e-Bangi Faculty of Social Sciences and Humanities Universiti Kebangsaan Malaysia
Journal of Social Sciences and Humanities

eISSN: 1823-884x

Volume 20, Issue 3, DOI: https://doi.org/10.17576/ebangi.2023.2003.15

Article

Determinants of Quality of Life Person with Disabilities in Malaysia

Alias Abd Aziz[1*], Rohana Jani[2] & Hanira Hanafi[3]

[1]Department of Business Analytics, Sunway Business School, Sunway University 47500 Selangor Darul Ehsan, Malaysia
[2]Ungku Aziz Center for Development Studies, Universiti Malaya, 50603 Kuala Lumpur, Malaysia
[3]Department of Syariah and Law, Academy of Islamic Studies, Universiti Malaya, Malaysia

[*]Corresponding Author: aliasbinabdaziz@gmail.com

Received: 20 April 2023
Accepted: 6 June 2023

Abstract: To maximize the quality of life (QoL) among persons with disabilities (PWDs) in Malaysia, it is important to identify factors that are strongly associated with the QoL of PWDs. The aim of this study is to identify the determinants of QoL among PWDs in Malaysia. A cross-sectional study approach was applied covering 340 participants with hearing impairments, visual impairments, and physical disabilities. A multiple regression analysis was performed to determine the determinants of QoL. The seven QoL domains namely physical health, psychological, social relationships, environment, discrimination, autonomy, and inclusion were considered as dependent variables while demographic profile, socio-economic status, and disability history were considered independent variables. The contribution of independent variables to most of the QoL domains was modest. This study found that type of disabilities is a significant determinant for physical health, psychological, environment, discrimination, and inclusion domains. Meanwhile, the level of education is a significant determinant in the environment and autonomy domain. It was also found that age group is a significant determinant in the psychological domain. Meanwhile, employment status is a significant determinant in physical health domains. However, self-rated health is not significant in the discrimination domain. Both PWDs with good health conditions or PWDs with unhealthy conditions face the same experience of discrimination. These findings supplement the existing knowledge and contribute to future research, service planning initiatives, public education, and policy formulation. Furthermore, this study may aid social service stakeholders in evaluating the effectiveness of current activities and identifying trends for future planning.

Keywords: determinant; person with disabilities; Malaysia; quality of life; regression analysis

Introduction

In daily living, PWDs all over the world face barriers in all areas of life such as education, employment, social and political life, and community participation. and health. These lead to lower educational achievements, lower levels of employment, higher rates of poverty, and poorer health outcomes (World Bank, 2023). Based on previous research, PWDs are the nation's largest minority, and they usually tend to be marginalized in all aspects of life (Ang, 2014; Islam, 2015; Kempin Reuter, 2019; Tiun et al., 2011). They also usually experience substantially poor QoL and are more likely to be underemployed due to institutional discrimination (Kuklek et al., 2021; Tiun et al., 2011). Subsequently, these factors generally contribute to lower QoL. Reducing the barriers in society is an important step to improve the QoL of the PWDs population.

In the context of Malaysia, the number of PWDs has increased along with the increase in the total Malaysian population. In 2019, a total number of 540,986 disabled persons in Malaysia were registered under the Department of Social Welfare (Department of Social Welfare Malaysia, 2019). However, since the PWDs registration process is done voluntarily, the number reported is less than the WHO estimation, which is 15 percent of the total population in each country categorized as PWDs (ESCAP 2023). The number of PWDs in Malaysia is expected to grow as a consequence of several factors such as aging population, natural disasters, chronic health problems, permanent impairment caused by road accidents, and enhanced methodologies used to measure the disability. The same factors are also experienced by many countries in the Asian and Pacific regions (Islam, 2015; Islam & Cojocaru, 2015). PWDs population are not getting equal opportunities in many aspects of life such as educational opportunities, careers, and many other privileges. These are due to the existence of certain barriers such as insufficient work and educational opportunities, low facilities, and others that prevent them from fully participating in society (Abdullah et al., 2017; Goodall et al., 2022; Jelas & Mohd Ali, 2014; Ta & Leng, 2013; Tinta et al., 2020).

