

DOES MOVEMENT GAMES IMPACT ON INCREASING SPORTS PARTICIPATION, FUNDAMENTAL MOVEMENT SKILL AND LIFE SATISFACTION OF STUDENTS DISABILITIES?

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Abstract

This study aims to investigate the effect of movement games programs on increasing sports participation, fundamental movement skill and life satisfaction of students with disabilities. This study adopted a mixed methods type. The participants were 40 students from the Karawang city. The quantitative instruments involved Sport Participation Scale, Test of Gross Motor Development 2 and the Satisfaction with Life Scale while the qualitative instruments used in-depth interviews. Quantitative analysis using SPSS and nonparametric analysis using the Mann-Whitney U test were used to test the differences in the three dependent variables. Qualitative statistical analysis was carried out qualitatively thematically. First, in the quantitative study showed that there was no difference between sports participation, movement skill and life satisfaction in the experimental and control groups before the experiment ($p > 0.05$). Second, there was a difference between sports participation, fundamental movement skill and life satisfaction after the experiment ($p < 0.05$). Third, the qualitative findings showed diverse perceptions from students.

Keywords: Movement games. Sports participation. Fundamental movement skill. Life satisfaction.

LOS JUEGOS DE MOVIMIENTO IMPACTAN EN EL AUMENTO DE LA PARTICIPACIÓN DEPORTIVA, HABILIDAD FUNDAMENTAL DE MOVIMIENTO Y SATISFACCIÓN CON LA VIDA DE LOS ESTUDIANTES DISCAPACIDADES?**Abstracto**

Este estudio tiene como objetivo investigar el efecto de los programas de juegos de movimiento en el aumento de la participación deportiva, la habilidad de movimiento fundamental y la satisfacción con la vida de los estudiantes con discapacidades. Este estudio adoptó un tipo de métodos mixtos. Los participantes fueron 40 estudiantes de la ciudad de Karawang. Los instrumentos cuantitativos involucraron la Escala de Participación Deportiva, el Test de Desarrollo Motor Grueso 2 y la Escala de Satisfacción con la Vida, mientras que los instrumentos cualitativos utilizaron entrevistas en profundidad. Se utilizaron análisis cuantitativos

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mediante SPSS y análisis no paramétrico mediante la prueba U de Mann-Whitney para probar las diferencias en las tres variables dependientes. El análisis estadístico cualitativo se llevó a cabo de forma cualitativa temática. Primero, en el estudio cuantitativo mostró que no hubo diferencia entre la participación deportiva, la habilidad de movimiento y la satisfacción con la vida en los grupos experimental y de control antes del experimento ($p > 0.05$). En segundo lugar, hubo una diferencia entre la participación deportiva, la habilidad de movimiento fundamental y la satisfacción con la vida después del experimento ($p < 0.05$). En tercer lugar, los hallazgos cualitativos mostraron diversas percepciones por parte de los estudiantes

Palabras clave: Juegos de movimiento. Participación deportiva. Habilidad de movimiento fundamental. Satisfacción con la vida.

OS JOGOS DE MOVIMENTO IMPACTAM NO AUMENTO DA PARTICIPAÇÃO ESPORTIVA, HABILIDADE DE MOVIMENTO FUNDAMENTAL E SATISFAÇÃO COM A VIDA DOS ALUNOS DEFICIÊNCIAS?**Abstrato**

