MALAYSIAN ELITE DISABLED ATHLETES: THE QUALITY OF LIFE AND SATISFACTION WITH LIFE

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Abstract

Background: To identify determinant(s) and evaluate the relationship between quality of life (**QoL**) and satisfaction with life (**SWL**) of the Malaysian elite disabled athletes.

Methodology: We conducted a cross-sectional study on 86 disabled athletes located at Pusat Kecemerlangan Sukan Paralimpik Malaysia, Kampung Pandan using universal sampling. Online survey consisting of socio-demographic form, the SWL scale and the World Health Organization QoL short questionnaire were delivered to the athletes of different physical and mental disabilities who participated in adapted sports.

Results: A moderately strong correlation was demonstrated between the subdomains of physical health, psychological health, social relationship, and environment of QoL with SWL scale ($P \leq 0.05$). Gender and ethnicity were found to be potential determinants of QoL and SWL among these disabled athletes.

Conclusions: The discrepancies in QoL and SWL between ethnics and gender need solution to ensure inclusivity in disabled sports.

Keywords: Quality of Life, Satisfaction with Life, Disabled, Malaysia

Introduction

Disability sport which has developed since post-World War II, now evolved into the Paralympic Games being its pinnacle, has increased awareness and unlocked an extensive number of opportunities for the disabled population. Despite the significant benefits and opportunities that elite disability sports contribute to the disabled community, there is remarkably sparce attention on the quality of life (QoL) and life satisfaction of disabled athletes (1).

Disability is any impairment of the body or mind that limits the persons activity and interaction with their environment (2). Athletes with disabilities are not a homogeneous population. Instead they are a diverse group with a wide range of needs instead of a single population due to the multiple types and combinations of impairment. The international paralympic committee has classified the types of impairment to ten distinct groups which are impaired muscular power, impaired passive range of motion, limb deficit, leg length difference, short stature, hypertonia, ataxia, athetosis, visual and intellectual impairment (3). Disabled athletes represent a unique subset of the population whose QoL and well-being are greatly affected by the restrictions, obstacles and inequities they experience daily. Inherently high level competitive sports is synchronous with high levels of stress related to intense training, increased performance expectations, and sports injuries which may further affect these athletes psychologically. To achieve outstanding performance in the sport, elite athletes commit an exceptional amount of time to physical training. Although extensive training may present hazards such as injury, ailments or nutrition restrictions, it is commonly viewed as normal moreover characteristic of the culture of elite sport (4).

It is paramount to recognize that high performing athletes, including athletes with disabilities, despite the risks of exhaustive training, seek to improve their performance whilst strengthening the psychological health. In the culture of excellence, the psychological well-being of these athletes should be considered as a core component (5) in their management and training programmes.

QoL is a complex and multidimensional construct salient to psychological well-being of individuals. The World Health Organization as defined the QoL of a person as 'the individuals' perception of their position in life in the

context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (6). The QoL of athletes is pivotal in the athletes psychological health which in turn affects the athletes development and overall performance.

Subjective well-being has been described by elite athletes as an interaction between satisfaction with life (SWL), perceived QoL and sports experiences (7). The SWL also described as an individual's desire to achieve as compared with actual accomplishments. Therefore while assessing the QoL, the SWL of these athletes is also considered. SWL can be defined as a distinction between the real accomplishment and one's own assumptions and plans (8) or recognized as contentment, and is a part of the subjective well-being associated with positive emotions and happiness (9).

Most research has previously focused on abled bodied athletes' QoL while QoL and SWL of disabled athletes are less understood. With the great improvement in medical care, number of disabled persons in Malaysia has increased from 305,640 in the year 2012 to 453,258 in 2017 (10). Over the past several decades, opportunities for participation in competitive sports for the disabled has increased tremendously. Therefore it is important to address the unique challenges and opportunities in the management of disabled athletes present with. The assessment of QOL among these athletes may be helpful in developing more comprehensive support system for improvement of psychological wellbeing and sports performance.

Taking into consideration the situation described above, the purposes of this study were to explore (a) perceptions of QoL of Malaysian national disabled athletes, (b) life satisfaction of these athletes' and (c) to explore the relationship between athlete's QoL and SWL.

Methods

Study design

A cross-sectional quantitative study was conducted to measure QoL and SWL of the participants. The questionnaire has been designed so that the respondents can complete it quickly and with minimal effort and help. QoL was measured by the short version of the World Health Organization Quality of Life (1) scale. The athletes' satisfaction with life was measured by the Satisfaction with Life Scale (SWLS). Research ethics clearance and approval was given by the University Malaya Research Ethics Committee (UMREC) with reference number UM.TNC2/UMREC_1221.

