



PHYSICAL ACTIVITY AS AN IMPORTANT FACTOR INFLUENCING THE QUALITY OF LIFE IN ADULTS WITH VISUAL IMPAIRMENT

TJELESNA AKTIVNOST KAO VAŽAN FAKTOR UTJECAJA NA KVALITETU ŽIVOTA KOD ODRASLIH OSOBA S OŠTEĆENJEM VIDA

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ABSTRACT

Visual impairment significantly affects the quality of life of individuals who experience it, limiting their daily activities, social interactions, and emotional well-being. Physical activity is often cited as an important factor in improving quality of life, but its relationship with individuals with visual impairment has not been sufficiently explored. This study aimed to examine the importance of physical activity on the quality of life in adults with visual impairment. The research was conducted on a sample of 160 adults with visual impairment from Zagreb and the Zagreb County. Data were collected using the International Physical Activity Questionnaire (IPAQ) and the Impact of Vision Impairment (IVI) questionnaire. Statistical analysis included correlation and regression methods to determine the relationship between variables. The study found a significant association between physical activity and quality of life in adults with visual impairment. Moderate physical activities, particularly those related to household tasks and work, were positively associated with emotional well-being and the independence of participants. On the other hand, increased sedentary behavior and limited mobility negatively affected perceived quality of life. Physical activity plays a key role in improving the quality of life of adults with visual impairment. Promoting adapted forms of physical activity could contribute to greater independence and psychological well-being in this population.

Key words: physical activity, quality of life, visual impairment.

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SAŽETAK

Oštećenje vida značajno utječe na kvalitetu života osoba koje ga imaju, ograničavajući njihove svakodnevne aktivnosti, socijalne interakcije i emocionalno blagostanje. Tjelesna aktivnost se često navodi kao važan faktor u poboljšanju kvalitete života, ali njezina povezanost s osobama s oštećenjem vida nije dovoljno istražena. Istraživanjem se ispitala važnost tjelesnih aktivnosti na kvalitetu života odraslih osoba s oštećenjem vida. Istraživanje je provedeno na uzorku od 160 odraslih osoba s oštećenjem vida iz Zagreba i Zagrebačke županije. Podaci su prikupljeni pomoću Međunarodnog upitnika o razini tjelesne aktivnosti (IPAQ) i Upitnika za procjenu kvalitete života osoba oštećenog vida (IVI). Statistička analiza uključivala je korelacijske i regresijske metode za utvrđivanje povezanosti između varijabli. Istraživanjem se pokazalo da postoji značajna povezanost između tjelesne aktivnosti i kvalitete života odraslih osoba s oštećenjem vida. Umjerene tjelesne aktivnosti, posebice one vezane za kućanstvo i posao, pozitivno su povezane s emocionalnim blagostanjem i samostalnošću ispitanika. S druge strane, povećana sedentarnost i ograničene mogućnosti kretanja negativno utječu na percipiranu kvalitetu života. Tjelesna aktivnost igra ključnu ulogu u poboljšanju kvalitete života odraslih osoba s oštećenjem vida. Promicanje prilagođenih oblika tjelesne aktivnosti moglo bi doprinijeti njihovoj većoj samostalnosti i psihološkom blagostanju.

Ključne riječi: tjelesna aktivnost, kvaliteta života, oštećenje vida.

INTRODUCTION

When research focuses on the quality of life of people with disabilities, numerous results indicate a reduced quality of life. In a study conducted in the Republic of Croatia (Vuletić et al., 2016), the results showed that the type and duration of impairment, as well as participation in psychosocial rehabilitation, are important indicators of the subjective perception of quality of life among visually impaired individuals. With the help and support of other family members, blind or visually impaired individuals can remain independent, perform certain activities, or engage in hobbies (Šućur, 1999). In cases of glaucoma, a lower socioeconomic status, lower education level, and lack of awareness about the nature of the disease negatively affect patients' quality of life (Pelčić, 2011).

In a study conducted by La Grow and colleagues, the aim was to determine the scope of factors associated with quality of life in older adults with visual impairments and their impact on the subjective (perceived) experience of quality of life. This longitudinal study included a sample of 2,252 individuals aged 52–57. The sample was divided into those who had difficulty reading newspapers (N=256) and those who did not (N=1987), and they were compared across 11 variables presumed to influence quality of life and their responses at a single point—perceived quality of life. The results revealed significant differences between the groups in the variable of quality of life perception and seven other variables. Of these, three had a significant and unique contribution to predicting perceived quality of life: life satisfaction, spatial orientation ability, and the number of diagnosed health conditions (La Grow et al., 2010).

