

The Relationship between the Mental Health of Visually Impaired Students and Sports Activities in Schools

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Abstract

The purpose of this study was to clarify the mental health status of visually impaired students and to identify the relationship between their mental health and their sports activities while attending junior high school, high school, and college. The main findings were as follows:

1. The mental health conditions of visually impaired students differ according to their degree of disability; the students who are blind had poorer mental health than those with low vision.
2. Students who participated in extracurricular sports activities in junior high and high school had better mental health than those who did not, and visually impaired students' experiences of extracurricular sports activities appeared to have positive effects on their mental health.

Key words: visually impaired students, mental health, sports activities

Introduction

In recent years, there has been a sharp increase in the number of college students with disabilities, which surpassed 10,000 in 2011.³⁾ In response to these circumstances, the Japanese Ministry of Education, Culture, Sports, Science and Technology established the "Committee on Academic Support for Students with Disabilities" and, in its first summary, stressed the necessity of providing academic support for students with disabilities as well as caring for their mental health and health conditions.⁶⁾ Therefore, providing support to improve the mental and physical health of students with disabilities has been recognized as an important issue.

However, little is known about the actual mental health of students with disabilities. Likewise, although engaging in sports activities is known to be an effective way to maintain and improve people's mental health, there has been little examination of how the mental health of students with disabilities is related to sports participation.

This study was therefore conducted on visually impaired students for the purpose of clarifying the state of their mental health and the relation of sports activities in junior high school, high school, and college to their

mental health.

Method

1. Survey Participants and Method

At a university in Ibaraki prefecture, anonymous self-administered surveys were conducted in July 2013 and July 2014 among 108 freshmen, sophomores, and juniors who are visually impaired, and 101 respondents who answered all the questions were selected for analysis (the valid response ratio was 93.5%). Since the respondents were visually impaired, the questionnaire was prepared in multiple forms: three different character sizes (regular-sized characters and two kinds of enlarged characters), a Braille version, a DAISY (Digital Accessible Information System) version, and an online version. Each respondent was asked to answer the questions after choosing the most convenient format from these options.

2. Survey Items

The survey covered four areas: (1) mental health (using the K6 scale), (2) demographic characteristics, (3) current participation in extracurricular sports activities and prior participation while in junior high and high

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school, and (4) social support.

(1) Mental health (K6 Scale): The Japanese version of the K6 questionnaire²⁾ was used. A score of 0–4 was applied to each of six items, resulting in a total score ranging from 0–24. The K6 test was developed to identify anxiety and mood disorders. Higher total scores indicate a greater likelihood of anxiety and mood disorders, and respondents with scores of 9 or higher are thought to have a tendency toward depression. The alpha coefficient for this survey's respondents was .89.

(2) Demographic characteristics: Questions included the respondents' age, gender, visual impairment status (blind or low vision), and the classification of the junior high and high schools from which they graduated (i.e., special needs schools for the visually impaired or general schools).

(3) Extracurricular sports activity status: Questions were asked about the respondents' participation in extracurricular sports activities in junior high school, high school, and college.

(4) Social support: The Brief Scale of Social Support for Junior High School Students⁷⁾ was used. This scale consists of five items related to emotional, instrumental, and practical support. Family members, friends, and teachers were specified as three sources of support, and the same questions were asked about each of these sources. A score ranging from 1–4 was given to each answer, resulting in a total score between 5–20 for each support source. Higher scores indicate greater awareness of support. The Cronbach's alpha coefficients for this study's respondents were .80 (family member support), .87 (friend support), and .91 (teacher support).

3. Data Analysis

First, the difference in K6 scores among the subgroups classified by demographic characteristics (gender, degree of disability, and classification of junior high and high schools) as well as extracurricular sports activity status in junior high school, high school, and college were analyzed using the Mann–Whitney U test. The relationship between K6 scores and social support was analyzed by calculating Spearman's rank correlation coefficient.

Second, a two-way factorial analysis of variance was conducted after setting K6 scores as dependent variables and the items which were found to be significantly related to K6 scores in the above analyses.

IBM SPSS software version 19.0J for Windows was

used for statistical processing, and significance was defined at the 0.05 level.