Nonetheless, there is a continuous effort from the government to provide a better life towards the wellbeing of PWDs in this country including the enactment of a specific statute to regulate the matters related to PWDs. In 2008, the Persons with Disabilities Act 685 was enacted to promote the development and enhancement of the QoL and well-being of PWDs. Besides that, there is also the promotion of better accessibility to common facilities including services, buildings, public transport, and public amenities. This statute also encourages and supports appropriate measures to recognize skills at the workplace, employment opportunities for the disabled, foster the level of education for children with disabilities, training professionals in rehabilitation services, and many other functions directed by the Minister for proper implementation of the Act.

However, it is found that the Persons with Disabilities Act 2008 has no punitive provision providing a remedy to breach the rights of persons with disabilities. This has made the Persons with Disabilities Act 2008 merely referred to identify the powers of the National Council for PWDs and the definition of PWDs. In addition, its non-remedial nature makes it non-enforceable in certain conditions. To date, there has been no development or improvement made to this Act causing it to remain ineffective over the years while the people it means to protect, continue to be systematically discriminated against due to its lack of enforcement mechanism (Abdullah et al., 2017). Past researchers found that there are numbers of components that can be influenced by the inherent balance and QoL of PWDs. Jani et al. (2022) for example, found that PWDs with higher education levels generally have a better QoL. Low social connectedness, on the other hand, is reported to be negatively connected with QoL (Emerson et al., 2021). Having a good health condition is another important factor in influencing the QoL of PWDs. This is a significant reason contributed to several research that has been conducted based on health related to the QoL (Bakas et al., 2012; Johansson et al., 2019; Memisevic et al., 2017). Besides, having a job is also an important determinant of a high QoL (Drobnič et al., 2010; Kim et al., 2022).

Therefore, it is important to examine the factors to determine the QoL of PWDs in Malaysia. Such output will further help the government to allocate resources and plan effective programs to better improve the QoL of PWDs. Identifying the important factors that determine the QoL of PWDs can also provide information for the stakeholders to strengthen the existing program and policies related to the PWDs wellbeing. Therefore, the purpose of this study is to identify the determinant of QoL of PWDs in Malaysia.

Methodology

1. Participants

Table 1 shows the demographic characteristic of the PWDs participated in this study. The respondents were stratified according to three categories of disabilities namely physically disabled, visually impaired, as well as hearing and speech impaired. About 26.8 per cent of the 340 respondents were hearing and speech impaired while 14.7 per cent were visually impaired and 58.5 per cent were physically disabled. The result shows that 64.0 per cent of the respondents felt that their health was in good condition while 36.0 per cent felt that their health was not in a good condition. Around 69.1 per cent of the respondents were male and 30.9 per cent were

female, which equates roughly to the gender distribution of PWDs in the population. There were 228 respondents who classified themselves as not married and that accounts for 67.3 per cent of the sample. A total of 94 respondents (27.7 per cent) were married and only 17 respondents (5.0 per cent) introduced themselves as widowed/divorced/separated. In the employment status, 138 respondents (41.1%) were employed and only 18.5% were unemployed while the remaining (40.5%) were still studying. In terms of socio-economic status, more than half of the PWDs had low education level (primary and secondary), less than half of them have a permanent job, over 30% of them came from a poor family with monthly household income less than RM1000, and only 13.9% of them with monthly household more than RM3999.

Table 1. Demographics characteristic

Disability Variables	**Frequency**	**Percent (%)**
Types of Disabilities		
Hearing & Speech Impaired	91	26.8
Visually Impaired	50	14.7
Physically Disabled	199	58.5
Self-evaluate Health Condition		
Healthy	217	64.0
Unhealthy	122	36.0
Age Group (Years)		
18 – 24	136	40.0
25 – 39	102	30.0
40 – 59	88	25.9
60 and Above	14	4.1
Gender:		
Male	235	69.1
Female	105	30.9
Marital Status		
Married (*Ref.*)	94	27.7
Not Married	228	67.3
Widowed/divorced/ separated	17	5.0
Employment Category		
Employed	138	41.1
Unemployed	62	18.5
Still studying	136	40.5
Highest Education Level		
Primary and secondary	232	68.4
Tertiary	107	31.6
Monthly Household Income		
< RM1000	92	31.3
RM1000 – RM3999	161	54.8
> RM4000	41	13.9
Experience Special Education School		
Yes	94	42.2
No	129	57.8

2. Procedure

Since there is an obstacle to personally reach the PWDs, a collaboration with a registered institution or organization that manages the affairs of PWDs is the most effective method to get their participation in this study. The Department of Social Welfare Malaysia and Social Security Organization (SOCSO) was the main government institution collaborator in this study. In addition, other organizations that cooperated in providing information and arrangement for data collection were the Development Organization for Blind Malaysia, the Society of the Orthopedically Handicapped Malaysia, the Malaysian Deaf Muslim Association, and the People Experience Division, Employee Services and Operation TM Project.