Participants

This study was conducted in the year 2021 at the Pusat Kecemerlangan Sukan Paralimpik Malaysia Kampung Pandan. Universal sampling was used and all athletes with physical and/or intellectual disability staying at the center who were at least 18 years of age were included. Those who were unable to provide consent or understand English or Malay language due to intellectual disabilities were excluded. Participants in this study were not known to have severe cognitive impairments that would limit their ability to independently read and understand the questionnaire. Among the type of intellectual disability included in this population are Down syndrome and autism spectrum disease, all of which have IQ scores between 35 and 75. Individuals living and training outside this centre were not included due to constraints in administering the online questionnaire. Sport official and coaches were briefed on the questionnaire and given the link to the online questionnaire to be disseminated to the athletes since researchers were discouraged from entering the premises during the Covid-19 pandemic. The questionnaire was conducted through google forms with all results sent directly to the researchers email.

Instruments

The online self- administered questionnaires that consisted of three parts: socio-demographic data, WHOQoL-BREF and SWLS. Malaysia is a multilingual society and as such the questionnaire was distributed with a choice of Malay language or English language.

Socio-demographic

Demographic variable included date of birth, ethnicity, gender, marital status, level of education, and type of impairment (physical or intellectual). Date of birth was provided as a drop-down calendar while the rest were multiple choice to facilitate and allow for athletes (including those with a small degree of intellectual disability) to complete questionnaire on their own.

Short Form of World Health Organization Quality of Life Questionnaire (WHOQoL-BREF)

The WHOQoL-BREF is a short version of the WHO Quality of Life Questionnaire, assessing the QoL of the athletes. It comprises of 26 item scored with 5 point Likert scaled questionnaire. Twenty-four of the items evaluate four specific domains: physical health (seven items), psychological health (six items), social relationships (three items), and environment (eight items) domains, while the other two items measure overall QoL and general health. Therefore, the maximum score for physical health, psychological health, social relationships and environment are 35, 30, 15 and 40, respectively with scores above 20, 18, 9 and 24 respectively accepted as good or satisfactory quality of life in that particular domain. The physical health domain incorporates activities of daily living, dependence on medical substance or aids, energy, mobility, pain and discomfort, sleep and work capacity. Domain scores are scaled in a positive direction where higher scores denote higher quality of life. The mean score of items within each domain is used to calculate the domain score. The questionnaire was adapted for Malaysian setting by Hasanah et al. (6). The reliability of this locally adapted

questionnaire, as measured by the internal consistency coefficient (Cronbach's α), is 0.64–0.80 for individual domains.

The Satisfaction with Life Scale (SWLS)

The life satisfaction of athletes was assessed using the SWLS which is designed to measure global cognitive judgement of satisfaction with one's life and has only five items. Each of the items are rated on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree); with total score ranging from 5 to 25 and higher scores indicate greater life satisfaction. Total score of 5 to 9 indicates extremely dissatisfied with life, 10 to 14 dissatisfied, 15 is accepted as neutral, 16 to 20 is satisfied and score above 21 is extremely satisfied with life. This measure allowed each respondent to weigh the importance of life domains in accordance with his/her own values. Good internal consistency was shown with a Cronbach alpha coefficient of 0.86 with an overall classification accuracy estimate of 85.2% among the diverse Malaysian population (11, 12).

Data Analysis

Statistical analysis was performed using SPSS version 26. Demographic data are presented as proportion and percentage. Quantitative variables are presented as mean in normally distributed data and median for skewed data. Normality was determined by Kolmogorov-Smirnov test. Spearmans correlation was used to assess the relationship between each sub-domain of WHOQoL-Bref with SWLS. Parametric tests were used for normally distributed data and non-parametric test will be used for skewed data. The level of statistical significance was set at $P < 0.05$.

Results

A total of 86 athletes (median age 27.5 years, range: 18 - 47 years) participated in the study. The median duration of participation in adapted sports were 5 (IQR 2.00, 8.00) years, the longest being 18 years. Athletes were involved in 11 events with the highest representation from the athletics (13) and the smallest representation from boccia (1%). Majority of the athletes (n = 82, 95%) were fulltime training athletes, while only 4 athletes (4.7%) were part time and had employment as teachers and sports official.