4. Ethical Considerations

The survey was approved in advance by the Research Ethics Committee of the Faculty of Health and Sport Sciences of the University of Tsukuba.

Before this survey, some explanations were given to each respondent clearly on the front page of each questionnaire and also orally by the persons conducted the survey. The explanations include: the purpose of the study, the protection of privacy, and the other policies of this survey that we respect the respondent's free will, that the respondent can refuse to answer or stop answering questions at any point, and that the submission of a questionnaire is regarded as consent to participate in the survey.

Results

1. Demographic Characteristics of Respondents, Extracurricular Sports Activity Status, K6 Scores, and Social Support Scores

The average age of the respondents was 19.6 years ($SD = 1.6$; range: 18–24). The respondents consisted of 78 men (77.2%) and 23 women (22.8%). With regard to the degree of disability, 78 (77.2%) were students with low vision and 23 (22.8%) were blind. As for their junior high and high schools, 52 (51.5%) graduated from general schools and 49 (48.5%) graduated from special needs schools for the visually impaired. With respect to extracurricular sports activity status, 57 (56.4%) had participated in such activities in junior high and high schools and 44 (43.6%) had not; 40 (39.6%) participated in sports at college and 61 (60.4%) did not (Table 1). Additionally, there were no gender differences in terms of the degree of disability, the ratio in the classification of junior high and high schools, or extracurricular sports activity status, and there were no differences in terms of extracurricular sports activity status between respondents who graduated from different types of schools.

The average K6 score of all respondents was 7.8 ($SD = 6.1$) (Table 1), and 42 (41.6%) received a score of 9 or higher.

The average social support scores for family member support, friend support, and teacher support were 13.6 ($SD = 3.3$), 14.6 ($SD = 3.5$), and 13.3 ($SD = 3.9$), respectively (Table 2).

Table 1 Participants' demographic characteristics, extracurricular sports activity status and K6 scores

		n	(%)	K6 score		Test*
				Average	SD	
Total		101	(100)	7.8	6.1	
Gender	Males	78	(77.2)	8.1	6.5	$p = .763$
	Females	23	(22.8)	6.9	4.7	
Degree of disability	Low vision	78	(77.2)	7.1	5.9	$p = .042$
	Blind	23	(22.8)	10.4	6.0	
Junior high and high schools	General schools	52	(51.5)	6.7	5.8	$p = .119$
	Special needs schools for the visually impaired	49	(48.5)	9	6.3	
Participation in extracurricular sports activities						
Junior high schools and high schools	Yes	57	(56.4)	6.3	5.8	$p = .013$
	No	44	(43.6)	9.8	6.2	
Colleges	Yes	40	(39.6)	7.3	6.6	$p = .408$
	No	61	(60.4)	8.2	5.9	

*Mann-Whitney U test

Table 2 Social support score

	Average	SD
Family members	13.6	3.3
Friends	14.6	3.5
Teachers	13.3	3.9

(N = 101)

2. Relationships between K6 Scores and Demographic Characteristics, Extracurricular Sports Activity Status, and Social Support

Our analysis of the relationship between K6 scores and both demographic characteristics and extracurricular sports activity status found no significant difference between male and female respondents or between those who had graduated from different types of schools. On the other hand, there was a significant difference between respondents with different degrees of disability; the K6 scores of students who were blind were significantly higher than those of students with low vision ($p < .05$). Concerning extracurricular sports activity status, the K6 scores of those who did not participate in extracurricular sports activities in junior high and high schools were significantly higher than the scores of those who did ($p < .05$). As for extracurricular sports activities in college, no significant difference was found between those who participate in extracurricular sports activities and those who do not (Table 1).

Additionally, no significant correlation was found between K6 scores and each of the social support scores

of family members, friends, and teachers (Spearman's rank correlation coefficient: $-.097$ for family members, $-.116$ for friends, $.189$ for teachers).

Based on the above results, a two-way factorial analysis of variance was conducted with K6 scores as dependent variables and with the degree of disability and whether respondents participated in extracurricular sports activities in junior high and high school as factors. This analysis found significant main effects for the degree of disability ($F = 6.29, p < .05$) and for whether respondents participated in extracurricular sports activities in junior high and high school ($F = 7.10, p < .05$). No significant interaction was found (Table 3).

