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Physical Culture and Sport. Studies and Research, 2020, 87, 1-8
DOI: 10.2478/pcssr-2020-0014

OPEN ACCESS

Position of sport in subjective quality of life of deaf people with different sport participation level

Authors' contribution:
A) conception and design of the study
B) acquisition of data
C) analysis and interpretation of data
D) manuscript preparation
E) obtaining funding

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ABSTRACT

The objective of the present study was to analyse the position of sport as a quality of the life domain (QOLD) in subjective quality of life (S-QOL) in deaf and hard of hearing (D/HH) people with different sport participation level. Three groups of D/HH people (n=164) were recruited for the study: elite and competitive athletes (ECA; n=30; mean age 22.2±1.8 years), recreational athletes (RA; n=22; mean age 25.2±2.0 years) and non-athletes (NA; n=112; mean age 26.8±1.9 years). D/HH ECA are the most satisfied in their lives equally with their sport participation, social relations, physical health and the level of independence together with general health. D/HH RA reported the highest satisfaction with sport participation, social relations and with physical health and the level of independence. Position of sport is in ECA and RA lives is the priority number one as well as the satisfaction with other QOLDs as social relations, physical health and level of independence. The position of sport participation in D/HH NA among the QOLDs was interestingly in the second place in the order together with physical health and level of independence domain. Inclusive participation in sport from the earliest age of D/HH children together with able-bodied peers should help better understand mutual communication. Than D/HH people would remain in regular sport participation in later life and so S-QOL among D/HH minority population would be significantly increased.

KEYWORDS

Deaf and hard of hearing, athletes, non-athletes, quality of life domains, satisfaction.

Introduction

Members of the deaf community are commonly thought of as a group of people with similar cultural values and attitudes toward deafness, and a common language. This definition points out factors that can contribute directly to a person's over-all well-being. At the most basic level, deaf people come together because, psychologically and linguistically, such communion provides the most comfortable environment in which to gain social gratification (Karademir, 2015). This is the reason there are deaf clubs, deaf associations, deaf religious organizations, and deaf sport activities serving a variety of personal interests and needs of the deaf population (Stewart & Ellis 2005). For many deaf adults, participation in deaf sport events is a major mean of socialization (Kurková, Válková & Scheetz, 2011).

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Deaf and hard of hearing people provide a different level of sport participation. Those who compete in elite competition 'Deaflympics' are elite athletes and those who do at least 150 minutes of moderate-intensity physical activity throughout the week or do at least 75 minutes of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity (WHO, 2011) are recreational athletes. Deaf elite and also recreational sport provide a place for the meaningful interactions with others who communicate using sign language, an opportunity that is hard to come by in communities where the vast majority of people are hearing and communicate by means of a spoken language. Another benefit is a psychological one, as deaf people have an opportunity not only to be athletes but to be the sports directors, event staff, and spectators. This type of participation strengthens their self-identity, enhances their self-esteem, and increases the confidence in maintaining a lifestyle that allows them to be contributing members of their community (Stewart & Ellis, 2005, Zajadacz & Śniadek, 2013). Moreover, participation in varieties of sport and competitions offers one of the significant opportunities to deaf people to help them not only to overcome psychological and physical problems, but also to help them increase a subjective quality of life (S-QOL) level.

Sporting activities and exercising are significant factors for a person's development and his/her integration in the society in general. Sport, in this way of meaning, is the phenomenon that influences the society of healthy people as well as people with different kinds of disabilities. The positive effects of sport improve the quality of life (QOL) of healthy individuals and also individuals with different types of disabilities and fulfil all the human needs on the five-stage pyramid of needs (Kamelska & Mazurek, 2015). When the sport behaviour converts into practicing sport activities, then the sport will benefit the physical and psychological health, as it is known (Peráčková & Peráček, 2019). According to Bowling (2005), S-QOL is synonymous with how positive one's life is. Nemček (2016a) found, that D/HH athletes declare significantly higher score of S-QOL level in comparison to athletes with the physical disabilities. She revealed significantly higher satisfaction with all evaluated QOL domains (QOLDs) in D/HH athletes comparing to athletes with the physical disabilities. D/HH athletes in her study reported significantly higher satisfaction with the general health, physical health, mental health and with the environment (Nemček, 2016a).