The athletes reported positive perceptions of WHOQoL-Bref recording median score above average for all domains – physical health 23.15 (IQR 21.00, 25.00), environmental 29.15 (IQR 26.00, 32.00), psychological health 24.00 (IQR 21.00, 26.00) and social relationship 10.0 (IQR 8.00, 13.00). SWLS scores had a median of 19.00 (IQR 15.00, 21.25) out of 25 showing participants are mostly satisfied with their life. Male athletes had higher scores for SWLS and all domains of WHOQoL-BREF except physical domain (Table 1).

Table 1: Participant characteristics

Demographic variables	Frequency N	Percentage (%)	SWLS total scores Median (IQR)
Gender			
Male	74	86.0	19.00 (15.75, 22.00)
Female	12	14.0	16.5 (15.00, 19.00)
Ethnicity			
Malay	59	68.6	19.00 (17.00, 22.00)
Chinese, Indian and Others	27	31.4	16.00 (14.00, 20.00)
Type of disability			
Physical	78	90.7	18.00 (15.00, 21.50)
Intellectual	8	9.3	20.00(18.50, 22.00)
Highest level of education			
Secondary school	66	76.7	19.00 (16.00, 22.00)
College/university	12	14.0	16.00 (14.00, 19.75)
Primary school	8	9.3	18.50 (13.75, 20.00)
Marital status			
Single	61	70.9	18.00 (15.00, 21.00)
Married	22	25.6	20.50 (16.00, 23.25)
Widowed	2	2.3	16.50 (13.00, 16.50)
Divorced	1	1.2	20.00 (20.00, 20.00)
Employment			
Full time athletes	82	95.3	19.00 (17.50, 22.00)
Part time athletes	4	4.7	16.50 (13.50,18.75)

Relationship between characteristic of participants and scales.

Between genders, the difference was significant for social relationship and environment but not physical and psychology subscale of WHOQoL-Bref (Table 2). Using the Mann- Whitney U test, the difference in scores between the Malay ethnic and other ethnicities (Chinese, Indian and others) were significant for SWLS and every sub-domain of WHOQoL-Bref (Table 3). There was however no statistically significant relationship between athlete's age and education level with WHOQoL-Bref or SWLS.

Table 2: Relationship between characteristic of participants with WHOQoL-Bref subdomains and SWLS questionnaire

	Satisfaction with life scale	WHOQoL-Bref			
		Physical health	Psychological health	Social relationship	Environmental health
	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)
Gender					
Male	19.00 (15.75, 22.00)	23.00 (21.00,26.00)	24.00 (21.00,27.00)	10.00 (8.00, 13.00)	30.00 (26.75, 32.00)
Female	16.50 (15.00,19.00)	24.00 (19.50,25.00)	22.25 (20.00,25.75)	8.00 (6.25,9.00)	26.00 (23.25,29.50)
P-value	-1.958[a] .050	-.332[a] .740	-1.240[a] .215	-2.628[a] .009*	-2.030[a] .042*
Education					
Primary school	18.50 (13.75,20.00)	21.00 (18.25,24.75)	22.50 (17.75,24.75)	9.00 (9.00,10.75)	27.00 (22.50,29.25)
Secondary school	19.00 (16.00,22.00)	23.00 (21.00,25.25)	24.00 (21.00,27.00)	10.00 (8.00,13.00)	29.00 (26.00,32.00)
College/ University	16.00 (14.00,19.75)	23.50 (20.25,26.00)	24.00 (22.00,25.50)	9.00 (8.00,11.75)	30.50 (24.25,32.00)
P-value	2.690[b] .260	1.978[b] .372	2.262[b] .323	.454[b] .797	2.639[b] .267
Age					
18-25	19.00 (16.50,21.25)	23.00 (20.75,25.00)	23.00 (20.00,27.00)	9.5 (8.00,12.00)	27.50 (24.00,30.25)
26-35	18.00 (15.00,21.00)	24.00 (21.00,26.00)	24.00 (22.00,26.00)	10.0 (7.50-12.50)	31.00 (26.50,33.50)
>35	18.00 (16.00,22.00)	22.00 (22.00,26.00)	26.00 (25.00,27.00)	13.00 (11.50,15.50)	30.00 (27.00,32.00)
P-value	.769[b] .681	3.229[b] .199	.964[b] .618	4.108[b] .128	5.810[b] .055

[a]Mann-Whitney U Test
[b]Kruskal-Wallis Test
Median scores of each characteristic of participants were compared to all scales by using Mann-Whitney U test or Kruskal -Wallis test accordingly. * Values are positive correlations with significant $P < 0.05$.

