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Self-confidence and Physical Capacity of 1500 Meters Running of Mentally Retarded Athletes after Functional Training

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Abstract **Purpose:** Explain the self-confidence and physical capacity of mentally retarded athletes of 1500 meter run after functional training. **Materials and methods:** The research method used a quantitative study with a survey design. Totally, 20 mentally retarded athletes of 1500 meter run participated in a functional training program for 8 weeks. Researchers used the Personal Evaluation Inventory to explain self-confidence. Physical capacity was tested by a 3-min step test, knee push-ups, and a timed get-up and go (TGUG) test. Self-confidence data were analyzed by KMO factor analysis and Bartlett's Test. Paired t-test was used to evaluate differences in the training groups. **Results:** A statistically significant difference was found in the physical capacity of mentally retarded athletes after undergoing functional training for 8 weeks (p-value < 0.05). Furthermore, there is a relationship between the self-confidence variable and each subscale (p-value = 0.001 for athletics, 0.002 for mood, 0.005 for general). **Conclusions:** During participating in the 1500 m running sport, the self-confidence of mentally retarded athletes can develop. To support the self-confidence of mentally retarded athletes, functional training was needed. Through functional training, the physical capacity of mentally retarded athletes increases so as to increase the self-confidence of mentally retarded athletes and produce maximum performance in their sports, so athletics is a sports field where they excel, do not feel worried and anxious in sports, feel better than their age, do not humble themselves, feel optimistic and positive, do not have self-doubt, and are able to handle problems successfully. The research findings have explained the reasons for the self-confidence of mentally retarded athletes of 1500 m run which can be a new understanding in building the self-confidence of mentally retarded athletes, especially in the 1500 m running sport.

Keywords Self-confidence, Physical Capacity, Functional Training, 1500 M Run, Mentally Retarded

1. Introduction

During the developmental period, mental retardation suffers from deficits in several adaptive functions [1], which affects their mental environment and behaviors, interferes with self-confidence, and interpersonal relationships, which to some extent can reduce the quality of coexistence in society, thus negatively impacting poor motor development, limited movement accuracy, inhibition and difficulty in accepting new forms of movement [2]. Self-confidence is one of the psychological components that affect self-esteem, where the concept of self-esteem is defined as a person's perception of his own

worth [3]. In addition, self-confidence has been proposed as a measure of an individual's perception of his ability, because individuals are able to regulate cognitively and the pressure they experience [4]. The findings show that young people face several challenges when expressing their condition based on the type and level of their disability; this affects their self-confidence due to fear of stigma and discrimination [5].

Sport is defined as a structured and planned physical activity with the aim of making the body healthier both physically and mentally and also through sport, a person can gain achievement. Jurkowski et al [6] explained that mental health was emphasized as an important characteristic of good health among mentally retarded people. His research in qualitative studies has shown that mental health is linked to physical health, poor mental health causes feelings of physical exhaustion and loss of interest in activities [6]. Therefore, maintaining health through sport is very important for mentally retarded individuals. Research findings have shown that physical activity has an effect on the psychological and physical effects of mentally retarded people. This can be seen from the increase in self-efficacy through measuring physical competence and self-confidence subscales [7]. In relation to mentally retarded people, self-efficacy is an important intrinsic motivation to overcome the various limitations they experience. Other studies also explain that regular exercise in sports activities produces psychophysical, physical, and emotional benefits in mentally retarded people [8]. Puce et al explained that the effect of practicing competitive sports regularly resulted in an increase of about 40% in emotional and psychological. This has a positive effect on paralympic participants so that they get higher scores. In addition, self-perception has increased in the paralympic group aged > 18 years.

Dijk, Daďová, & Martínková explained that currently, mentally retarded athletes can participate in the Special Olympics, Trisome Games, Paralympic Games, and Global Games events [9]. Each mentally retarded athlete can participate according to his classification. The aim is to allow fair competition, thus categorization is very important for athletes with disabilities so that sports competitions can take place fairly. For mentally retarded athletes, there is so little sport for them. Mentally retarded athletes can participate in the S14 classification (200 m freestyle swimming and 100 m in the backstroke and breaststroke), the T/F 20 classification (1500 m running, shot put and long jump), and the T11 classification (table tennis) [9]. Marks et al showed that paralympic sport provides positive psychosocial and health benefits for mentally retarded individuals, where the benefits that can be felt by individuals include increased self-confidence and a more positive attitude towards exercise as well as weight reduction and increased fiber intake [10].

2. Research Methodology

Study Participants

Researchers used quantitative studies. Participants were recruited from the Indonesian National Paralympic Committee (NPCI). The inclusion criteria for the sample were: (1) 25 years old; (2) male; (3) athletes diagnosed with mental retardation mild to moderate; (4) has been a 1500-meter athlete for at least two years. The total of participants was 20 mentally retarded athletes. The diagnosis of mental retardation was obtained from an IQ test that was reported to have mental retardation that could be educated and was in accordance with the diagnosis of mild mental retardation of an IQ of 50.