The objective of the present study was to analyse the position of the sport as a quality of life domain in subjective quality of life in deaf and hard of hearing people with different sport participation level. Furthermore, this study should deepen the knowledge of the position of the sport participation domain among the other quality of life domains within the elite and competitive athletes, recreational athletes and non-athletes who are deaf and hard of hearing.

Methods

Participants and procedure

Three groups of deaf and hard of hearing people (D/HH; n=164) categorised by the level of sport participation were recruited for the study: elite and competitive athletes (ECA; n=30; mean age 22.2±1.8 years), recreational athletes (RA; n=22; mean age 25.2±2.0 years) and non-athletes (NA; n=112; mean age 26.8±1.9 years). Participants were contacted through representatives of national regular/sport organisations/associations all around Slovakia unifying people with special needs. Some questionnaires were sent electronically by representatives of the organisations and some were passed out at the different meetings organised by national organisations. All data were collected for 2019 year's period. All D/HH participants agreed participate in the study and gave their written informed consent. The Ethics Committee of the Faculty of Physical Education and Sports, Comenius University in Bratislava (ref. no. 10/2019) had approved this research.

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The Subjective Quality of Life Analysis (S.QUA.L.A) and The World Health Organisation Quality Of Life (WHOQOL)

S.QUA.L.A. is a multidimensional instrument. This multidimensional self-assessment method was created by Mathieu Zannotti in 1992 (Zannotti & Pringuey, 1992). This scale includes 23 indicators of life (QOLIs). It covers traditional areas (food, family relation etc.) and more abstract aspects of life (politic, justice, freedom, truth, beauty and art, love). We used second part of S.QUA.L.A. where for each QOLI, participants were asked to evaluate their degree of satisfaction using the 5-point rating scale. Score 1 (high satisfaction) meant the highest satisfaction and in the same time the highest level and score 5 (total disappointment) expressed the absolute insignificance of the particular indicator in life. The lower mean point score meant higher satisfaction with particular QOLI. For this study we modified the S.QUA.L.A. questionnaire by including one more indicator/domain "sport participation (SP)". We unified all 24 S.QUA.L.A. QOLIs into five quality of life domains (QOLDs) following WHOQOL (WHO User Manual, 1998): (1) General Health (GH); (2) Physical Health and the Level of Independence (PHLI); (3) Psychological Health and Spirituality (PHS); (4) Social Relationships (SR); (5) Environment (E) and additional Sport Participation (SP) domain. Overall QOL (OQOL) was calculated by summarizing scores of all 24 QOLIs. In this study a Slovak version of the S.QUA.L.A. was used (Nemček et al., 2011).

Data analyses

The program IBM SPSS Statistics version 23.0 was used for data processing. Qualitative variables are presented as proportion (n) and percentage (%). Quantitative variables are presented as mean and standard deviation (±SD). The Kolmogorov-Smirnov test was used to evaluate data normality and non-parametric Wilcoxon Signed Rank Test was used to assess the differences between QOLDs within three groups of D/HH people (ECA, RA and NA). The rate of effect size between the two related samples (QOLDs) was conveyed by means of the coefficient *d* (d>1.30 very large effect size, d=0.50-0.80 large effect size, d=0.20-0.50 medium effect size, d<0.20 - small effect size) proposed by Cohen (1988). The significance level was set at $\alpha \leq 0.05$ (*) and $\alpha \leq 0.01$ (**). In the current study, only one measurement has been made and three main groups of D/HH people according to their sport participation level formed the study.

