



Self-acceptance and Attitude towards Disability among People with Disability Attending a Nigerian Tertiary Health Facility

Olufemi O. Oyewole^{1*}, Olatunde Odusan², Olubunmi T. Bodunde³,
Lateef O. A. Thanni⁴, Bamidele S. Osalusi² and Adekunle A. Adebajo⁴

¹Department of Physiotherapy, Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.

²Department of Medicine, Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.

³Department of Ophthalmology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.

⁴Department of Orthopaedics and Traumatology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.

Authors' contributions

This work was carried out in collaboration between all authors. Author OOO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors OO, OTB and LOAT participated in designing the study, writing of protocol and reviewed the manuscript. Authors BSO and AAA reviewed the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Acceptance of disability status and positive attitude towards disability may be modulating factors in improving quality of life of individuals with disability. Although many studies have investigated attitudes toward disability, none has evaluated personal attitude towards disability among People With Disability (PWD) in Nigeria. This study was to investigate self-acceptance and attitude towards disability among PWD in Nigeria and to examine factors influencing their attitudes. A cross-sectional design was employed to recruit 260 PWD consecutively from out-patient clinic of a

*Corresponding author: E-mail: oyewoleye@yahoo.co.uk, oyewoleye@gmail.com;

tertiary hospital in Nigeria. Data were collected on participants' socio-demographic information, disability and attitude towards disability using World Health Organization Disability Assessment Schedule and Attitudes toward Disabled Persons Form A (ATDP-A) questionnaires. Descriptive and inferential statistics were used to analyse the data. Poisson regression was applied to assess factors associated with attitudes. ATDP- A score was 92.7 ± 21.1 (ranged, 34-170) with more participants (54%) having a score ≥ 90 which indicates a positive attitude and acceptance of their disabilities. Item-by-item analysis of responses to 30 items on ATDP-A Scale showed that negative attitudes were preponderant on items relating to their emotional and competitiveness. PWD largely held positive attitude towards disability and this remained unchanged when stratified by disability severity. Factors such as educational level, mild disability, younger age, type and duration of disability were associated with positive attitude held towards disability. In conclusion, PWDs largely held positive attitude, accepted their disability status irrespective of disability severity though negative attitudes were more on items relating to their emotion and competitiveness.

Keywords: Acceptance; attitude; disability; persons with disability; Nigeria.

1. INTRODUCTION

The International Classification of Functioning, Disability and Health (ICF) has defined disability as impairment in body functions and structures, activity limitations and participation restrictions caused by a health condition [1]. Majority (80%) of estimated 600 million people with various disabilities live in low-income countries [2]. In a recent study from Nigeria, 47% prevalence of disability was reported among stroke survivors [3]. The disabilities experienced by stroke survivors have been shown to impact on their quality of life [4]. People with sensory disability such as glaucoma may experience vision loss which may lead not only to limitations in performing activities, but also to a loss of these activities and pose serious problem to the independence of such individuals [5,6]. Vision impairment has been shown to restrict participation, worsen functional disability and impacted negatively on quality of life [5,7-10]. In a study, lower extremity fracture patient still experienced impairment in their function six months after, which impacted negatively on their quality of life especially on their physical and psychological health [11].

Self-acceptance and attitude towards disability by People With Disability (PWD) might modulate some of the effects of disability on PWD. Attitudes have been defined by Nolen-Hoeksema et al. [12] as "the cognitive and behavioral processes that involve judgment and favorable/unfavorable reactions to different aspects of disability or a given reality". These attitudes can be positive or negative, facilitating or hindering functionality. The attitudes of PWD toward themselves and others have been shown to influence those of the general public toward

disability [13]. The effects of negative attitude to disability by PWD are enormous as negative perceptions can lead to lack of opportunities and work, low self-esteem, isolation, recurring negative health outcomes that prolong the discomfort of PWDs and reduced health related quality of life as well as create a substantial social burden while PWD's positive attitude lead to improved quality of life and positive behavior [14,15].

Acceptance is defined by C Manchaiah et al. [16] as "a process of actively taking in thoughts, memories, feelings and bodily sensations in a specific situation without having to follow or change them". PWD's self-acceptance of disability is the key factor in adjusting/adapting to disabling condition [17,18]. Therefore, knowledge of self-acceptance among PWD could help improve relevant health services, facilitate positive attitude towards disability and foster social integration [15,16].