A key feature of the rehabilitation process for people with visual impairments is achieving greater independence; therefore, support is provided to help them learn to use adaptive devices and techniques. The use of adaptive devices and techniques facilitates participation in their community and engagement in physical activities. Stelmack conducted a case study that reviewed research from 1990 to 2000 on the impact of visual impairment on daily life and quality of life. Her study provides an overview of instruments used to assess quality of life in the context of visual impairment. The study examined responses to two questions: whether decreased vision affects quality of life and whether quality of life improves after rehabilitation. It was found that visual impairment significantly reduces functional status and subjective perception of quality of life. Furthermore, subjective reporting on quality of life is crucial for the rehabilitation of visually impaired individuals, as rehabilitation is associated with a more positive subjective perception of quality of life (Stelmack, 2001).

In recent years, the assessment of health and eye care has significantly focused on health-related quality of life as an outcome of rehabilitation. Numerous studies show that visual impairment negatively impacts functioning and quality of life. Similarly, interventions that improve visual function, such as cataract surgery, enhance health-related quality of life. A total of 206 legally blind American veterans were assessed using NEI VFQ, SF-12, Hope Scale, and Coopersmith questionnaires before entering a rehabilitation program and at two and six months after completing rehabilitation. Following rehabilitation, significant improvements were observed in nine out of eleven NEI VFQ subscales related to functional vision, including color vision, distance vision, near vision, dependency, general health, general vision, mental health, role difficulties, and social functioning. There were also significant improvements in general mental health and self-esteem among participants (Kuyk et al., 2008).

In southern India, specifically in the Andhra Pradesh region, a study aimed to determine the impact of visual impairment and eye disease on the quality of life of individuals aged over 40. A modified version of the Health-related Quality of Life instrument was used. Psychometric characteristics of the HRQOL instrument were assessed, focusing on the relationship between overall quality of life scores and visual acuity in the better eye, specific eye diseases, and demographic variables. The results showed significantly lower quality of life in blind individuals; those with glaucoma and corneal damage had lower scores regardless of visual acuity compared to individuals without such impairments. Participants with cataracts and retinal damage also had significantly lower scores than those without these conditions, regardless of visual acuity, but not when visual acuity was considered. The authors concluded that reduced quality of life is associated with the presence of glaucoma or corneal damage regardless of visual acuity, and with cataracts or retinal damage when visual acuity is considered. Visual impairments caused by uncorrected refractive errors were not associated with reduced quality of life (Nutheti et al., 2006).

In a study conducted by Lamoureux, the goal was to determine the relationship between the extent of farsightedness and nearsightedness and quality of life and depression in residents of a nursing home. Participants were assessed in terms of cognition, farsightedness and nearsightedness, and depression. Subscales from the Nursing Home Vision-Targeted Health-Related Quality-of-Life questionnaire were used. A total of 76 participants with an average

age of 84 were examined. In the linear regression model, visual impairment was associated with lower quality of life scores on seven of the eight NHVQoL test subscales. On average, individuals with vision loss had poorer quality of life scores than those without visual impairments. The areas most affected by vision loss were general vision, reading, hobbies, emotional well-being, and social interactions.

The main aim of this research is to determine the importance of physical activity for the quality of life of adults with visual impairments.

Hypotheses

H1: There is a significant relationship between physical activity and quality of life in adults with visual impairments.

H1.1: Physical activity at work is associated with the quality of life of adults with visual impairments.

H1.2: Physical activity during transportation is associated with the quality of life of adults with visual impairments.

H1.3: Physical activity in the domain of household tasks, house maintenance, and family care is associated with the quality of life of adults with visual impairments.

H1.4: Physical activity in the domain of recreation, sports, and leisure time is associated with the quality of life of adults with visual impairments.

MATERIAL AND METHODS

Participants

According to the Registry of Persons with Disabilities, parameters are recorded for 12% of the total population, of which 17,750 have vision impairment as the cause of disability. The largest number includes working-age individuals (8,285) and those aged 65 and over (8,078). It is important to note that, according to estimates by the Croatian Blind Union, about 5,800 blind individuals are not registered in the official registry. Due to limited time and financial resources, the sample included only persons from the City of Zagreb and Zagreb County. In addition to visual impairment and geographical location, chronological age was a set criterion, so the research was conducted on a sample of 160 visually impaired individuals of both sexes aged 20 and over.