Este estudo tem como objetivo investigar o efeito de programas de jogos de movimento no aumento da participação esportiva, habilidade motora fundamental e satisfação com a vida de alunos com deficiência. Este estudo adotou um tipo de métodos mistos. Os participantes foram 40 estudantes da cidade de Karawang. Os instrumentos quantitativos envolveram a Escala de Participação no Esporte, Teste de Desenvolvimento Motor Grosso 2 e a Escala de Satisfação com a Vida enquanto os instrumentos qualitativos utilizaram entrevistas em profundidade. A análise quantitativa usando SPSS e a análise não paramétrica usando o teste Mann-Whitney U foram usadas para testar as diferenças nas três variáveis dependentes. A análise estatística qualitativa foi realizada qualitativamente por tema. Primeiro, no estudo quantitativo mostrou que não houve diferença entre participação esportiva, habilidade de movimento e satisfação com a vida nos grupos experimental e controle antes do experimento ($p > 0,05$). Em segundo lugar, houve diferença entre participação esportiva, habilidade motora fundamental e satisfação com a vida após o experimento ($p < 0,05$). Em terceiro lugar, os resultados qualitativos mostraram diversas percepções dos alunos

Palavras-chave: Jogos de movimento. Participação esportiva. Habilidade motora fundamental. Satisfação com a vida

Introduction

After the crisis of the COVID-19 pandemic, the government coordinated with physical education teachers from elementary, junior high school, high school and special education needs tried to create a varied and enjoyable learning process at school and at home. This coordination aims to increase participation in sports (Oberle et al, 2019; Nthangeni et al, 2021; Nothnagle & Knoester, 2022), fundamental movement skill (Samsudin et al, 2021) and life satisfaction of students with disabilities who experienced a decrease and interference of activities during the COVID-19 pandemic (Karataş, Uzun & Tagay, 2021) due to the regulation of isolation, prohibit to carry out physical exercise in public places or staying at home (Jumareng et al, 2022).

Participation in sports is an important aspect that must be evaluated, fostered and improved among normal and disabled students (Rullestad, Meland & Mildestvedt, 2021), because it has an important contribution to trigger an active and sustainable involvement of students with disabilities in all types of sports activities such as volleyball, jogging, gymnastics, swimming, soccer, basketball, handball, futsal (Westerbeek & Eime 2021). Data from previous studies reported that participation in sports activities had positive benefits for health degree (Nelson, Spurr & Bally, 2022), so that it can avoid several chronic diseases. In addition, sports participation was claimed to have effectiveness in improving physical health (Malm, Jakobsson & Isaksson, 2019), cognitive and mental (Hoffmann, Barnes, Tremblay & Guerrero, 2022), to obtain a healthy quality of life (Nthangeni, Toriola, Paul & Naidoo, 2021). On the other hand, if sports participation is low or inactive, it will cause death every year (Mills, Dudley & Collins 2019).

Fundamental movement skill is a global issue that should get special attention and have to resolve as soon as possible. Data shows that fundamental movement skill had decreased drastically in during the COVID-19 pandemic crisis (Juliantine, Setiawan, Jumareng, Gani & Asnaldi, 2022). Basically, fundamental movement skill has an important role for students with disabilities since it is related to their ability to perform basic movements, such as locomotor, non-locomotor and manipulative/object control skill (Behan, Belton, Peers, O'Connor & O'Connor 2019; Samsudin et al, 2021; Dewi & Verawati, 2021). Previous research had documented the benefits of developing fundamental movement skill, for example (Ma, Duncan, Chen, Eyre & Ca, 2022), reported that fundamental movement skill could promote high physical activity

and it can be used as students' health predictor. In recent years, fundamental movement skill has been considered an important aspect because they are related to physical, cognitive, social health and build the basis for an active lifestyle (Hu, Jiang, Ji, Pang & Liu, 2020). In addition, fundamental movement skill is closely related to the ability of students in performing a motor skill, such as throwing and kicking a ball, running, jumping, hitting, catching, which was useful in everyday life day or in the context of sporting activities (Malambo, Nová, Clark & Musálek, 2022). Although fundamental movement skill has a crucial contribution for students, data reported that the level of fundamental movement skill of students which covered children and adolescents in several countries is still low, because almost 50% students could not mastery skills in sports (Kokstajn, Musalek, Wolanski, Murawska-Cialowicz & Stastny, 2019). Even Grainger, Innerd, Graham & Wright (2020), explained that the level of fundamental movement skill among students has decreased over time.