Since the interview session was arranged by the respective institution or organization, data collection was conducted at their respective offices or places. Prior to data collection, formal appointments and documents were sent through email or letter to the respective institutions and organizations. Those who agreed to participate were fully briefed on the aim of the study, and written informed consents were obtained before conducting the survey. Face-to-face verbal interviews were conducted with the visually impaired participants. A sign language interpreter was employed to assist with hearing and speech impairment participants while self-administered questionnaires were conducted for the physically disabled participants. Participants were not exposed to any kind of harm either physically, psychologically, socially or economically during this study.

3. Instrument

The QoL of PWDs in this study was accessed using the WHOQOL-DIS instrument (Power & Green, 2010). This instrument consists of seven domains namely physical health, psychological health, social relationship, environment, discrimination, autonomy, and inclusion. WHOQOL-DIS is a cross-culturally generic instrument developed specifically to access the QoL of PWDs. This instrument consists of an existing WHOQOL-BREF and WHOQOL-100 as well as the incorporation of a supplementary module (disability module) (Power & Green, 2010). This instrument has been proven by previous research as a reliable instrument to access QoL of PWDs (Bredemeier et al., 2014; Lee et al., 2017; Lucas-Carrasco et al., 2011). This instrument is a 5-point Likert-type scale (Table 2) with 39 items including 3 global items. However, the 'sexual activity' item was removed in this study due to a very high missing value (unanswered). Therefore, in total, there were 35 items across seven domains and 3 global items.

Table 2. Response Scale of WHOQOL -DIS

	Scale				
Intensity	Not at All	A Little	A moderate amount	Very much	An extreme amount
Evaluation	Very poor	Poor	Neither poor nor good	Good	Very good
Satisfaction	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
Capacity	Not at all	A little	Moderately	Mostly	Completely
Frequency	Never	Seldom	Quite often	Very often	Always

3. Statistical Analysis

The mean score was calculated according to a method as stated in the WHOQOL- DIS manual. All the scores were transformed to reflect the total score between 4 to 20. It was then transformed to a scale of 0 to 100 using the following formula:

$$\textit{Transformed Mean Score} = (\text{Mean Score} - 4) \times (100/16)$$

The 0 score represents the minimum score while 100 represents the maximum score across all QoL domains. To identify the common factors to explain QoL, a multiple linear regression model was used to predict the dependent variable (y) and to identify the predictors or independent variables that are most effective in estimating the dependent variables. The dependent variables in this analysis are the seven QoL domains (physical health domain, psychological health domain, social relationship domain, environment domain, discrimination domain, autonomy domain, and inclusion domain). The independent variables tested include all variables in the demographic characteristic, socioeconomic, and disability history. Since all independent variables selected in this study are categorical, dummy variables were created.

The Findings

1. QoL Mean Score

Table 3 shows the mean score of seven QoL domains. Overall, the social relationship domain has the highest mean score of 71.48 per cent (SD = 17.79) among the other domains. The physical health domain had a mean

score of 64.32 per cent with a minimum score of 17.86 per cent and a maximum score of 96.43 per cent. The psychological health and environment domain had a mean score of 68.03 per cent (SD = 14.54) and 66.72 per cent (SD = 2.49), respectively. Discrimination and inclusion domains, which both related directly to disability issues had a mean score of 45.72 per cent (SD = 21.42) and 63.97 per cent (SD = 19.13), respectively. A low score in the discrimination and inclusion domain indicates that PWDs in Malaysia may have experienced discrimination and they feel that they did not get equal rights and opportunities like other populations.