Method of conducting research

Two measurement instruments in the form of questionnaires were selected for data collection. It was planned that the survey would be conducted using these instruments through interviews, and in cases where this was not objectively possible, the telephone interview method was used (both instruments allow for this method). There were three attempts made to contact each participant. If the interviewer failed to establish contact in any of the three attempts, they would abandon that participant. The average time for completing the questionnaire was about 45 minutes. If a participant became fatigued during the interview, they were allowed to complete the questionnaire at another time.

Measuring instrument

Two measurement instruments were used in the study:

1. The International Physical Activity Questionnaires (IPAQ), standardized for the Croatian population (Craig et al., 2003; Brown et al., 2004; Hallal & Victora, 2004; Jurakić et al., 2009).
2. The Impact of Vision Impairment Profile (IVI) questionnaire (Weih, Hassell, Keeffe, 2001).

The International Physical Activity Questionnaire (IPAQ) includes a set of four questionnaires. It can be used in both long and short forms. The long form includes individual questions across five domains of activity, while the short form consists of four general items. The long format will be used to self-report physical activities over the past seven days. The questionnaire is used to provide standardized measures that can be used to obtain internationally comparable data on health-related physical activity. It examines types of physical activities carried out as part of daily life. Questions cover the time spent in physical activity in the last seven days from the day of the survey and are divided into the following areas: physical activity at work; physical activity in transportation; household chores, house maintenance and family care; recreation, sport and leisure-time physical activity; and time spent sitting.

The Impact of Vision Impairment Profile (IVI) questionnaire consists of 28 items measuring the impact of vision impairment on the restriction of participation in everyday activities across three domains of functioning: reading and accessing information; mobility and independence; and emotional well-being. Each item is rated on a five-point scale, from "most of the time" to "not at all." This questionnaire assesses participation in daily activities and determines how rehabilitation affects the quality of life of visually impaired individuals.

Statistical Analysis

Statistical analysis was conducted using the STATISTICA software version 14 (Cloud Software Group, Inc., 2023) and MedCalc version 23 (MedCalc Software Ltd.). Categorical variables were presented as numbers and percentages (%), while continuous variables were presented as median, range, and interquartile range (IQR), after normality of distribution was tested using the Kolmogorov-Smirnov test. Univariate associations between the IVI questionnaire domains and demographic characteristics of the participants and IPAQ results were tested using Spearman's rank correlation. Multivariate associations were analyzed using stepwise multiple regression, including variance inflation factor (VIF) to avoid collinearity, considering only variables with $1 < \text{VIF} < 5$. The model was tested for residual normality using the Shapiro-Wilk test, and all tested models showed normality. A $p\text{-value} < 0.05$ was considered statistically significant.

RESULTS

Table 1 presents the demographic characteristics of the participants (N=160).

Table 1. Demographic characteristics related to age, gender, employment status, marital status, place of residence, time of vision impairment onset, education level, and use of aids (N=160).

Age Group (years):	N	%
20 - 35	82	51.20%
36 - 55	31	19.40%
56 - 65	47	29.40%
Gender:		
Male	99	61.90%
Female	61	38.10%
Employment Status:		
Unemployed	37	23.10%
Student	20	12.50%
Employed	89	55.60%
Retired	14	8.80%
Marital Status:		
Ne	89	55.60%
Da	71	44.40%
Place of Residence:		
Village	21	13.10%
City	139	86.90%
Onset of Visual Impairment:		
Acquired	142	88.70%
Congenital	18	11.30%
Education Level :		
Secondary school or lower	75	46.90%
Undergraduate degree	55	34.40%
Graduate degree	30	18.80%
Use of Aids		
Assistive technology	62	38.70%
No aids	88	55.00%
Sighted guide	10	6.20%

From Table 1, it is evident that a total of 160 participants were included, the majority of whom (51.20%) belong to the youngest age group (20–35 years). Two-thirds of them are male, and most are employed (55.60%). Nearly half of the respondents (44.40%) are married, while a large majority (86.90%) live in urban areas and have acquired visual impairments (88.70%). Just over half of the participants have completed an undergraduate or graduate degree (53.19%), and do not use assistive devices (55.00%).