Life satisfaction is an evaluation of the welfare of an individual's life (Ivanchev & Stoyanova, 2019), such as satisfaction and happiness in living his life both in the family/community environment (Oh, Kang & Kwon, 2022), making friends in a community or at school (Urchaga, Guevara, Cabaco & Moral-García, 2020). According to Sağın (2022), life satisfaction is an important factor for students with disabilities to have academic activities at school, especially in reducing negative behavior problems. Schools through sports activities are the right place to promote life satisfaction (Gomez-Baya, Sarmiento, Nicoletti & Garcia-Moro, 2022), for example a harmonious relationship between teachers and students with disabilities or relationship between students, then learning or fun physical activities (An et al, 2020; Tao, Chen, Lu & Yan, 2022) and has the potential to teach discipline, responsibility, respect, emotional control will be a powerful weapon in triggering life satisfaction among students (Mutz, Reimers & Demetriou, 2021). According to Çetin (2019), life satisfaction can be assessed from the ability to create harmony, feel happy and in high spirits. Data from previous studies showed that life satisfaction will decrease when entering adolescence (Šimunovic & Olčar, 2022), so there is the potential for negative actions such as stealing, fighting, killing, stealing or committing suicide (Sağın, 2022). Considering the importance of several aspects such as sports participation, fundamental movement skill and life satisfaction among students with disabilities, it is needed to conduct an effective activity to improve these three aspects.

Basically, movement games is a fun activity and contain lots of movement games for students with disabilities, such as walking paper colours, trampolines, hoolahoop (Kamyuka, Carlin, McPherson & Misener, 2020). Meanwhile, according to Dao (2021), movement games can be defined as a game that involve motor skill such as jumping, crawling, running, walking. This game presents a lot of movement experiences in the form of a game which is a powerful tool for increasing the potential of students as a whole. Previous research has reported that effective movement games can change the level of physical fitness and mental health in students with disabilities for the better (Dimiyati et al, 2022). Even sports or game-based activities have a positive effect on improving athlete performance (Gabbett, Jenkins & Abernethy, 2009)

Even though this movement games provides many benefits that have been reported by previous studies (Chou, Chen, Huang, Tu & Huang, 2019; Dimiyati et al. 2022), unfortunately there is still limited research on movement games in increasing the level of sports participation, fundamental movement skill and life satisfaction for students with disabilities. In addition, this study presented a novelty, in terms of evaluating the effects of movement games through mixed quantitative and qualitative research. This research will contribute to the development of movement games in physical education and sports, so that teachers or lecturers can use them on an ongoing basis in the future to increase the level of sports participation, fundamental movement skill and life satisfaction for students with disabilities. Therefore, the purpose of this study was to examine the effect of movement games on increasing the level of sports participation, fundamental movement skill and life satisfaction of students with disabilities through mixed research methods.

Material and Methods

This study adopted a mixed methods type, namely a combination of quantitative and qualitative research. Quantitative research was carried out through experiments, while qualitative research was carried out through in-depth interviews.

Participants

The participants involved in this study were male students with disabilities of mild level mental retardation who came from special education needs in the Karawang city, totaling 40 people (Indonesian). They were randomly selected to be allocated to an experimental group that received a movement game program (n = 20) and a control group that did not receive any special program or only carried out routine physical exercise (n = 20). Prior to this research, the researchers had asked for permission and approval signatures from participants' parents and teachers to involve 40 students with disabilities

participated in this study. Students who were willing to participate in this study got 20 USD as gratitude. The characteristics of the participants are presented in table 1 (Table 1).

Procedures

This research was conducted in January-February 2023 in the sport field of Singaperbangsa Karawang State University, Karawang City (Indonesia). Before the research was carried out, the research team requested permission from the Singaperbangsa Karawang University with approval number: 275/SP2H/UN65.10/LL/2023. In addition, this research was carried out based on the guidelines of the World Medical Association Code of Ethics (Helsinki Declaration for Humans).