Table 3. Overall QoL mean score

Domain	Min	Max	Mean	Std. deviation
Physical health	17.86	96.43	64.32	14.44
Psychological health	8.33	100.00	68.03	14.54
Social relationship	25.00	100.00	71.47	17.78
Environment	21.88	100.00	66.72	15.55
Discrimination	0.00	100.00	45.72	21.41
Autonomy	0.00	100.00	67.43	20.21
Inclusion	0.00	100.00	63.97	19.13

2. Determinants of QoL among PWDs

The contribution of independent variables to most QoL domains was modest explaining anywhere from 3.4 per cent to 12.1 per cent of the explained variance (Table 4). Upon examining the factors of the seven QoL domains, it was found that three independent variables were identified as significantly common factors toward the physical health domain. These variables are types of disabilities (B = 6.48), self-rated health (B = -5.22), and current employment status (B = -5.21). Visually impaired PWDs showed a 6.48 percent higher score in the physical health domain compared to physically disabled persons. PWDs with the unhealthy condition and unemployed showed a lower score in the physical health domain.

In psychological domains, both visually and hearing disabled persons showed higher mean scores compared to the physically disabled persons about 5.53 percent and 3.62 percent, respectively. PWDs with an unhealthy condition scored 6.15 percent lower compared to PWDs with a good health condition. PWDs with the age between 25 – 29 years old scored 5.04 percent higher mean score compared to PWDs in the age of 18 – 24 years old.

In the social relationship domain, only one independent variable is significant with the variation of the independent variables that contributed to 3.4 per cent to the model. That variable is self-rated health (B = -5.05, p-value = 0.000). PWDs with an unhealthy condition scored 5.04 percent lower in the social relationship domain compared to healthy PWDs. In the environment domain, hearing impaired persons, health conditions, and level of education showed significant common factors toward the environment domain. Hearing impaired person scored 7.77 percent higher compared to the physically disabled person. Like other domains, PWDs with unhealthy conditions scored 4.66 percent lower in the environment domain. PWDs with higher education levels scored 4.17 percent higher compared to PWDs with lower education levels.

An interesting result was found in the discrimination domain. Unlike most of the other domains, self-rated health is not significant in the discrimination domain. This indicates that a health condition does not differentiate PWDs' views on the discrimination issue. Both PWDs with a good health condition or PWDs with an unhealthy condition face the same experience in discrimination. Other independent variables that are significant as a common factor towards the discrimination domain showed that hearing-impaired persons have 7.76 percent feeling they were discriminated compared to physically disabled persons. This is because their impairment is not as apparent as it is in the case of physically and visually impaired persons. PWDs who have experienced special education showed 0.68 percent feeling less discriminated compared to PWDs without special education.

There are two independent variables that significantly contribute to the autonomy domain, which are self-rated health and highest education level. PWDs with unhealthy health conditions scored 3.56 percent lower while PWDs with tertiary education scored 5.42 percent higher compared to their counterparts. The inclusion domain shows hearing impaired persons and PWDs with highest education level scoring 4.72 percent and 4.68 percent higher, respectively compared to physically disabled persons and PWDs with lower

education levels. Furthermore, PWDs with an unhealthy condition scored 3.67 times lower on the inclusion domain compared to PWDs with a good health condition.