Previous studies have focused on attitudes of the public, caregivers and health professional to PWDs [19-25]. These studies revealed that healthcare students' and professionals' attitudes toward people with physical disabilities were positive. The attitude of public toward PWDs also changed favorably after viewing Olympic or Paralympics' performance. Perceptions of disability among caregivers reflected a mix of traditional and western beliefs. The research question remains, what is the attitude of PWDs towards their disabilities? Do they accept their disabilities? Studies on PWD's attitudes to disability are few with none from Nigeria [14,15]. This data becomes necessary especially in Nigeria where to our knowledge, none exists. Therefore, this study aimed to investigate self-

acceptance and attitude towards disability among PWD attending a Nigerian tertiary hospital and also examine potential influencing factors associated with their attitudes.

2. METHODS

2.1 Study Design and Participants

A cross-sectional design was employed to consecutively recruit participants from out-patient clinics of Olabisi Onabanjo University Teaching Hospital (OOUTH); [via Ophthalmology, orthopedics, neurology and endocrinology clinics]. Included were patients with glaucoma having vision impairment, musculoskeletal disorders, diabetes having sensory disability and stroke survivors having motor disability. In all, 303 patients (out of 552 eligible patients that attended the clinic during the period) were recruited: Ophthalmology 72, orthopedics 75, neurology 66 and endocrinology 90. Fourteen patients were excluded due to incomplete data and 29 were excluded from further analysis for not having at least a score of two on WHODAS scale. Two hundred and sixty PWDs with complete data were included in the analysis (vision disability 57, musculoskeletal disability 70, sensory disability 68 and motor disability 65). The inclusion criteria included: adults aged ≥ 18 years with one or more disabilities based on ICF criteria (impairment in body structure and function, activity limitation and participation restriction), having score of ≥ 2 on WHODAS scale which suggests \geq mild disability, and who gave informed consent to participate. Those who were acutely ill and not competent for interview to complete the questionnaires were excluded. Prior to data collection, Cohen's table was used to estimate the sample size with the assumption of effect size of 0.25 between the four disability groups at significant criterion of 0.05 and 80% power [26] which result yielded 45 PWDs from each disability group giving rise to minimum sample of 180 PWDs from the four clinics. The data were collected between March and August, 2016.

2.2 Procedure

This study was approved by the Health Research Ethics Committee of Olabisi Onabanjo University Teaching Hospital, Sagamu. Informed consent was obtained from the patients after details of nature, purpose and procedures for the study was explained to them in their best understood language and agreement to participate. Each

participant's socio-demographic data and anthropometric variables were collected prior to the administration of questionnaires. The questionnaires were self-administered by those who were literate and interviewer-administered by the investigators for those who were not literate in either of English or Yoruba languages and vision impaired participants.

2.3 Instruments

World Health Organization Disability Assessment Schedule (WHODAS 2.0) was used to assess disability among the participants. It is a 12-item version self- or interview-administered that has proved to have good psychometric properties and has been described in detail elsewhere [4,27]. Simple sum norm values of 1–4, 5–9, and 10–48 were used to classify survivors as being with mild, moderate, and severe disability, respectively [28].

The Attitudes towards Disabled Persons Form A (ATDP-A) scale was used to assess the attitudes of the participants towards disability. It consists of 30-items scored on 6-point Likert scale from -3 (I disagree very much) to +3 (I agree very much). It was designed to measure attitudes toward disability in general, originally used with the general population. The items of the instrument were generated from literature review and discussion with psychologists [29]. It has 12 items with positive wording and 18 items with negative wording. By definition, a positive item is one which indicates that disabled persons are not "different" from non-disabled persons. In scoring the ATDP-A, the first step is to change the signs of the items with positive wording. Once the signs of the positive items have been changed, the algebraic sum of all the item scores is obtained. The sign of the sum is then reversed, from negative to positive or positive to negative. The total scores obtained in this fashion can range from -90 to +90. To eliminate negative values a constant of 90 is then added to make all of the scores positive. The resulting score range is from 0 to 180 with a high score reflecting positive attitudes. If more than 10 percent of the items are left blank (4 on the 30-item scale) the test is considered not scorable. If 10 percent or fewer items are omitted, the completed items are scored as usual with the customary constant added to eliminate negative values. This is equivalent to assigning a neutral value to the omitted items. ATDP-A has been shown to be reliable and have good content and construct validity [24,29-30]. ATDP-A scale score of ≥ 90 was used as cut-off for positive attitude [24].