This mixed research included experimental research and was carried out in January 2023. The first meeting, participants in the control group and experimental group carried out initial tests, namely the sports participation, fundamental movement skill, life satisfaction (04 January 2023). At the second meeting, namely on January 6, 2023, the participants in the experimental group carried out the movement games program and the control group carried out daily activities, these activities were carried out until the 12th meeting (January 28, 2023). The last meeting was on February 1, 2023, all participants carried out a final test, namely a sports participation test, fundamental movement skill, life satisfaction. All of these experimental activities were carried out in the morning from 08.00 until finished and guided by the research team, teachers and parents of students.

While qualitative research through in-depth interviews was carried out on February 3 and 4 2023 in the hall of the University of Singaperbangsa Karawang. The interview was conducted from 09.00 until finished. Interviews were conducted using Bahasa for 30 minutes regarding their perceptions of the benefits, drawbacks and impacts of the movement game program. The interviewers only interviewed the experimental group and in one day the researchers was able to interview 10 participants.

The movement games program

The movement games program was carried out in the morning on the sport field of Singaperbangsa State University, Karawang. In the initial activity the participants carried out a warm-up first for 5 minutes. Then proceed with the movement game program. Finally, the athlete cooled down for 5 minutes. The details about the movement game program is presented in table 2 (Table 2).

Instrument

Quantitative instrument

Sports participation: To assess the level of students participation in sports, the researcher used the Sport Participation Scale (SPC) (Gómez-Baya et al, 2020), in a previous study there was only one item question, namely "how often did you perform sports outside of school". Therefore, this research was modified, so that it has several question items such as "did you participate in sports activities while at school", "how often did you carry out sports with your family", "how often did you perform sports with friends". To answer this question, you can use a Likert scale with a score of 1='never', 2='rarely', 3='one day a week', 4='quite often' and 5='every day'. This instrument is valid and has been used by previous studies (Gómez-Baya et al, 2020).

Fundamental movement skill: In this study, the Test of Gross Motor Development 2 (TGMD-2) was used to assess the level of fundamental movement skill of students with disabilities aged 11-18 years (Wang, Qian, Zhong & Qi, 2022). This instrument measured basic movement skill included locomotor skill (run, horizontal jump, slide, leap, hop and gallop) and object control skill (two hand strike, catch, kick, overhand throw, stationary bounce and underhand roll). Each FMS in TGMD-2 was accompanied by performance criteria. Each skill was evaluated based on performance criteria. If the criterion was performed the score would be "1" and if it was not performed the score would be "0". TGMD-2 tasks were performed twice by each participant. The maximum score for locomotor and object control subtests was 48 points (Klavina, Ostrovska & Campa, 2017).

Life satisfaction: In this study, the Satisfaction With Life Scale (SWLS) instrument was adopted to assess the whether students were satisfied with their lives (Pans, Brewer & Devis-Devis, 2022). This instrument consists of five

Table 1: The Characteristics of Participants.

Characteristics	Experiments group (n=20)	Control group (n=20)
	$\bar{X} \pm S$	$\bar{X} \pm S$
Age (y)	13.5±0.06	13.7±0.57
Height (cm)	145.9±4.81	148.4±5.39
Weight (kg)	54.30±2.55	55.01±3.09

Table 2: The movement games program.

Game	Playing method	Duration
Throwing Color Ball	Participants (students) throw the ball to the color as instructed by the teacher.	The game is played for 5 minutes with 1 minute rest.
Throwing Number Ball	Participants (students) throw the ball to the numbers as instructed by the teacher.	The game is played for 5 minutes with a 2 minute rest.
Catchng Ball	Participants (students) catch balls as many as possible.	The game is played for 5 minutes with 1 minute rest.
Hitting the Ball	Participants (students) hit the ball as much as possible which is directed to the target box.	The game is played for 5 minutes with a 2 minute rest.
Relaying ball	Participants (students) give the ball to their friends until the finish line.	The game is played for 5 minutes with a 3 minute rest.
Jumping color	Participants (students) jump towards the color until the finish line.	The game is played for 5 minutes and with 1 minute rest.
Kick the ball to the target	Participants (students) kick the ball to the targets as many as possible.	The game is played for 5 minutes with a 2 minute rest.