Results

Observed data of the current study showed almost the same QOLDs' order in the groups of D/HH ECA and RA reported by mean point scores. Both evaluated groups of D/HH people were the most satisfied in their lives with the sport participation (1st place in the order), then with the domain social relations (2nd place in the order), physical health and the level of independence (3rd place in the order) and in the 4th place in the order with the general health. The results further revealed the highest dissatisfaction in life of D/HH people who participate in sport at the elite and competitive level with the domain environment and D/HH people who take part at the sport at recreational level are the most dissatisfied in their lives with the psychological health and spirituality (Table 1). Analysing the position of QOLDs' satisfaction in the group of D/HH NA the results of the present study reported by the mean point scores show the highest satisfaction with the domain social relation (1st place in the order) and in the 2nd place in the order they are the most satisfied in their lives with the physical health and level of independence. Interestingly they reported very high satisfaction with the sport participation (3rd place in the order) even they do not participate in any leisure sport activity. Results further revealed the highest dissatisfaction in the group of NA people with the general health (5th place in the order) together with environment (6th place in the order).

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Table 1. The QOLD's order in QOL of D/HH people according to sport participation level

QOLD's order	Elite and competitive athletes	Recreational athletes	Non-athletes
		(mean ± SD)	
1st	Sport participation (1.767±0.774)	Sport participation (2.091±0.750)	Social relations (1.978±0.463)
2nd	Social relations (1.842±0.605)	Social relations (2.174±0.398)	Physical health and LI (2.398±0.438)
3rd	Physical health and LI (2.000±0.516)	Physical health and LI (2.220±0.369)	Sport participation (2.451±0.748)
4th	General health (2.067±0.828)	General health (2.500±0.673)	Psychological health and S (2.550±0.470)
5th	Psychological health and S (2.090±0.645)	Environment (2.553±0.410)	General health (2.633±0.771)
6th	Environment (2.204±0.535)	Psychological health and S (2.679±0.483)	Environment (2.669±0.486)

Note. Lower mean score indicates higher satisfaction with QOLD.
Source: own study.

Analysing the differences between QOLDs' satisfaction in the group of D/HH ECA were found no significant differences among the first four QOLDs (Table 2). The results of the present study revealed, that D/HH ECA are in their live equally very satisfied with the sport participation, social relations, physical health and the level of independence together with the general health. We found significant differences between the sport participation (QOLD in the 1st place in the order) and the psychological health and spirituality (5th place in the order) at the 5 % of statistical significance (Z=-2.02, p=0.043, d=0.453) and between the sport participation and environment (6th place in the order) at the 1 % of statistical significance (Z=-2.95, p=0.003, d=0.657).

Table 2. Differences between QOLDs in D/HH elite and competitive athletes

QOLDs	GH	PHLI	PHS	SR	E	SP
GH	1	-0.65 0.519	-0.35 0.725	-1.52 0.130	-1.08 0.279	-1.77 0.077
PHLI		1	-1.29 0.196	-1.80 0.071	-2.37* 0.018	-1.55 0.121
PHS			1	-2.09* 0.037	-1.59 0.112	-2.02* 0.043
SR				1	-3.05** 0.002	-0.73 0.464
E					1	-2.95** 0.003

Note. *≤.05, **≤.01 = p-values (statistical significance)
Source: own study.

In comparison of QOLDs' satisfaction in the group of D/HH RA we found no significant differences between the domain sport participation and another two domains in the order (Table 3). The results report the same satisfaction with the sport participation, social relations as well as with the physical health and the level of independence in the group of D/HH RA. Significant differences were found between the domain sport participation (1st domain in the order) and general health domain (4th place in the order) (Z=-2.32, p=0.020, d=0.574) and environment (5th domain in the order) (Z=-2.16, p=0.031, d=0.764) at the 5 % of statistical significance. As the results show, D/HH RA are in their lives the most dissatisfied with the psychological health and spirituality. The satisfaction comparison between the sport participation (1st domain in the order) and the psychological health and spirituality (the last domain in the order) revealed the significant differences at the 1 % of the statistical significance (Z=-2.54, p=0.011, d=0.932).

