with 2 questions from the general part of the original version of the scale and with one question from other 24 parts, is composed of 26 questions. Unlike WHOQOL-LONG, it contains four domains and has no separate parts. There is not any total score of the scale. Each domain gets a maximum score over 20 or 100. The scoring system to be used depends on the researcher. Yet, scorings over 20 are mostly preferred in our country. When the WHOQOL-BREF (TR), which contains 27 questions (the national 27th question is the environmental domain), is used; it is called Environment-Tr. Therefore, score of Environment-Tr is used instead of environmental score. Higher scores mean higher quality of life [23]. In the present research, scorings over 20 were used. Validity and reliability trials of the Turkish form were performed by Eser *et al.*, [24, 25].

Physical Domain contains questions related to ability to perform daily works, commitment to the medications and treatment, liveliness and fatigue, activity, pain and discomfort, sleep and rest, strength to work.

Psychological domain contains questions related to positive and negative feelings, self esteem, body image, spirituality, personal beliefs, reflection and concentration.

Social relations domain contains questions related to interpersonal relations, social support and sexual life.

Environmental domain contains questions related to household atmosphere, physical security and safety, economical sources, ability to access to health services, pastime activities, physical environment and transportation Eser *et al.*, [24, 25].

In accordance with the decision made at the 1st European WHOQOL Symposium held in Leipzing in 1997; users are supposed to deliver their own data with an informatory abstract report to WHOQOL office in Turkey [26]. Scoring of the parts was carried out by WHOQOL office in Turkey.

Data Analysis: Of the descriptive statistics techniques; $\bar{x}$, SD, min. and max. Values were used in order to calculate the scores obtained from the scales. Kolmogorov-Simirnov test was used to know whether data followed a normal distribution and as a result it was found out that the data followed normal distribution. Pearson's product-moment coefficient was used to test whether there was a significant correlation between the scores of the two scales. There was a high correlation if the correlation coefficient was between 0.70-1.00; moderate correlation if the correlation coefficient was between 0.70-0.30 and low correlation if the correlation coefficient was between 0.30-0.00 [27]. Significance level was accepted as 0.01.

RESULTS

When Table 1 was analyzed, we could tell that depression levels of wheelchair basketball players were lower whereas their quality of life levels were generally higher.

Table 1: Scores of the Players About BDI and WHOQOL-BREF (TR)

		n	$\bar{x}$	SD	Min	Max	Minimum and Maximum Scores to be Obtained From the Inventory
Total Score of BDI		224	11.41	12.24	.00	52.00	0-63
Whoqol-bref Tr Scale	Physical Domain	224	14.28	2.76	5.71	20.00	4-20
	Psychological Domain	224	14.81	2.76	5.33	20.00	4-20
	Social Domain	224	15.08	3.37	5.33	20.00	4-20
	Environmental Domain-TR	224	12.99	2.34	6.67	19.56	4-20

Table 2: The Correlation Between BDI Total Scores and WHOQOL-BREF (TR) Subscales Scores of The Players

		Whoqol-bref (TR) Subscale			
		Physical Domain	Psychological Domain	Social Domain	Environmental Domain-TR
BDI Total Score	r	-0.459**	-0.561**	-0.486**	-0.381**
	P	0.000	0.000	0.000	0.000
	n	224.000	224.000	224.000	224.000

**P≤0.01

When Table 2 was evaluated, it was found out that there was a significantly negative correlation between BDI total scores and subscales scores (Physical Domain, Psychological Domain, Social Domain, Environmental Domain-TR) of WHOQOL-BREF (TR) of the participant players.

DISCUSSION

The following results were obtained from the research that was conducted in order to explore whether there was correlation between depression levels and quality of life levels of players who played in the regional wheelchair basketball league.

When the mean scores ($\bar{x}$=11.41) that the participant wheelchair basketball players received from depression scale were examined, we could say that their depression levels were lower (Table 1). We thought that the fact that they actively played sports had an effect on their lower depression levels. The study conducted by Canan and Ataoğlu [28] reported that mean BDI scores of the healthy individuals who regularly played sports were $\bar{x}$=12.02. As the result of the comparison of our study with the study of Canan and Ataoğlu [28], it was found out that the disabled participants of our study presented lower depression levels than healthy players of Canan and Ataoğlu's study; which meant that the disabled individuals who played sports had less depressive emotions compared to those healthy individuals who played sports.