Table 3: The results of the Mann–Whitney U test on differences in sports participation, fundamental movement skill and life satisfaction in the experimental (n=20) and control (n=20) groups before the experiment.

Dependent Variable	Group	Statistical Indicators		
		$\bar{X} \pm S$	Z	p
Sports participation (points)				
Item 1: How often did you carry out sports outside of school.	Experimental	2.42±0.74	-1.029	0.303
	Control			
Item 2: Did you participate in sports activities while at school.	Experimental	2.28±0.81	-1.869	0.062
	Control			
Item 3: How often did you do sports with your family.	Experimental	2.35±0.80	-1.252	0.210
	Control			
Item 4: How often did you do sports with friends.	Experimental	2.43±0.81	-1.529	0.126
	Control			
Fundamental movement skill (points)				
Locomotor	Experimental	12.50±1.35	-0.956	0.339
	Control			
Object control	Experimental	14.63±1.86	-1.102	0.271
	Control			
Life satisfaction (points)				
Item 1: My living conditions are very good.	Experimental	2.75±0.80	-1.784	0.074
	Control			
Item 2: I am satisfied with my life.	Experimental	2.50±0.75	-1.588	0.112
	Control			
Item 3: So far, I always get the things I want.	Experimental	2.83±0.84	-1.222	0.222
	Control			
Item 4: If I could repeat my life, I would change almost nothing.	Experimental	3.15±0.92	-0.558	0.577
	Control			
Item 5: In most ways, my life is close to my ideals.	Experimental	2.97±0.83	-1.598	0.110
	Control			

question items, namely (1) My living conditions are very good, (2) I am satisfied with my life, (3) So far I always get the things I want, (4) If I could repeat my life, I would change almost nothing (5) In most ways my life is close to my ideal. The questions were rated on a 7-point Likert scale. Scores on the SWLS represent: extremely dissatisfied (5–9), dissatisfied (10–14), slightly dissatisfied (15–19), neutral (20), slightly satisfied (21–25), satisfied (26–30) and extremely satisfied (31–35) (Pans, Brewer & Devís-Devís, 2022).

Qualitative Instrument

In this study, the qualitative instrument was 30 minutes in-depth interviews per individual (Dimiyati et al, 2022). Interviews were conducted directly with participants in Bahasa at Singaperbangsa University, Karawang.

Statistical Analysis

Quantitative

The data was analyzed using IBM SPSS Statistics version 25.0 (Armonk, New York, USA). In this study the normality test used the Shapiro–Wilk tests. Descriptive statistics were expressed in mean (\bar{X}) ± standard deviation (S). Nonparametric analysis was chosen where the data did not meet the assumptions of normality, so the Mann–Whitney U test was used to test differences in the variables of sports participation, fundamental movement

skill and life satisfaction in the experimental and control groups before and after the experiment. The significance level was $p < 0.05$.

Qualitative

Qualitative data from in-depth interviews was analyzed using qualitative thematic. First, in-depth interviews results were coded. Second, then it was categorized into three themes (Dimiyati et al, 2022), namely: theme 1: Benefit, theme 2: drawback and theme 3: the impact of the movement games program on sports participation, fundamental movement skill and life satisfaction.

Result

Quantitative results

The variables of sports participation, fundamental movement skill and life satisfaction in this study were not normally distributed ($p < 0.05$). Table 3 shows that there was no difference in sports participation between fundamental movement skill and life satisfaction in the experimental and control groups before the experiment ($p > 0.05$) but there was a difference after the experiment ($p < 0.05$) (Tables 3 and 4).

Qualitative results

The results of an in-depth 30-minute interview with participants regarding the

Table 4: The results of the Mann-Whitney U test towards the differences in sports participation, fundamental movement skills and life satisfaction in the experimental (n=20) and control (n=20) groups after the experiment.