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Table 3. Differences between QOLDs in D/HH recreational athletes

QOLDs	GH	PHLI	PHS	SR	E	SP
GH	1	-2.00*	-1.41	-2.26*	-0.65	-2.32*
		0.046	0.158	0.024	0.518	0.020
PHLI		1	-3.63**	-0.35	-3.38**	-0.75
			0.000	0.727	0.001	0.453
PHS			1	-3.81**	-1.67	-2.54**
				0.000	0.095	0.011
SR				1	-3.48**	-0.43
					0.001	0.669
E					1	-2.16*
						0.031

Note. *≤.05, **≤.01 = p-values (statistical significance)
Source: own study.

In the group of D/HH NA results revealed the significant differences in satisfaction between the domain social relations (the 1st domain in the order) and the physical health and the level of independence (the 2nd domain in the order) (Z=-7.32, p=0.000, d=0.932). No significant differences were found in satisfaction between the physical health and the level of independence and the sport participation, that means D/HH NA are in their lives equally very satisfied with these two domains even they did not report any participation in the sport leisure activities in the enquiry (Table 4). The results of the present study further revealed the significant differences between satisfaction with the sport participation (the 3rd domain in the order) and the psychological health and spirituality (the 4th domain in the order) (Z=-1.96, p=0.050, d=0.158) as well as between the sport participation and general health domain (5th domain in the order) (Z=-2.30, p=0.021, d=0.240) at the 5 % of statistical significance.

Table 4. Differences between QOLDs' in D/HH non-athletes

QOLDs	GH	PHLI	PHS	SR	E	SP
GH	1	-4.01**	-1.14	-6.94**	-0.42	-2.30*
		0.000	0.255	0.000	0.678	0.021
PHLI		1	-3.82**	-7.32**	-6.90**	-0.54
			0.000	0.000	0.000	0.589
PHS			1	-8.30**	-3.56**	-1.96*
				0.000	0.000	0.050
SR				1	-8.37**	-5.62**
					0.000	0.000
E					1	-4.25**
						0.000

Note. *≤.05, **≤.01 = p-values (statistical significance)
Source: own study

Discussion

The objective of the present study was to analyse the position of the sport in subjective quality of life in deaf and hard of hearing people with the different sport participation level. Furthermore, this study should deepen the knowledge of the position of sport participation among the other quality of life domains within elite and competitive athletes, recreational athletes and non-athletes who are deaf and hard of hearing. We found that ECA who are D/HH are in their lives equally the most satisfied with sport participation, social relations, physical health and level of independence together with general health. RA who are D/HH reported the highest satisfaction with the sport participation, social relations and with the physical health and the level of independence. As the study's results showed, position of sport is in ECA and RA lives is the priority number one as well as the satisfaction with the other QOLDs like the social relations, physical health and the level of

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independence. Athletes in general, experience plenty of emotions in the elite, competitve and recreational sports environment such as winning, losing, struggle, ambition, happiness, unhappiness and competition, that can positively affect the subjective QOL. The study of Proios (2020) argued that sports of people with disabilities are a self-motivation act. Nemček, Kraček & Peráčková (2017) in their study found significantly higher S-QOL in groups of ECA and RA comparing NA without health status differentiation. No significant differences in S-QOL were found between ECA versus RA. Atheletes, no matter if they are ECA or RA, are more resistant to stress and have higher levels of active adaptation, social competence, communication and problem solving skills (Özdemir, 2019). At the same time, they are more target-oriented individuals with optimistic future perceptions and positive self-perception. Their sense of humour and empathy skills are extremely improved (Yılmaz & Sipahioğlu, 2012). These factors significantly increase S-QOL level not only in healthy athletes but also in athletes who are D/HH (Nemček, 2017).