Table 4. Determinant of seven quality of life domain

	Physical Health		Psychological		Social Relationship		Environment		Discrimination		Autonomy		Inclusion	
	B	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**	**B**	**Sig.**
Types of Disabilities														
Physical Impairment (*Ref.*)														
Visual Impairment	6.48	**0.002***	5.53	**0.012***	0.027	0.616	0.021	0.700	0.114	**0.041***	0.052	0.337	0.025	0.650
Hearing Impairment	0.10	0.060	3.62	**0.042***	0.074	0.172	7.77	**0.000***	-7.76	**0.003***	0.043	0.426	4.716	**0.044***
Self-rated Health														
Healthy (*Ref.*)														
Unhealthy	-5.22	**0.000***	-6.15	**0.000***	-5.05	**0.000***	-4.66	**0.000***	-0.088	0.102	-3.565	**0.029***	-3.665	**0.017***
Age Group (Years)														
18 – 24 (*Ref.*)														
25 – 39	0.061	0.234	5.326	**0.001***	0.037	0.491	0.064	0.240	-0.032	0.556	0.025	0.657	0.038	0.498
40 – 59	-0.058	0.271	0.050	0.375	0.067	0.213	-0.017	0.740	-0.001	0.981	0.056	0.299	0.062	0.254
60 and above	0.011	0.830	-0.037	0.473	-0.078	0.148	-0.023	0.660	0.038	0.479	-0.019	0.730	0.013	0.807
Gender														
Male (*Ref.*)														
Female	-0.017	0.748	-0.042	0.417	0.044	0.416	0.020	0.706	-0.062	0.250	0.004	0.938	-0.001	0.991
Marital Status														
Married (*Ref.*)														
Not Married	0.014	0.790	-0.070	0.177	-0.069	0.197	-0.068	0.190	0.065	0.242	-0.049	0.363	-0.095	0.078
Widowed/divorced/ separated	0.010	0.842	0.012	0.813	0.042	0.437	-0.036	0.488	-0.097	0.072	0.063	0.240	-0.037	0.498
Current employment status														
Employed (*Ref.*)														
Unemployed	-5.21	**0.007***	-0.077	0.138	-0.092	0.086	-0.028	0.592	-0.056	0.303	-0.005	0.933	-0.028	0.600
Still studying	0.053	0.345	0.049	0.359	0.004	0.942	0.035	0.507	0.019	0.730	-0.051	0.350	-0.022	0.689
Highest Education Level														
Primary and secondary (*Ref.*)														
Tertiary	0.065	0.210	0.060	0.260	0.060	0.265	4.17	**0.017***	0.030	0.579	5.426	**0.021***	4.675	**0.034***
Monthly Household Income														
< RM1000 (Ref.)														
RM1000 – RM3999	-0.054	0.290	0.034	0.509	0.095	0.075	0.031	0.558	-0.027	0.621	0.029	0.600	0.075	0.168
> RM4000	-0.051	0.324	0.043	0.407	0.103	0.054	0.044	0.401	-0.027	0.615	0.023	0.679	0.079	0.080
Experience with Special Education														
Yes (*Ref.*)														
No	0.079	0.132	0.036	0.488	0.050	0.351	0.052	0.321	0.682	**0.017***	0.023	0.679	0.013	0.809
Adjusted R^2	0.114		0.121		0.034		0.104		0.034		0.025		0.036	

*$p < 0.05$, there are significant determinant

Discussion

Among the seven QoL domains, the discrimination domain has the lowest score. This finding was supported by (Shigaki et al., 2012) in research conducted on 1,144 faculty and staff members of Midwestern University that showing PWDs in this country are still facing discrimination, especially in job and education opportunities. The PWDs in the university were treated unfairly, harassed, and discriminated at work even though there is evidence that PWDs are more committed, and their performance is comparable to the able-bodied co-workers. Besides that, many previous studies also found that PWDs have always been the subject of discrimination and exclusion in society (Abdullah et al., 2017; Pande, 2022; Park, 2017). According to Islam (2015), discrimination towards PWDs in Malaysia occurs in public and social institutions. In public institutions, discrimination occurs within the legal system or education and health services. In addition, in social institutions, discrimination occurs in the household. These types of discriminations are the examples of barrier that hinders PWDs to fully participate in the society. According to the social model perspective, disability is defined as "*the social and economic disadvantage which results from society's failure to respond to the needs of people with impairments*" (Burchardt, 2003).

Therefore, one of the objectives in the Malaysian Plan of Action for People with Disabilities 2016-2022 is to eliminate disability discrimination in line with the current discrimination issue faced by PWDs in Malaysia (Abdul Rahim et al., 2017). The highest score in the social relationship domain indicates that PWDs in this country have better experiences in their personal relationship and social support items compared to other facets or items. Based on the findings, three domains should be emphasized to improve the QoL of PWDs in this country. These three domains are discrimination, inclusion, and physical health.

The result from this study also indicates that self-rated health is the important common factor of the seven WHOQOL-DIS domains. With the exception of the discrimination domain, better health status is a significant determinant for all WHOQOL-DIS domains. Previous studies also have proven that better health condition is a positive influence on QoL of PWDs (Bredemeier et al., 2014; Johansson et al., 2019; Memisevic et al., 2017). The finding of this study is consistent with the finding conducted by Bredemeier et al. (2014) on 162 respondents with physical and sensory impairment in Brazil. A similar study was performed by Lucas-Carrasco et al. (2010) on 149 physical disabilities respondents in Spain using WHOQOL-Bref and WHOQOL-DIS instruments. The respondents who perceived themselves as having good health conditions scores higher in all domains even though only psychological and environment domains show a statistically significant difference.