Dependent Variable	Group	Statistical Indicators		
		$\bar{X} \pm S$	Z	p
Sports participation (points)				
Item 1: How often did you carry out sports outside of school.	Experimental	2.85±0.94	2.054	0.040
	Control			
Item 2: Did you participate in sports activities while at school.	Experimental	3.20±0.56	2.127	0.033
	Control			
Item 3: How often did you do sports with your family.	Experimental	3.53±0.55	2.447	0.014
	Control			
Item 4: How often did you do sports with friends.	Experimental	3.55±0.59	3.133	0.002
	Control			
Fundamental movement skill (points)				
Lokomotor	Experimental	18.30±3.85	-5.436	0.000
	Control			
Object control	Experimental	19.25±4.35	-5.502	0.000
	Control			
Life satisfaction (points)				
Item 1: My living conditions are very good.	Experimental	4.32±1.04	-2.237	0.025
	Control			
Item 2: I am satisfied with my life.	Experimental	4.17±1.35	-2.502	0.012
	Control			
Item 3: So far, I always get the things I want.	Experimental	4.10±1.39	-2.066	0.039
	Control			
Item 4: If I could repeat my life, I would change almost nothing.	Experimental	3.88±1.11	-2.018	0.044
	Control			
Item 5: In most ways, my life is close to my ideals.	Experimental	3.87±0.93	-1.997	0.046
	Control			

benefits, drawbacks and impact of the movement game program on sports participation, fundamental movement skill and life satisfaction obtained the following findings:

Theme 1: Benefits

The first theme is related to the benefits of the movement game program. In this case the participants argued that:

"In our opinion, movement games are fun and not boring. We always laugh when we follow it" (Results of interviews with participants 1, 3, 5, 6, 7, 9, 10).

"We like to play throwing balls toward the colors, and lots of games are fun. We are more active in moving with the movement game program" (Results of interviews with participants 2, 8, 12, 15, 17, 18, 19).

"We prefer movement games rather than routine sports movement. The ball relay game and jumping colors are easy to play, making us excited to exercise" (Results of interviews with participants 4, 11, 13, 14, 16, 9, 20).

Theme 2: Drawbacks

The second theme was related to the drawbacks of the motion game program. In this case the participants revealed that:

"We need guidance and supervision from the teacher, so that we can more understand the program" (Results of interviews with participants 2, 4, 5, 7, 8, 10, 12, 13, 15, 17, 18, 19, 20).

"The number of balls is small, and it is needed to add more balls" (Results of interviews with participants 1, 2, 3, 6, 9, 11, 14, 16).

Theme 3: Impact

The third theme that was revealed was related to the impact of the movement game program on sports participation, fundamental movement skill and life satisfaction. In this case the participants argued that:

"The movement game program encouraged us to participate in physical activities, we move more active, feel happy and satisfied" (Results of interviews with all participants).

Discussion

Our research aims to investigate the effect of movement games to increase the

level of sports participation, fundamental movement skill and life satisfaction of students with disabilities through mixed research methods.

This study revealed several findings. First, the quantitative study results showed that there was no difference in sports participation between fundamental movement skill and life satisfaction in the experimental and control groups before the experiment.

The second finding shows that there were differences in sports participation, fundamental movement skill and life satisfaction in the experimental and control groups after the experiment. This is because movement games provide lots of fun game activities for students with disabilities compared to the control group, which can stimulate them to be willing and actively involved in activities. Similar opinion from Mujriah et al (2022), that physical activity or sports that have fun characteristics had the potential to easily trigger students participated in sports. Conversely, boring activities could reduce students' enthusiasm to participate (Teare & Taks, 2021). The finding in this study is in line with a recent study which reported that movement game programs that presented a variety of physical activities could encourage sports habits in a higher level (Nothnagle & Knoester, 2022). Other studies also reported the same thing, sports or physical activity is the main force for changing low participation rates to high (Westerbeek & Eime, 2021). According to Deelen, Ettema & Kamphuis (2018), types of competitive, game or individual sports (e.g., running, cycling, gym) all have the potential to attract students' interest to participate actively in the future. Thus, this research has proven significantly that the movement game program could increase the sports participation of students with disabilities compare with previously.