There are numerous studies that concurred with ours. In the study of Groff *et al.* [29] which investigated 483 adolescents who were physically disabled due to cerebral palsy and who were aged over 18; it was concluded that participation in sports makes positive contributions to such issues as enjoying life, feeling good, performing daily activities. A study conducted by McQuade *et al.* [30] reported that a fitness program provided to the individuals who underwent paraplegia resulted in a statistically significant reduction in mean depression scores compared to the pre-fitness program period. Again, the study made by Klaber Moffet *et al.* [31] revealed that an exercise program provided to the individuals who suffered chronic shoulder injuries and back injuries resulted in a positive difference in depression levels during the first six week-period. Petejan *et al.* [32] indicated in their study conducted with MS patients that sedentary patients included in exercise program experienced a significant reduction in the mean depression scores at the end of the program. Another study carried out by Kivelä and Pahkala [33] demonstrated that physical activity plays an important role in keeping off depressive emotions for the elderly people.

When we analyzed the mean scores obtained by the participant wheelchair basketball players from the WHOQOL-BREF (TR), we could suggest that players had better quality of life in the subscales of Physical Domain, Psychological Domain, Social Domain and Environmental Domain (Table 1). It was found out in the study conducted by Petejan *et al.* [32] that there was a positively significant difference between patients' motor performances as well as between the scores of the subscales of social interaction, emotional behavior, home management and total quality of life scores at end of the exercise program given to the MS patients compared to the control group. Valim *et al.* [34] pointed out that there were improvements in the quality of life of the MS patients at the end of the aerobic exercises and stretching-exercise programs given to MS patients. According to the results of the above-mentioned studies, it was possible to argue that there were significant increases in the quality of life of the disabled individuals due to their physical activities. It was also an expected outcome that these kinds of activities improved the quality of life considering their physical, psychological and social effects on the disabled individuals. Sports are thought to be an effective instrument for the disabled individuals to show themselves in the social circles. In fact, it was reported in the study of Söğüt [35] that most of the bodily disabled individuals (89.28 %) told that they received a different attention towards themselves due to their sportive activities. It may be concluded that wheelchair basketball players had higher quality of life because they had trainings and competitions conducted periodically on certain days of the week and thus accepting physical activity as a life style in spite of their physical disabilities; which is positively reflected upon their lives.

The correlation between mean total scores of BDI of the participant wheelchair basketball players and their subscales scores obtained from the WHOQOL-BREF (TR) was analyzed in Table 2. As a result of the analysis, it was found out that there was significantly negative correlation between mean total scores of BDI and the scores obtained from the WHOQOL-BREF (TR) subscales (Physical Domain, Psychological Domain, Social Domain and Environmental Domain). Consequently, it is possible to argue that the quality of life of the players will decrease as the depressive emotions increase. In the study of Valim *et al.* [34], it was reported that the quality of life of

the MS patients increased significantly at the end of the aerobic exercises and stretching-exercise programs given to MS patients whereas their depression levels decreased. Labronici *et al.* [36] evaluated socially and psychologically 30 disabled individuals who played sports. Two years later, the same evaluations were replicated and it was noted that the disabled individuals were still committed to the life and energetic and had lower depression levels although there was not any change in their movement system. These results demonstrated that sports improved social integration among the disabled people and provided them with suitable conditions.

CONCLUSION

As a result; it is possible to suggest that wheelchair basketball players had generally lower depression levels and higher quality of life levels and their quality of life levels decreased when depressive emotions increased.