One of the common factors that will make not only the general population but also the PWDs have a better health condition is actively involved in physical activity such as sports and recreational activities (Bull et al., 2020; Piercy et al., 2018). A study conducted by Mockeviciene and Savenkovienė (2012) found that in many developed countries, sport and other recreational activities were an important factor in improving the QoL of PWDs. Sport and other recreational activities not only can maintain good health conditions but also are able to increase the potential of independence and positive self-evaluation among the PWDs. Therefore, there is a need for the government, non-governmental organizations, and the private sector to work hand in hand to produce technology that is able to eliminate barriers faced by the PWDs to participate in sports and recreational activities.

Other than self-rated health, education level is also an important common factor of QoL for PWDs. According to Kaur et al. (2015), PWDs with higher education are more versatile, motivated, and able to control and integrate their disability into their life. In addition, higher education has positive links with opportunities to land a job. Previous studies have found that higher education levels resulted in higher QoL, especially on the facets of psychology and environment (Addabbo et al., 2016; Winters, 2011). This is because individuals with better socio-economic status usually live in a good environment (Addabbo et al., 2016). In addition, education also improves wellbeing as it allows access to non-alienated work and economic resources. This will help in increasing the sense of control over life and access to stable social relationships such as marriage that can increase social support (Ferrer-i-Carbonell, 2005). A well-educated person will also have low levels of emotional and physical distress (Ferrer-i-Carbonell, 2005). However, a study conducted by Khoo et al. (2013a) on 487 PWDs from four northern states of Malaysia found that there was no distinctive affiliation

between the employee's level of education and employment opportunities. Having an excellent educational background showed no added advantage for PWDs in getting a job (Khoo et al., 2013a, 2013b).

Conclusion

This study revealed three important findings that the related stakeholder needs to give attention to improve the QoL of PWDs in this country. First, discrimination is a real issue faced by PWDs that need effective measures to overcome. The effort should include an amendment to the current Act to ensure maximum effectiveness of the enforcement. It seems that punitive remedy provisions should be introduced in order for society to treat PWDs with respect and dignity based on their legal rights recognised by the law. Second, there is a need to encourage PWDs to have healthy activities such as getting involved in recreational activities. Therefore, universal design in sporting and recreation facilities must accommodate PWDs and the same opportunities were given to PWDs and healthy individuals to participate in all aspects of the facilities. Third, the government must effectively promote and encourage the development and implementation of inclusive education policies, programs, and practices to ensure equal education opportunities for PWDs.

Acknowledgement: This research is supported financially by Universiti Malaya through the Universiti Malaya Research Grant (UMRG) with grant number RP013A-13SBS, SAGA Project no: 6004932.

Ethical Approval: Ethical approval for this study was granted by Universiti Malaya Research Ethics Committee with protocol code: UM. TNC2/UMREC-190.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest: The authors declare no conflict of interest.

References

Abdul Rahim, A., Samad, A., Amirah, N., Said, I., Seman, W., & Amin, W. (2017). *Malaysian Plan of action for people with disabilities 2016-2022*: Way Forward.

Abdullah, N. B., Hanafi, H. B., & Hamdi, N. I. B. M. (2017). The rights of persons with disabilities in Malaysia: The underlying reasons for ineffectiveness of persons with disabilities Act 2008. *International Journal for Studies on Children, Women, Elderly and Disabled*, *1*.

Addabbo, T., Sarti, E., & Sciulli, D. (2016). Disability and life satisfaction in Italy. *Applied Research in Quality of Life*, *11*(3), 925-954.

Ang, M. C. (2014). Do persons with disabilities act. 2008 and organizational culture influence managerial intention to hire persons with disabilities?: The Malaysian perspective. *Jurnal Pengurusan (UKM Journal of Management)*, *41*.