Table 2 presents the results of the IPAQ and IVI questionnaire assessments (N=160). None of the variables followed a normal distribution ($p < 0.001$), so they are presented using median, range (minimum and maximum), and interquartile range (IQR – 25th and 75th percentiles). IPAQ results are expressed in hours of activity per week or over the evaluated period (sitting on weekdays = 5 days; sitting on weekends = 2 days).

From Table 2, it is evident that the median for most physical activities is 0 hours per week, except for sitting, which occurs more frequently than all other activities combined. It is also noticeable that some participants were significantly more active than others (i.e., >100 hours per week).

Table 2. Presentation of results (median, range, and IQR) of the IPAQ questionnaire and the IVI questionnaire by domain (N=160)

IPAQ	Minimum	Maximum	Median	25th percentile	75th. percentile
Work–High Intensity Activity	0.00	72.33	0.00	0.00	0.00
Work – Moderate Activity	0.00	100.33	0.00	0.00	24.25
Work – Walking	0.00	126.00	0.00	0.00	0.00
Household – Vigorous Activity	0.00	15.83	0.00	0.00	0.00
Household – Moderate Activity	0.00	23.00	2.33	1.00	7.00
Household – Indoor Tasks	0.00	26.00	1.00	0.00	6.00
Recreation & Sport – High Intensity	0.00	40.00	0.00	0.00	0.00
Recreation & Sport – Moderate Activity	0.00	58.00	0.00	0.00	1.92
Recreation & Sport – Walking	0.00	98.00	8.75	3.50	22.75
Transport – Cycling	0.00	56.00	0.00	0.00	0.00
Transport – Walking	0.00	44.33	9.83	0.75	16.50
Transport – Motor Vehicle	0.00	63.00	14.50	3.75	25.00
Sitting on Weekdays	0.83	62.08	33.33	21.67	50.00
Sitting on Weekends	2.50	24.00	15.00	10.33	16.67
Total Sitting Time	7.50	86.08	52.58	34.00	70.00
IVI					
Reading and Access to Information	0.44	3.00	1.78	1.44	2.78
Emotional Well-being	0.00	3.00	2.00	1.75	3.00
Mobility and Independence	0.91	3.00	2.36	1.82	3.00

Table 2 also shows that vision generally did not significantly affect the three examined domains (Reading and Access to Information, Emotional Well-being, Mobility and Independence), as most responses were above the median of 2 (little or none). The greatest impact was found in the domain of Reading and Access to Information (Median=1.78), and

the least in the domain of Mobility and Independence (Median=2.36). All three domains were significantly interrelated (Table 3) ($r=0.66 - 0.86$; $p<0.001$ for all).

Table 3. Interrelation of IVI questionnaire domains

Variable	Mobility and Independence	Emotional Well-being
Emotional Well-being	0.758 $p<0.0001$	
Reading and Access to Information	0.857 $p<0.0001$	0.66 $p<0.0001$

Table 4 presents the results of the correlation between the IVI questionnaire domains and the demographic characteristics of the respondents, as well as the IPAQ questionnaire results (Spearman's rank correlation, $N=160$).

Table 4. Correlation of IVI questionnaire domains with Demographic characteristics of respondents and IPAQ questionnaire results (Spearman's Rank Correlation, $N=160$)