Study Organization

Mentally retarded athletes in the functional training group underwent 60 minutes of exercise 3 times per week for 8 weeks. The first 15 minutes of exercise consisted of warm-up exercises in the form of jogging in place, squat jacks, and shuttle runs, and then continued for 30 minutes of core exercises consisting of 4 exercises, namely jumping jacks, butt kicks, high knees, and mountain climbers. The exercise consists of 3-6 sets with rest duration between sets of 30-60 seconds. Each set consists of 4 types of exercises performed 10-25 seconds with 2-3 repetitions. After undergoing exercise for 30 minutes, then 15 minutes of cooling down.

Before undergoing training, athletes are first tested for physical capacity to obtain pretest data as the athlete's initial condition. The athletes then underwent functional training for 8 weeks. After the training was completed, the athlete was again tested for physical capacity to obtain posttest data as the final condition and to determine changes in physical capacity in athletes after 8 weeks. Physical capacity assessment tests are to determine aerobic function with the 3-minute step test, musculoskeletal fitness with knee push-ups, and balance with the timed get-up and go (TGUG) test [11];[12].

In addition to assessing physical capacity, after training, the self-confidence of mentally retarded athletes is also assessed. To understand the experience of mentally retarded athletes of 1500 meter run on how exercise affects their self-confidence, the researcher uses the Personal Evaluation Inventory (PEI) which is based on four choices of "strongly agree"; "agree"; "don't agree"; and "strongly disagree" to measure self-confidence as one's feelings about one's own competence and perceived ability to cope with various situations [13]. Cronbach's alpha for PEI is between 0.77 – 0.905 indicating good internal consistency and reliability between 0.730 – 0.90 indicating good stability. In this study, self-confidence was measured based on the athletic subscale with 3 statements, mood with 6 statements, and general with 5 statements (appendix 1).

Statistical Analysis

Paired t-test was used to determine differences in physical capacity after undergoing functional training. To explain the self-confidence of mentally retarded athletes after undergoing functional training, the researchers used KMO factor analysis and Bartlett's Test with a significance of 0.05. Then the Rotated Component Matrix to show the statement under study is able to explain the factors as reasons for self-confidence. The analysis was performed with SPSS 17 with a significance of 5%.

3. Result

Table 1 shows a statistically significant difference found in the physical capacity of mentally retarded athletes after undergoing functional training for 8 weeks.

Table 2 shows the relationship between the self-confidence variable and each subscale. A statistically significant relationship was found among the athletic, mood, and general subscales. So, this subscale is the reason for the self-confidence of the mentally retarded athlete of 1500 m run.

Table 3 shows that the statements of P1, P2, P3, P4, P7, P8, P12, and P13 are the main factors (factor 1) reported as reasons for the self-confidence of mentally retarded athletes when participating in the 1500 m running sport. While the statements of P6, P10, and P11 are the second factor (factor 2), and the statements at P5 and P9 are the third factor (factor 3).

Table 1. Assessment of Physical Capacity before and after Functional Training

Assessment	Functional Training		p-value
	Pretest	Posttest	
3-min step test (HR±SD)	146.21±0.91	145.08±0.58	0.000*
Knee push-up (reps±SD)	23.65±0.49	21.95±0.76	0.000*
The timed get-up and go (s±SD)	13.60±0.44	13.43±0.43	0.000*

*significance of 0.05 (p-value < 0.05)

Table 2. Results of KMO and Bartlett's Test

Subscale	KMO and Bartlett's Test	
	KMO	p-value
Athletics	0.668	0.001*
Mood	0.603	0.002*
General	0.471	0.005*

*significance at 0.05 (p-value < 0.05)

Table 3. Factors Affecting Self-Confidence in Mentally retarded Athletes of 1500 m Run

Subscale	Item number	Rotated Component Matrix		
		Factor 1	Factor 2	Factor 3
Athletics	P1	0.872*		
	P2	0.885*		
	P3	0.764*		
Mood	P4	0.667*	0.513	0.111
	P5	0.353	0.542	0.634*
	P6	0.062	0.838*	0.137
	P7	0.852*	0.050	0.015
	P8	0.917*	0.087	0.102
	P9	0.097	0.183	0.895*
General	P10	0.014	0.804*	0.270
	P11	0.048	0.668*	0.261
	P12	0.650*	0.450	0.183
	P13	0.913*	0.048	0.050

*Explain the self-confidence factor

4. Discussion

In mentally retarded persons, common challenges are often based on difficulties in processing information. Mentally disabled manifested as problems with attention, memory, ability to understand concepts and processes, and problems applying new things. Challenges like this are experienced by mentally retarded individuals and will certainly affect their self-confidence, especially in the ability to manage problems, have meaningful relationships, and live well-being [14]. Individuals with mental retardation also show developmental delays in motor skills which has an impact on reduced sports performance such as strength, endurance, and balance. This happens because the muscles of the mentally retarded are in impaired function of central and peripheral structures. Therefore, coaches should motivate mentally retarded athletes to perform lifting and strengthening exercises in a maximum effort to ensure high nerve impulses to the muscles targeted by the exercise [15]. In line with this opinion, in supporting the self-confidence of mentally retarded athletes of 1500 m run regarding how the delay affects their sports performance, functional training is given to mentally retarded athletes by focusing on training muscles to work optimally. The results showed that after undergoing functional training for 8 weeks, the physical capacity of mentally retarded athletes in terms of aerobic function, musculoskeletal fitness, and balance increased (p-value <0.05). With increasing physical capacity, mentally retarded individuals are able to increase self-confidence. Research findings have shown that there is a relationship between self-confidence and athletic, mood, and general subscales. This shows that the mentally retarded athlete of 1500 m run has self-confidence in terms of athletics, mood, and generality.