Bakas, T., McLennon, S. M., Carpenter, J. S., Buelow, J. M., Otte, J. L., Hanna, K. M., Ellett, M. L., Hadler, K. A., & Welch, J. L. (2012). Systematic review of health-related quality of life models. *Health and Quality of Life Outcomes*, *10*, 134.https://doi.org/10.1186/1477-7525-10-134

Bredemeier, J., Wagner, G. P., Agranonik, M., Perez, T. S., & Fleck, M. P. (2014). The World Health Organization quality of life instrument for people with intellectual and physical disabilities (WHOQOL-Dis): Evidence of validity of the Brazilian version. *BMC Public Health*, *14*(1), 1. https://doi.org/10.1186/1471-2458-14-538

Bull, F. C., Al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., Carty, C., Chaput, J. P., Chastin, S., Chou, R., Dempsey, P. C., DiPietro, L., Ekelund, U., Firth, J., Friedenreich, C. M., Garcia, L., Gichu, M., Jago, R., Katzmarzyk, P. T., Lambert, E., … Willumsen, J. F. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, *54*(24), 1451–1462. https://doi.org/10.1136/bjsports-2020-102955

Burchardt, T. (2003). *Being and becoming: Social exclusion and the onset of disability. CASE Report 21*. London: LSE.

Department of Social Welfare Malaysia, J. (2019). *Statistic report Department of Social Welfare Malaysia*. https://www.jkm.gov.my/jkm/uploads/files/pdf/laporan_statistik/FINAL%20Web%20Upload%20-%20Laporan%20Statistik%202019.pdf

Drobnič, S., Beham, B., & Präg, P. (2010). Good job, good life?. Working conditions and quality of life in Europe. *Social Indicators Research*, *99*(2), 205-225.

Emerson, E., Fortune, N., Llewellyn, G., & Stancliffe, R. (2021). Loneliness, social support, social isolation and wellbeing among working age adults with and without disability: Cross-sectional study. *Disability and Health Journal*, *14*(1), 100965. https://doi.org/10.1016/j.dhjo.2020.100965

Economic and Social Commission for Asia and the Pacific. (2023). *Social Development Disability Inclusive Development*.https://www.unescap.org/our-work/social-development/disability-inclusive-development

Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, *89*(5-6), 997-1019.

Goodall, G., Mjøen, O. M., Witsø, A. E., Horghagen, S., & Kvam, L. (2022). Barriers and facilitators in the transition from higher education to employment for students with disabilities: *A Rapid Systematic Review [Systematic Review]*. *7*. https://doi.org/10.3389/feduc.2022.882066

Islam, M. R. (2015). Rights of the people with disabilities and social exclusion in Malaysia. *International Journal of Social Science and Humanity*, *5*(2), 171. https://doi.org/10.7763/IJSSH.2015.V5.447

Islam, M. R., & Cojocaru, S. (2015). Advocacy for empowerment: A case of the learning disabled people in Malaysia. *Revista de Cercetare si Interventie Sociala*, *50*, 38.

Jani, R., Alias, A. A., & Tumin, M. (2022). Persons with disabilities' education and quality of life: Evidence from Malaysia. *International Journal of Inclusive Education*, *26*(8), 753-765. https://doi.org/10.1080/13603116.2020.1726511

Jelas, Z. M., & Mohd Ali, M. (2014). Inclusive education in Malaysia: policy and practice. *International Journal of Inclusive Education*, *18*(10), 991-1003.

Johansson, L. M., Lingfors, H., Golsäter, M., Kristenson, M., & Fransson, E. I. (2019). Can physical activity compensate for low socioeconomic status with regard to poor self-rated health and low quality-of-life? *Health and Quality of Life Outcomes*, *17*(1), 33. https://doi.org/10.1186/s12955-019-1102-4

Kaur, G., Leong, T. P., Yusof, J. M., & Singh, D. (2015). Perception of people with disability in creating sustainable public policy. *Procedia-Social and Behavioral Sciences*, *168*, 145-155.

Kempin Reuter, T. (2019). Human rights and the city: Including marginalized communities in urban development and smart cities. *Journal of Human Rights*, *18*(4), 382-402. https://doi.org/10.1080/14754835.2019.1629887

Khoo, S. L., Tiun, L. T., & Lee, L. W. (2013a). Unseen challenges, unheard voices, unspoken desires: Experiences of employment by Malaysians with physical disabilities. *Kajian Malaysia*, *31*(1), 37.

Khoo, S. L., Tiun, L. T., & Lee, L. W. (2013b). Workplace discrimination against Malaysians with disabilities: Living with it or fighting against it? *Disability Studies Quarterly*, *33*(3).