Subsequent findings in quantitative research showed that the fundamental movement skill of students with disabilities had increased positively. This is because movement games promote a rich movement experience, so that students' movement abilities gradually increase. The same thing was explained by Dewi and Verawati (2021), basically students always want to play, therefore the application of movement games is an effective way to improve basic locomotor and object control skill. An activity that has various and fun games has the strength to encourage students to move (Suherman, Dapan, Guntur & Mukhtiani, 2019). Other research confirmed that the appropriate solution for developing students' fundamental movement skill was through fun and challenging game activities, because playing could help students who were previously passive became active (Mujriah et al, 2022). This study result was in line with previous studies, movement games such as throwing color balls,

throwing number balls, catching balls, hitting balls, relaying balls, jumping colors, kicking balls at targets or others could be solutions for teachers in improving the performance of students with disabilities (Dimiyati et al, 2022). On the other hand, Yudanto, Suherman, Nugroho, Guntur (2022), reported that learning that contains a lot of games can improve students' fundamental movement skill. Thus, this study contributes to previous references which prove that movement game-based activities can improve the fundamental movement skill of students with disabilities.

The final finding in quantitative research showed that the life satisfaction of students with disabilities had increased gradually. This is because movement games present fun activities, so it could help students with disabilities to feel happy and satisfied with the movement game program. Previous studies explained that life satisfaction would increase if a person felt happy and pleased in every activity

(An et al. 2020; Wypych-Slusarska, Majer, Krupa-Kotara & Niewiadomska, 2023). On the contrary, people who were dissatisfied with their lives would get emotional easily and grumble about their life (Al Sulaimi, Hutaglung & Ali, 2022). A study conducted by Moreno-Murcia, Belando, Huéscar & Torres, (2017), reported that there was a positive relationship between physical activity or exercise and life satisfaction. Other studies also reported that physical activity and sports games could reduce levels of anxiety and depression, which can increase life satisfaction (Terzioğlu, Çakır-Çelebi & Yıldız, 2022). Zhang, Ren & Zou (2022), reported similar results, commitment to physical activity had a significant effect on student life satisfaction. The results of this study could be used as an evidence and support previous studies which reported that physical activity (Tao, Chen, Lu & Yan, 2022), sports or movement games that were carried out regularly were able to promote the levels of life satisfaction (Zayed, Ahmed, Van Niekerk & Yan Ho, 2018).

Meanwhile, the qualitative research results showed positive and diverse perceptions, for example students revealed that the movement game program was very fun, easy to play and made them moving actively. However, this movement game program also has drawbacks in terms of the small number of balls and required supervision from the teacher so that this program can run effectively. Finally, students believe that this movement game program has a real impact, because it can encouraged them to participate, be active and feel fulfilled in their lives.

Finally, the uniqueness and novelty in this study was the movement games program had proven its effectiveness in increasing sports participation, fundamental movement skill and life satisfaction for students with disabilities based on quantitative and qualitative (mixed) research.

Conclusions

Based on the quantitative and qualitative results and findings, it can be concluded that the movement games program was proven to have a major effect in increasing sports participation, fundamental movement skill and life satisfaction for students with disabilities. This study also has limitations in terms of the limited number of participants who come from one school in Indonesia. In addition, this study only involved male participants with a mild level of mental retardation disability. It is recommended that further research be undertaken in the following areas: involve a large number of participants both male and female participants, involve students with disabilities with other types of disorders such as physical, mental or other disabilities. This research contributes to providing important information to teachers, students, lecturers or stakeholders that movement game programs are crucial for the development of students with disabilities.

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