The increasing of physical capacity of mentally retarded athletes in this study after undergoing functional training supports the belief that functional training focuses on the neuromuscular and nervous system groups. It is explained by Barwick et al, that more than isolated muscles and muscle groups are being trained, which are needed to improve motor skills such as dynamic and static balance, coordination, proprioception involving the muscles responsible for joint movement, stabilization and movement, and functional movement. Improved neuromuscular system function, coordination, proprioception, dynamic and static balance, and core muscle strength from various functional exercises can increase physical capacity and ability to perform these tasks and activities [11].

When studied more deeply about the self-confidence of the mentally retarded athletes of 1500 m run from several subscales shows that the reason why athletes feel self-confidence in the first place is that athletics is the field in which they excel. This is because successful performance in their field is the reason that most affects the sense of self-confidence. In line with this, O'Connor et al, state that performance is associated with self-confidence related to goal achievement [16]. Research findings also show that athletes do not feel worried and anxious in sports. In line with this, Van Biesen et al have shown that in the field of sports, mentally retarded athletes feel less fatigue than athletes without mental retardation [17].

Research findings show that being 1500 m run athletes feel better than their age. This is because being an athlete is a matter of pride for everyone. Moreover, when they are able to excel in the sport they are involved in, they will be more appreciated [18]. In line with this, the results of Kirakosyan's research explain that symbols of injustice in disability are distorted and this is a transformative process of self-identification from people with disabilities to high-performance athletes with disabilities [19]. So that public misunderstandings, negative attitudes, and discrimination are ultimately internalized by individuals with disabilities themselves. Furthermore, Kirakosyan explains that they can improve their lives, identity, and self-esteem so that they do not have to humble themselves anymore and can remain optimistic in living their lives [19]. Research findings also show that the mentally retarded athletes of 1500 m run does not lower themselves and feel optimistic and positive more than usual when living their life.

The findings show that the mentally retarded athletes of 1500 m run do not have self-doubt. This means that the athlete is able to value himself by believing in his abilities. In line with this, Dörnyei in Malureanu et al considers that the concept of self-confidence is closely related to self-esteem because it reflects the concept of perception of one's own abilities. Believing in their own abilities was also found in this study, where athletes were able to handle problems successfully. Problems that can be experienced by mentally retarded athletes of 1500 m run, it was explained by Van Biesen et al that the mentally retarded athletes of 1500 m run slower than 1500 m run athletes without mental retardation. Van Biesen explained that running fluctuations in mentally retarded athletes of 1500 m run starting slower, then accelerated and slowly decreased until the finish. This happens because the influence of cognitive is limited so success in determining the accuracy of the pacing strategy is limited [20]. In addition, Van Biesen et al also explained that mentally retarded athletes have difficulty maintaining a submaximal speed [21]. Meanwhile, in this case, Amado et al explained that believing in oneself is considered the dominant predictor in producing the best performance so that one is able to overcome the problems that occur [22]. To overcome the problems experienced by mentally retarded athletes of 1500 m run, athletes try to be as close as possible to the inside of the track and stay in a leading position [23].

5. Conclusions

The research results can be concluded that while participating in the 1500 m running sport, the self-confidence of mentally retarded athletes can increase. To support the self-confidence of mentally retarded athletes, functional training is needed. Through functional training, the physical capacity of mentally retarded athletes increases so as to increase the self-confidence of mentally retarded athletes and produce maximum performance in their sports. So that they excel in the field of athletics, do not feel worried and anxious in sports, feel better than their age, do not lower themselves, feel optimistic and positive, have no self-doubt, and are able to handle problems successfully. Research findings have explained the reasons for the self-confidence of mentally retarded athletes of 1500 m run can be a new understanding in building the self-confidence of mentally retarded athletes, especially in the 1500 m running sport.

Appendix 1. Personal Evaluation Inventory (PEI)

Subscale		Statement
Athletics	1	Athletics is the field where I excel
	2	When exercising I don't feel anxious
	3	At my age, I'm better than those of the same gender and age as me
Mood	4	I'm not demeaning myself
	5	I'm happier now than in previous weeks
	6	I am more confident about my abilities today than usual
	7	My confidence today, is higher than usual
	8	Feeling an increase in optimism and positive thoughts about yourself
	9	I'm less sure of myself today than usual
General	10	I feel confident in myself even in situations I have handled successfully in the past
	11	Most of the time I am competent like many people around me
	12	I have fewer doubts about my abilities than most people
	13	When things go bad, I'm usually confident that I can handle them successfully

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