REFERENCES

1. Livingston, M.H., P.L. Rosenbaum, D.J. Russell and R.J. Palisano, 2007. Quality of Life Among Adolescents With Cerebral Palsy: What Does The Literature Tell Us? Developmental Medicine and Child Neurol., 49(3): 225-231.
2. Cella, D.F., 1992. Quality of Life: The Concept. J. Palliative, 8(3): 8-13.
3. Pınar, R., 1995. Diabetes Mellitus'lu Hastaların Yaşam Kalitesi ve Yaşam Kalitesini Etkileyen Faktörlerin İncelenmesi. UnPublished PhD Thesis. İstanbul, Turkey: İstanbul University Institute of Health Science, Department of Nursing.
4. King, C.R., M. Haberman, D.L. Berry, N. Bush, L. Butler, K.H. Dow, B. Ferrell, M. Grant, D. Gue, P. Hinds, J. Kreuer, G. Padilla and S. Underwood. 1997. Quality of Life and the Cancer Experience: The State-Of-The-Knowledge. Oncology Nursing Forum, 24(1): 27-41.
5. Tezvaran, Z., 2010. Depression, Anxiety and Quality of Life at University Students Who Have Chronic Back And Neck Pain. Unpublished Expert Thesis. İstanbul, Turkey: Yeditepe University School of Medicine, Department of Family Medicine.
6. Kizilcik, Z., 2009. Hemodialysis Patients Depression Frequency and Quality Life. Unpublished MA Thesis. Eskişehir, Turkey: Eskişehir Osmangazi University Institute of Health Science, Department of Nursing.
7. Thompson, K., 2002. Depression And Disability A Practical Guide. NC Office on Disability and Health, North Carolina: Chapel Hill.
8. Nydevik, I., K. Hulter Asberg, 1991. Subjective Dysfunction after Stroke. A Study with Sickness Impact Profile. Scandinavian J. Primary Health Care, 9(4): 271-275.
9. Elliott, T.R. and R. Shewchuk, 1995. Social Support and Leisure Activities Following Sever Physical Disability: Testing The Mediating Effects of Depression. Basic and Applied Social Psychol., 16(4): 471-487.
10. Tarsuslu, T., E.T. Yumin, A. Ozturk and M. Yumin, 2010. The Relation between Health-Related Quality of Life and Pain, Depression, Anxiety and Functional Independence in Persons With Chronic Physical Disability. Ağrı, 22(1): 30-36.
11. Padua, L., I. Aprile, T. Cavallaro, I. Commodari, D. Pareyson, A. Quattrone, N. Rizzuto, G. Vita, P. Tonali and A. Schenone, 2008. Relationship between Clinical Examination, Quality of Life, Disability and Depression in CMT Patients: Italian Multicenter Study. Neurol Sci., 29(3): 157-162.
12. Budh, C.N. and A.L. Osteråker, 2007. Life Satisfaction in Individuals with A Spinal Cord Injury and Pain. Clin Rehabil, 21(1): 89-96.
13. Nyland, J., K. Robinson, D. Caborn, E. Knapp and T. Brosky, 1997. Shoulder Rotator Torque and Wheelchair Dependence Differences of National Wheelchair Basketball Association Players. Archives of Physical Medicine and Rehabilitation, 78(4): 358-363.
14. Beyazova, M. and Y. Gokce Kutsal (ed)., 2000. Fiziksel Tıp ve Rehabilitasyon. Ankara, Turkey: Güneş Kitabevi.
15. Ergun, N. and G. Baltaci, 2006. Spor Yaralanmalarında Fizyoterapi ve Rehabilitasyon Prensipleri (2rd Edition). Ankara, Turkey: Hacettepe Üniversitesi Fizik Tedavi ve Rehabilitasyon Yüksekokulu Yayınları, pp: 20.
16. Duzgun Celik, H., 2006. Omurilik Felçlilerinde Engellilik Durumunun ve Yaşam Kalitesinin Değerlendirilmesi. Unpublished Expert Thesis. İstanbul, Turkey: Şişli Etfal Education and Research Hospital, Department of Physical Medicine and Rehabilitation.
17. Strine T.W., K. Kroenke, S. Dhingra, L.S. Balluz, O. Gonzalez, J.T. Berry and A.H. Mokdad, 2009. The Associations between Depression, Health-Related Quality of Life, Social Support, Life Satisfaction and Disability in Community-Dwelling US Adults. J. Nervous and Mental Disease, 197(1): 61-64.