Table 3: Relationship between ethnicity and scales

	Malay	Others (Chinese, Indian and others)	Mann -Whitney U test (p value)	P value
Satisfaction with life scale Median (IQR)	19.00 (17.00,22.00)	16.00 (14.00,20.00)	-2.509	.012*
Physical health Median (IQR)	24.00 (21.00,26.00)	22.00 (19.00,24.00)	-2.706	.007*
Psychological health Median (IQR)	24.00 (23.00,27.00)	21.00 (20.00,25.00)	-2.399	.016*
Social relationship Median (IQR)	10.00 (8.00,13.00)	9.00 (8.00-11.00)	-2.154	.031*
Environmental health Median (IQR)	30.00 (27.00,33.00)	26.00 (23.00-31.00)	-2.873 .	.004*

There is a significant difference between Malay and all other ethnicities with each scale.

Relationship between WHOQoL-Bref and SWLS

The association among the physical health, psychological health, social relationships, and environmental health sub-dimensions of WHOQOL-Bref scores and the SWLS scores are shown in Table 4. Spearmans correlation showed a significant positive relationship between SWLS and all four sub-dimensions of WHOQOL-Bref (14) and between all individual sub-dimensions of WHOQOL-Bref (14) were noted. This positive correlation was strongest between SWLS and social relationships domain (r = 0.578) of the WHOQOL-Bref.

Table 4: Correlations among WHOQoL-Bref subdomains and SWLS questionnaire

	Satisfaction with life scale	WHOQoL Bref			
		Physical health	Psychological health	Social relationships	Environmental health
Physical health	.448 (<.01)				
Psychological health	.567 (<.01)	.686 (<.01)			
Social relationships	.578 (<.01)	.336 (<.01)	.483 (<.01)		
Environmental health	.565 (<.01)	.689 (<.01)	.785 (<.01)	.495 (<.01)	

Spearman's correlation coefficient was used to compare median scores of each domain of the WHOQol-Bref and SWLS questionnaire, showing a significant positive relationship between all comparisons. Values are expressed as r (P).

Discussion

Research on disabled athletes in Malaysia is sparce, and this study sought to identify factors affecting the QoL and SWL of these athletes and also to determine the relationship between QoL and SWL. Although the number of research participants of 86 athletes may appear relatively small, it is important to recognize there were only 116 athletes living at the centre at that point in time which equates to 74.1% correspondence. It is also salient to note that Malaysia fielded only 16 athletes in Rio 2016 and 22 in Tokyo 2020 Paralympics. Our study showed that Malaysian athletes with disabilities who participated in adapted sports had high QoL which corroborates with studies from other countries such as Turkey (15), Slovakia (16) Brazilian wheelchair tennis athletes (17) and in a smaller narrative of people with disabilities participating in sports (18).

Our results of high perceived QoL can be understood by the fact that as elite athletes, mental strength and well-being are central to optimal performance. Athletes have been found to experience better overall QoL than their non-athlete counterparts, as well as enhanced mental, emotional, and social health (19-21). In particular, the QoL of physically disabled non-athlete teenagers in Kuala Lumpur, Malaysia which was found to be low specifically in physical functioning, general and mental health (22) while the QoL among lower limb amputees in the same country was only satisfactory (23). Even more striking is the small narrative on the QoL of patients with cerebral palsy where almost 40% of respondents reported moderate to severe effect of disability on the QoL (24).

Together with high QoL, our athletes showed high SWL scores in this study. This not only indicates high-level of SWL it also shows increased happiness in those with physical disabilities participating in adapted sports which is consistent with a study of those with spinal cord injuries whom participated in sports (21).

Our results showed a positive correlation of QoL and SWLS in disabled athletes participating in adapted sports in Malaysia. This is in keeping with the results of several other studies (15, 25, 26) in which individuals with disabilities who participated in adapted sports had better QOL and life satisfaction than individuals with disabilities who did not. In our study population, SWLS has moderately strong correlation with all four subdomains of WHOQoL-Bref indicating all domains are equally important in determining SWL which is a similar finding in other studies (16, 27).

Majority of the participants in this study were males (Table 1) with males scoring higher in all scales in comparison to females with statistically significant social relationships and environmental health (Table 3). The variance found between male and female may have a multi-factorial origin associated with cultural backgrounds, physical and psychological health and environmental conditions. Women from south Asia scored highest in the psychological domain and lowest in the social domain of the WHOQoL Bref (28). The social domain in the WHOQoL-Bref incorporates personal relationships, social support and sexual activity while environmental health encompasses financial resource, freedom , physical safety, health and social care, home environment, opportunities for acquiring new information and skill, leisure activities, physical environment and transport. Leisure involvement has been found to promote happiness, maintaining psychological and physical health state and increase the QoL and satisfaction with life in college athletes (29).