Discussion

This study clarified the mental health of visually impaired students using the K6 scale and also analyzed the relationship between mental health and sports activities in junior high schools, high schools, and colleges. The results indicated that the mental health of visually impaired students depended on the degree of disability; students who are blind had poorer mental health than those with low vision, which is a less serious disability. A possible association was also found between the students' mental health and whether they had participated in extracurricular sports activities in junior high and high school before entering college; those who had participated in extracurricular sports activities exhibited better mental health than those who had not.

According to previous studies on the mental health of

Table 3 Relationship between K6 scores, degree of disability, and participation in extracurricular sports activities in junior high and high school (two-way factorial analysis of variance)

		Participation in extracurricular sports activities		Main effect		Interaction
		Yes	No	Degree of disability	Participation	
Degree of disability	Low vision	6.0(6.2)	8.4(5.7)	$p = 0.015$	$p = 0.01$	$p = 0.203$
	Blind	8.1(4.5)	15.0(4.6)			

students without disabilities, the average K6 score of Japanese college students in general is 5.4 (SD = 4.5)⁹⁾ and that of physical education students is 5.3 (SD = 4.5), with 20.0% of all students scoring 9 or higher.¹⁾ Since the average score of the participants in this study was 7.8 (SD = 6.1) and 41.6% of the respondents scored 9 or higher, these results suggest that visually impaired students may have poorer mental health than students who do not have a disability.

In general, humans use their sense of sight to obtain considerable information about their surroundings. Visual impairment makes it difficult or impossible to get various types of information, and as a result, visually impaired students face many challenges in their daily lives and in activities related to their studies. Moreover, they need to seek various types of support from those around them to resolve those difficulties. The difficulties which the students with visual impairment face in obtaining information and their need to seek help frequently are likely causing them to experience unique types of stress.⁵⁾ These various types of additional stress in their college lives could, in turn, be leading students with visual impairment to have poorer mental health than those without disabilities. Furthermore, higher degrees of disability lead to more serious difficulties in gaining information and more extensive need for help. The resulting stress levels can thus be expected to be higher in students who are blind than in those with low vision, as observed in the present study.

Next, it was revealed that visually impaired students who had participated in extracurricular sports activities in junior high and high school had better mental health than those who had not. The psychological effects of regular physical activity supposedly include better recovery from anxiety, improved stress indicators, and emotional stability.⁴⁾ It is thus not surprising that, for visually impaired students as well, participating in extracurricular sports activities would have positive

effects on mental health.

Additionally, the results of this study demonstrated that those respondents who had participated in extracurricular sports activities in junior high and high school enjoyed better mental health. This finding suggests the possibility that students' participation in extracurricular sports activities in junior high and high school would positively affect their mental health during their college days, although no longitudinal study has been performed. A 15-month longitudinal study concerning high school students indicated the possibility that ongoing participation in extracurricular sports activities reduces chronic stress reactions and contributes to the maintenance and improvement of mental health.⁸⁾ It is thus plausible that students' experiences of extracurricular sports activities in junior high and high school are effective in maintaining and improving their mental health at that time and during their subsequent school days, whether they have a disability or not. For this reason, it is considered important to create cooperative school environments and provide various types of support in both general and special needs schools for students who are visually impaired so that they can participate in extracurricular sports activities while attending those schools.

This is the first full-scale study of the mental health of visually impaired students and of the relationship between mental health and sports activities in schools; these two topics have rarely been examined by previous researchers. Further studies are needed to address the following issues: generalizing the findings by increasing the number of participants, identifying causal relationships through longitudinal analysis, and consideration of additional factors related to the maintenance and improvement of visually impaired students' mental health.

Conclusion

The purpose of this study was to clarify the mental health status of visually impaired students and to identify the relationship between their mental health and their sports activities while attending junior high school, high school, and college. The main findings were as follows:

1. The mental health conditions of visually impaired students differ according to their degree of disability; the students who are blind had poorer mental health than those with low vision.

2. Students who participated in extracurricular sports activities in junior high and high school had better mental health than those who did not, and visually impaired students' experiences of extracurricular sports activities appeared to have positive effects on their mental health.

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