Kim, M., Jasper, A. D., Lee, J., & Won, H. (2022). Work, leisure, and life satisfaction for employees with physical disabilities in South Korea. *Applied Research in Quality of Life*, *17*(2), 469-487. https://doi.org/10.1007/s11482-020-09893-4

Kuklek, N. M., Cséplő, M., Pozsonyi, E., & Pusztafalvi, H. (2021). Raising employment and quality of life among people with disadvantages – results of a Hungarian project. *BMC public health*, *21*(1), 1729. https://doi.org/10.1186/s12889-021-11763-z

Lee, K. J., Jang, H. I., & Choi, H. (2017). Korean translation and validation of the WHOQOL-DIS for people with spinal cord injury and stroke. *Disability and Health Journal*, *10*(4), 627-631. https://doi.org/https://doi.org/10.1016/j.dhjo.2016.12.017

Lucas-Carrasco, R., Pascual-Sedano, B., Galán, I., Kulisevsky, J., Sastre-Garriga, J., & Gomez-Benito, J. (2010). Using the WHOQOL-DIS to measure quality of life in persons with physical disabilities caused by neurodegenerative disorders. *Neurodegenerative Diseases*, *8*(4), 178-186.

Lucas-Carrasco, R., Pascual-Sedano, B., Galán, I., Kulisevsky, J., Sastre-Garriga, J., & Gómez-Benito, J. (2011). Using the WHOQOL-DIS to measure quality of life in persons with physical disabilities caused by neurodegenerative disorders. *Neurodegenerative Diseases*, *8*(4), 178-186.

Memisevic, H., Hadzic, S., Ibralic Biscevic, I., & Mujkanovic, E. (2017). Quality of life of people with disabilities in Bosnia and Herzegovina–is there a moderating effect of the health status? *Scandinavian Journal of Disability Research*, *19*(4), 375-382. https://doi.org/https://doi.org/10.1080/15017419.2017.1279076

Mockeviciene, D., & Savenkovienė, A. (2012). Aspects of life quality of persons with physical disabilities. *Social Welfare: Interdisciplinary Approach*, *2*(2), 84-93.

Pande, N. (2022). Social exclusion of the physically disabled. In R. C. Tripathi, B. R. Kar, & N. Pande (Eds.), *Towards an Integrative psychological science: Issues, approaches and applications* (pp. 213-228). Springer Singapore. https://doi.org/10.1007/978-981-16-9565-0_11

Park, J. Y. (2017). Disability discrimination in South Korea: Routine and everyday aggressions toward disabled people. *Disability & Society*, *32*(6), 918-922. https://doi.org/10.1080/09687599.2017.1321223

Piercy, K. L., Troiano, R. P., Ballard, R. M., Carlson, S. A., Fulton, J. E., Galuska, D. A., . . . Olson, R. D. (2018). The physical activity guidelines for Americans. *JAMA*, *320*(19), 2020-2028. https://doi.org/10.1001/jama.2018.14854 %J JAMA

Power, M. J., & Green, A. M. (2010). Development of the WHOQOL disabilities module. *Quality of Life Research*, *19*(4), 571-584. https://doi.org/http://dx.doi.org/10.1007/s11136-010-9616-6

Shigaki, C. L., Anderson, K. M., Howald, C. L., Henson, L., & Gregg, B. E. (2012). Disability on campus: A perspective from faculty and staff. *Work*, *42*(4), 559-571.

Ta, T. L., & Leng, K. S. (2013). Challenges faced by Malaysians with Disabilities in the World of Employment. *Disability, CBR & Inclusive Development*, *24*(1), 6-21. https://doi.org/http://doi.org/10.5463/dcid.v24i1.142

Tinta, N., Steyn, H., & Vermaas, J. (2020). Barriers experienced by people with disabilities participating in income-generating activities. A case of a sheltered workshop in Bloemfontein, South Africa. *Afr J Disabil*, *9*, 662. https://doi.org/10.4102/ajod.v9i0.662

Tiun, L., Lee, L., & Khoo, S. (2011). Employment of people with disabilities in the Northern State of Peninsular Malaysia: Employers' perspective. *Disability, CBR and Inclusive Development Journal*, *22*, 79-94. https://doi.org/http://doi.org/10.5463/dcid.v22i2.28

Winters, J. V. (2011). Human capital, higher education institutions, and quality of life. *Regional Science and Urban Economics*, *41*(5), 446-454.

World Bank. (2023). *Disability Inclusion*. https://www.worldbank.org/en/topic/disability