18. Beck, A.T., C.H. Ward, M. Mendelson, J. Mock and J. Erbaugh, 1961. An Inventory for Measuring Depression. Archives of General Psychiatry, 4: 561-571.
19. Tegin, B., 1980. Depresyonda Bilişsel Bozukluklar: Beck Modeline Göre Bir İnceleme. Unpublished PhD Thesis. Ankara, Turkey: Hacettepe University Department of Psychology.
20. Hisli, N., 1988. Beck Depresyon Envanteri'nin Geçerliği Üzerine Bir Çalışma. Turkish J. Psychol., 6(22): 118-122.
21. Hisli, N., 1989. Beck Depresyon Envanteri'nin Üniversite Öğrencileri İçin Geçerliği Güvenirliği. Turkish J. Psychol., 7(23): 3-13.
22. Savasir, I. and N.H. Sahin, 1997. Bilişsel-Davranışçı Terapilerde Değerlendirme: Sık Kullanılan Ölçekler. Ankara, Turkey: Türk Psikoloji Derneği Yayınları, pp: 9.
23. Aydemir, O. and E. Koroglu (ed)., 2006. Psikiyatri'de Kullanılan Ölçekler. Ankara, Turkey: Medicographics Ajans ve Matbaacılık Hizmetleri.
24. Eser, E., H. Fidaner, C. Fidaner, S. Yalcin Eser, H. Elbi and E. Goker, 1999a. Psychometric Properties of the WHOQOL-100 and WHOOOLBREF. Psikiyatri Psikoloji Psikofarmakoloji (3P) Dergisi, 7(ek2): 23-40.
25. Eser, S.Y., H. Fidaner, C. Fidaner, H. Elbi, E. Eser and E. Goker, 1999b. Yaşam Kalitesinin Ölçülmesi, WHOQOL-100 ve WHOQOL-BREF. Psikiyatri Psikoloji Psikofarmakoloji (3P) Dergisi, 7(ek2): 5-13.
26. Karabilgin, O.S., 2001. Evaluation of Depression Prevelance and Quality of Life on 15-49 Aged Women in Balatcik Primary Health Care Center District. Unpublished PhD Thesis. İzmir, Turkey: Ege University Institute of Health Science, Public Health Program.
27. Buyukozturk, S., 2007. Sosyal Bilimler İçin Veri Analizi El Kitabı (7rd Edition). Ankara, Turkey: Pegem AYayıncılık.
28. Canan, F. and A. Ataoglu, 2010. The Influence of Sports on Anxiety, Depression and Perceived Problem Solving Ability. Anatolian J. Psychiatry, 11: 38-43.
29. Groff, D.G., N.R. Lundberg and R.B. Zabriskie, 2009. Influence of Adapted Sport on Quality of Life: Perceptions of Athletes with Cerebral Palsy. Disability Rehabilitation, 31(4): 318-326.
30. McQuade, K.J., J.A. Turner and D.M. Buchner, 1988. Physical Fitness and Chronic Low Back Pain: An Analysis of the Relationships Among Fitness, Functional Limitations and Depression. Clinical Orthopaedics and Related Res., 233: 198-204.
31. Klaber Moffett, J.A., J. Carr and E. Howarth, 2004. High Fear-Avoiders of Physical Activity Benefit from an Exercise Program For Patients With Back Pain. Spine, 29(11): 1167-1172.
32. Petajan, J.H., E. Gappmaier, A.T. White, M.K. Spencer, L. Mino and R.W. Hicks, 1996. Impact of Aerobic Training on Fitness and Quality of Life in Multiple Sclerosis. Annals of Neurol., 39(4): 432-441.
33. Kivelä, S.L. and K. Pahkala, 2001. Depressive Disorder as A Predictor of Physical Disability in Old Age. J. the American Geriatrics Society, 49(3): 290-296.
34. Valim, V., L. Oliveira, A. Suda, L. Silva, M. De Assis, T. Barros Neto, D. Feldman and J. Natour, 2003. Aerobic Fitness Effects in Fibromyalgia. The J. Rheumatol., 30(5): 1060-1069.
35. Sogut, M., 2006. The Effect of Sports on The Socilaziation of Phsically Handicappeds. Yayımlanmamış Yüksek Lisans Tezi. Mersin, Turkey: Mersin University Institute of Health Science, Department of Physical Education and Sport.
36. Labronici, R.H., M.C. Cunha, A.D. Oliveira and A.A. Gabbai, 2000. Sport as Integration Factor of The Physically Handicapped in Our Society. Arquivos de Neuro-Psiquiatria, 58(4): 1092-1099.