Variables	Mobility and Independence	Emotional Well-being	Reading and Access to Information
Age	-0.498 (<0.0001)	-0.401 (<0.0001)	-0.26 (0.0009)
Sex	0.277 (0.0004)	0.315 (<0.0001)	0.104 (0.1907)
Employment status	-0.175 (0.0265)	-0.251 (0.0014)	-0.164 (0.0385)
Marital status	-0.552 (<0.0001)	-0.46 (<0.0001)	-0.377 (<0.0001)
Place of residence	0.168 (0.0338)	0.131 (0.0994)	0.143 (0.0714)
Time since onset of impairment	-0.154 (0.0512)	-0.159 (.00446)	0.044 (.05788)
Education level	0.174 (0.0278)	0.222 (0.0047)	0.2431 (0.2431)
Use of assistive devices	-0.234 (0.0029)	-0.303 (0.0001)	-0.233 (0.0030)
Work – high level of activity	-0.296 (0.0001)	-0.216 (0.0060)	-0.307 (0.0001)
Work – moderate activity	0.376 (<0.0001)	0.286 (0.0003)	0.251 (0.0014)
Work – walking	0.169 (0.0323)	0.184 (0.0198)	0.101 (.02044)
Household chores – vigorous activities	-0.312 (0.0001)	-0.053 (0.5053)	-0.325 (<0.0001)
Household chores – moderate activities	0.235 (0.0027)	0.061 (0.4472)	0.253 (0.0012)
Household chores – indoor tasks	0.092 (0.2495)	0.337 (<0.0001)	0.16 (0.0426)
Recreation and sports – high level of activity	-0.053 (0.5050)	0.126 (0.1122)	0.177 (0.0251)
Recreation and sports – moderate activity	-0.122 (0.1236)	0.098 (.02156)	0.049 (0.5374)
Recreation and sports – walking	0.094 (0.2346)	0.176 (0.0260)	0.068 (.03949)
Transportation – cycling	0.036 (0.6526)	0.266 (0.0007)	0.086 (0.2816)
Transportation – walking	-0.288 (0.0002)	-0.25 (0.0015)	-0.452 (<0.0001)
Transportation – motor vehicle	0.239 (0.0023)	0.173 (0.0288)	0.152 (0.0552)
Sitting on weekdays	-0.125 (0.1152)	-0.23 (0.0034)	-0.123 (0.1227)
Sitting on weekends	0.2926 (0.0970)	-0.132 (0.0970)	-0.096 (0.2262)
Total sitting time	-0.071 (0.3702)	-0.231 (0.0033)	-0.124 (0.1194)

Table 5. Results of the multivariate regression analysis for the IVI questionnaire domain: Mobility and Independence (N = 160)

Independent variables	Coef.	SE	95% CI	t	p
Constant	2.109	0.270	1.576 to 2.641	7.826	<0.0001
Marital status	-0.460	0.075	-0.607 to -0.312	-6.150	<0.0001
Place of residence	0.270	0.096	0.079 to 0.460	2.800	0.0058
Time since onset of impairment	-0.409	0.109	-0.624 to -0.194	-3.753	0.0002
Sex	0.192	0.071	0.052 to 0.332	2.709	0.0075
Household chores – moderate activities	0.035	0.007	0.021 to 0.048	5.155	<0.0001
Work – moderate activity	0.005	0.002	0.002 to 0.008	3.058	0.0026
Transportation – cycling	0.011	0.004	0.003 to 0.019	2.731	0.0071
Transportation – walking	-0.019	0.004	-0.027 to -0.012	-4.982	<0.0001
Recreation and sports – moderate activity	-0.008	0.004	-0.015 to -0.001	-2.156	0.0327

Table 5 shows that there is an independently statistically significant negative association between the IVI questionnaire domain "Mobility and Independence" and marital status, time since onset of impairment, walking as a form of transportation, and moderate physical activity in sports and recreation. Additionally, there is an independently statistically significant positive association with place of residence, sex, moderate household chores, moderate work activity, and cycling as a form of transportation ($p < 0.05$ for all). The coefficient of determination for the model is 0.565 ($p < 0.0001$).

Table 6. Results of the multivariate regression analysis for the IVI questionnaire domain: Emotional well-being (N = 160)

Independent variables	Coef.	SE	95% CI	t	p
Constant	2.584	0.227	2.136 to 3.031	11.404	<0.0001
Marital status	-0.506	0.079	-0.662 to -0.351	-6.443	<0.0001
Education level	0.120	0.057	0.007 to 0.232	2.105	0.037
Time since onset of impairment	-0.488	0.126	-0.737 to -0.240	-3.882	0.0002
Employment status	-0.107	0.042	-0.191 to -0.023	-2.513	0.013
Sex	0.256	0.080	0.097 to 0.415	3.176	0.0018
Household chores – moderate activities	0.043	0.009	0.025 to 0.061	4.705	<0.0001
Household chores – vigorous activities	-0.062	0.020	-0.102 to -0.023	-3.131	0.0021
Work – walking	0.004	0.002	0.0004 to 0.008	2.166	0.0319
Transportation – cycling	0.018	0.005	0.008 to 0.028	3.664	0.0003
Transportation – walking	-0.018	0.004	-0.027 to -0.009	-4.103	0.0001

Table 6 shows that there is an independently statistically significant negative association between the IVI questionnaire domain "Emotional Well-being" and marital status, time since onset of impairment, employment status, vigorous household chores, and walking as a form of transportation. Additionally, there is an independently statistically significant positive association with education level, sex, moderate household chores, walking at work, and cycling as a form of transportation ($p < 0.05$ for all). The coefficient of determination for the model is 0.538 ($p < 0.0001$).