The study also found that the social and environmental domains in quality of life are the most important affecting the confidence and training of these athletes. However due to some leisure constraints more specific to women which were the sense of lack of entitlement, ethic of care, health and safety constraints (30, 31) women were found to have lesser leisure time corresponding to lower social

relationships and environmental health scores. Historically literature has shown that women are not only inclined to develop stress during sports, but they also allow emotions to dictate their actions much more than men. While literature on the gender differences in psychology for the general population is largely available, such data on male and female elite athletes is still scarce. Earlier findings have shown that psychologically, women benefit from lower intensity exercises and training while men are more likely to benefit from vigorous activities (32).

The training programs for elite athletes are expected to be strenuous and intense especially nearing competition, which may place psychological stress on the athletes especially female athletes. Females in general are diagnosed with not only anxiety but also depression roughly twice as often as their male counterparts (33-35) and eating disorders up to 10 times more while female athletes have a significantly higher prevalence of anxiety and depressive symptoms, lower mental well-being scores (36) and greater extent of negative social media effects (37) than male athletes. Therefore it would be fair to anticipate that even among elite athletes, these gender-based disparities may be observed with elite female athletes being more susceptible to issues encountered in their environments and more plausibly be diagnosed with psychological problems. National coaches have stated that women have different roles in society out of sports and therefore there needs to be more incentive and life balance for female athletes (38). With this knowledge, it is important that the goal of psychological follow-up for elite athletes ought to include the identification of socio-environmental risk and accordingly the placement of protective factors that could play an important role in the psychological well-being of each individual especially female athletes.

Interestingly we also found that ethnicity affected the scores of overall QoL where athletes of Malay ethnicity were found to have significantly higher QoL and SWLS than other ethnicities. The difference in QoL between ethnicities is also seen in other studies within Malaysia. Disparities were noted when examining the QoL of adolescents in Malaysia from different ethnicities with adolescents of Malay heritage having lower QoL (39) while disabled teenagers revealed those of Malay ethnicities having higher QoL and mental health (22). It is difficult to postulate the reasons behind this finding, however differing expectations and culture may be of plausible cause.

The positive results of QoL and SWLS are despite the Covid-19 restrictions that brought about the abrupt change in their daily routine with the confinement measures (40), and uncertainty about the precise timing of return to activities. Although the movement control order is known to lead people to negative mental health, maladaptive coping strategies (41) and quality of life (42); pleasantly this was not seen in our athletes. The possibility that happier disabled people chose to participate in sports in the first place may temper with the interpretation of the results of this study, it however cannot explain the numerous correlational and similar findings in other studies (27).

As this study was conducted during the movement control order which was in place to control the spread of Covid-19, it brought about multiple obstacles which were unfavourable yet unavoidable. The limitation of our study include the inability to conduct a formal interview of each athlete, the need to rely on officials within the centre to distribute and conduct the survey and the inability to aid in certain subgroups such as boccia leading to a small representation. Only a short questionnaire was used due to these obstacles to ensure ease and comfort of athletes in hopes to increase number of respondents. Although the number of research participants of 86 athletes may appear relatively small, it is important to recognize there were only 116 athletes living at the centre at that point in time which equates to 74.1% correspondence. It is also salient to note that Malaysia fielded only 16 athletes in Rio 2016 and 22 in Tokyo 2020 Paralympics.

Conclusion

Despite their disabilities and the restrictions in place, Malaysian national disabled athletes positively evaluated their quality of life and life satisfaction. Careful analysis showed that female athletes scored significantly lower in the domains of social relationships and environmental health emphasizing that female athletes are more susceptible to socio-environmental and may require placement of protective measures to favourably support the performance of these athletes. Athletes of Malay ethnicity were also found to have higher QoL and SWLS compared to other ethnicities.

Recommendation

The research findings show QoL has a positive impact on the satisfaction with life of disabled athletes. Activities geared to raise the QoL may likely be valuable in terms of increasing satisfaction with life. It is important to determine the QoL and SWL of disabled athletes to improve treatment and performance of these athletes.

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Competing Interests

The authors declare there is no conflict of interest that may affect the integrity of this study.

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Ethical clearance

We obtained approval from University Malaya Research Ethics Committee (UMREC) (Reference number UM.TNC2/UMREC_1221).

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