Even the results of the present study declare high satisfaction with the sport participation in D/HH people who paradoxically do not participate in any sport leisure activities, there are some investigations that confirm significantly higher level of S-QOL in actively living D/HH people compare inactive D/HH individuals. Nemček (2016b) found significantly higher satisfaction with general health, physical and psychological health as well as with environment in D/HH people who are regularly participating in sport leisure activities comparing sedentary living D/HH people. Therefore, society has to incorporate hearing-impaired individuals in sports and recreation activities because this helps these individuals to develop healthier lifestyles in the course of time (Stewart & Ellis, 2005). Participation in activities and sports helps individuals to understand and establish communication with their environment. Participation in the sports activities has a prominent place in the Deaf community, with participants experiencing benefits not only in the physical sense but in other personal dimensions (Stewart, 1991).

We can further discuss, why NA deaf people expressed high satisfaction in their lives within the domain sport participation even they do not participate in any sport leisure activity. Probably the reason was the lack of sign language usage while completing an enquire. It is well documented in the literature that deaf people who embrace sign language have a different language and a different culture (Ammons 1990; Stewart 1991). Their hearing loss may not be obvious to hearing individuals when they first encounter them, but both the deaf and the hearing person typically experience major difficulties when they attempt to communicate. It is the only “disability” that hearing people can be as disabled as those who are deaf. One can assist a blind person when crossing the street or offer to push a wheelchair uphill. However, if the hearing individual does not know sign language, he or she is as disabled as deaf individual who does not use speech to communicate. The communication breakdown occurs because both individuals lack a specific skill set (Kurková & Scheetz, 2016).

The present study confirms, that position of sport, as the priority number one in the lives of the elite, competitive and recreational D/HH people play a crucial role in S-QOL. Sporting activities provide occasion to meet values and needs of an able-bodied as well as deaf individuals. The thoughts of noted that, if they accept that exercise is a key part of the sport and that mental well-being is a key part of quality of life, then it can be argued that sport has a role to play in the concept of quality of life (Galloway et al, 2006). Inclusive participation in regular sport activity of the deaf people together with able-bodied athletes can help to D/HH better understand the communication of hearing population. Integration of deaf athletes in the system of training and mainstream competition with normal hearing athletes helps them to raise their quality of training and preparation for national and international competitions of deaf, but also allows them to evaluate their current achievements with others throughout the season (Vuljanić, Tišma & Miholić, 2017).

Conclusion

The highest position of the sport participation domain, as the priority number one, showed elite and competitive D/HH athlete as well as recreational D/HH athletes. QOL-D social relations took the highest position in the S-

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QOL in the group of D/HH NA. An inclusive participation in sport of children who are D/HH together with able-bodied peers is recommended to not stay inactive for later life even if there is lack of sports clubs for the deaf people in their home surrounding. Parents of deaf children are responsible for the choice of sports leisure activities not only to maintain their children's health to later life or acquire basic motor skills but, first, maintain lifelong physical activities and sport of their children. If there are lack of sport clubs unifying deaf minority population, early integration of deaf children into sports clubs with able-bodied peers can help them to better understand mutual communication. In later life they will not have big problems to participate in regular physical activity or sport together with healthy people. Starting and continuing with the appropriate compulsory and extracurricular physical and sporting activities during the whole childhood should to use physical and sporting activities to become the habits of exercising and should last for the whole life long because of the premise: when you are used to exercise and adapted for doing it as a young person, it is easier to continue with it during adulthood. This phenomenon can significantly increase the subjective quality of life of the deaf and hard of hearing minority population through all QOLDs' satisfaction.

Ethics approval and informed consent

The study was approved by the Ethics Committee of the Faculty of Physical Education and Sports, Comenius University in Bratislava, Slovakia (ref. no. 10/2019). Informed consent to participate was obtained for the study contents, purposes, and protocols, data confidentiality and anonymity procedures, and participants' freedom to discontinue the study had been explained. All subjects signed informed consent before the enrolment.

Competing interests

There are no conflicts of interest associated with this manuscript, financial or otherwise.

Funding and Acknowledgments

This scientific research was supported by the grant project of the Ministry of Education, Science, Research and Sport of the Slovak Republic VEGA No. 1/0409/19.

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Received: 29 November 2019; Accepted: 24 February 2020

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