Table 7. Results of the multivariate regression analysis for the IVI questionnaire domain: Reading and Access to Information (N = 160)

Independent variables	Coef.	SE	95% CI	t	p
Constant	1.302	0.306	0.698 to 1.906	4.258	<0.0001
Marital status	-0.602	0.090	-0.780 to -0.424	-6.684	<0.0001
Place of residence	0.325	0.135	0.058 to 0.5910	2.411	0.0171
Employment status	0.148	0.052	0.045 to 0.252	2.837	0.0052
Household chores – moderate activities	0.028	0.010	0.009 to 0.047	2.872	0.0047
Work – walking	0.006	0.002	0.001 to 0.010	2.460	0.015
Transportation – cycling	0.017	0.005	0.007 to 0.028	3.239	0.0015
Transportation – walking	-0.028	0.006	-0.039 to -0.017	-5.074	<0.0001
Recreation and sports – moderate activity	-0.019	0.006	-0.031 to -0.009	-3.518	0.0006
Recreation and sports – high level of activity	0.025	0.006	0.012 to 0.037	3.883	0.0002

Table 7 shows that there is an independently statistically significant negative association between the IVI questionnaire domain "Reading and Access to Information" and marital status, walking as a form of transportation, and moderate activity in sports and recreation. Additionally, there is an independently statistically significant positive association with place of residence, employment status, moderate household chores, walking at work, cycling as a form of transportation, and high-level activity in sports and recreation ($p < 0.05$ for all). The coefficient of determination for the model is 0.468 ($p < 0.0001$).

DISCUSSION

The results of this study indicated a significant association between various forms of physical activity and the quality of life among adults with visual impairment. It was found that moderate physical activities, especially those related to household chores and employment, were positively associated with the emotional well-being and independence of the participants. These findings are consistent with previous research showing that physical activity can improve general health, functional independence, and psychological well-being in people with disabilities (La Grow et al., 2010; Stelmack, 2001).

On the other hand, the results showed that increased sedentary behavior and reduced mobility negatively affected perceived quality of life. Individuals who spent most of the day sitting or had limited mobility reported lower levels of emotional well-being and independence. These results point to the need for additional strategies to encourage higher levels of physical activity among people with visual impairments, particularly through adapted sports and recreational programs.

Interestingly, individuals who used bicycles as a means of transportation reported higher levels of independence and better emotional well-being. This may suggest that using alternative forms of mobility, despite challenges, can positively contribute to quality of life. Additionally, a significant association was observed between education level and quality of

life, supporting the notion that education plays a key role in empowering people with disabilities and enhancing their ability to cope with daily challenges.

One of the main limitations of this study is the geographical restriction of the sample, as participants were exclusively from Zagreb and the Zagreb County. Furthermore, data were collected through self-reporting, which may introduce subjective bias in reporting personal activity levels and quality of life. Future studies should include a larger and more diverse sample, as well as employ more objective methods of measuring physical activity, such as pedometers or accelerometers.

Despite these limitations, this study contributes to a better understanding of the impact of physical activity on the quality of life of people with visual impairments. The findings highlight the need to promote adapted physical activities and rehabilitation programs that improve not only physical but also mental health in this population. Implementing such programs could significantly enhance independence, reduce social isolation, and improve overall life satisfaction among individuals with visual impairments

CONCLUSION

Based on the conducted research, it can be concluded that physical activity has a significant impact on the quality of life of adults with visual impairments. Activities that promote movement and independence, particularly those of moderate intensity, can contribute to improved emotional well-being and functional independence among participants. Conversely, low levels of physical activity and a sedentary lifestyle are associated with lower life satisfaction and greater dependence on others.

These findings highlight the importance of incorporating adapted forms of physical activity into rehabilitation and healthcare programs for individuals with visual impairments. In the future, strategies should be developed and encouraged that enable easier access to sports and recreational activities for visually impaired individuals, thereby improving their overall quality of life and reducing social isolation.

Further research involving larger and more diverse samples, as well as the use of objective measurement tools for assessing physical activity, could provide deeper insights into this issue. Integrating the acquired knowledge into public health policies and strategies could contribute, in the long term, to better integration and improved quality of life for people with visual impairments.

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