2.4 Data Analysis

Data were analyzed using SPSS, version 16.0 for Windows (SPSS Inc., Chicago, IL, USA). Descriptive statistics such as mean, standard deviation, frequency and percentages were used to summarize the data. Groups' mean differences were assessed using t-test or F-test as appropriate. For categorical variables, association was assessed with χ^2 test. Poisson regression was used to assess factors that were associated with PWD's attitude towards disability. *P*-value was set 0.05.

3. RESULTS

Two hundred and sixty individuals with disability aged 56.5 ± 16.6 years participated in the study. Their characteristics were as shown in Table 1. There is significant difference in age ($p = 0.0001$) across the disability types. Individuals with musculoskeletal disability are significantly younger than others as shown by Post Hoc analysis. The scores on ATDP- A scale ranged from 34 to 170 with mean scores of $92.7 + 21.1$ which indicates a positive attitude and acceptance of their disability. Based on cut-off for the scale (≥ 90) only 54% held positive attitude towards disability (Table 1). The participants largely held positive attitude towards disability and this remained unchanged when stratified by disability types except for those with motor or sensory disabilities. These held mainly negative attitude toward disability. There is significant association between the attitude held towards disability and the disability types ($P = 0.038$). Those with musculoskeletal and visual disabilities held more positive attitude towards disability than those with motor and sensory disabilities (Table 1). There is also significant association between severity of disability and disability types ($P = 0.0001$). Those with motor

and musculoskeletal disabilities have significantly moderate/severe disability ($P=0.0001$) while those with visual and sensory disabilities have less or mild disability (Table 1).

There is no significant association between disability severity and attitude held towards disability among the participants. Irrespective of disability severity, all participants held positive attitude towards disability (Table 2). There is no sex difference in attitude scores and no sex association with attitude held towards disability or disability severity.

Response to the 30 items on ATDP-A Scale showed that more participants held positive attitude in 18 out of 30 items. The positive attitude were reported on issues of friendliness/sociable, intelligence, self-confidence and independence, usefulness to society, need for inclusion and been ambitious (Table 3). However, more negative attitude was reported on 12 out of 30 items when the participants (people with disability) consider themselves different, less competitive, more emotional and worrisome (Table 4).

The results of Poisson regression analysis indicated that only factors such as educational level, occupation, mild disability, and younger age, type of disability and duration of disability were associated with positive attitude held towards disability among PWD (Table 5). Younger PWDs were 1.04 times more likely to hold positive attitude towards disability compared with older PWDs. Participants with mild disability were 1.04 times more likely to have positive attitude towards disability compared with severe disability. PWD of less duration of disability were 0.97 less likely to have positive attitude towards disability than those with longer duration.

Table 1. Characteristics of the participants by type of disability

Variables	Disability types				<i>P</i>	all
	Vision	Motor	MSK	Sensory		
Age (Mean \pm SD)	62.8 \pm 15.4	62.1 \pm 12.6	44.8 \pm 18.2	57.9 \pm 12.9	0.0001*	56.5 \pm 16.6
Sex [n (%)]						
Male	33(57.9)	37(56.9)	43(61.4)	32(47.1)	0.371**	145(55.8)
Female	24(42.1)	28(43.1)	27(38.6)	36(52.9)		115(44.2)
Attitude (Mean \pm SD)	94.6 \pm 23.5	89.9 \pm 20.6	96.3 \pm 18.4	90.1 \pm 21.9	0.20*	92.7 \pm 21.1
Attitude [n (%)]						
Negative attitude	24(42.1)	36(55.4)	24(34.3)	37(54.4)	0.038**	121(46.5)
Positive attitude	33(57.9)	29(44.6)	46(65.7)	31(45.6)		139(53.5)
Disability severity [n (%)]						
Mild disability	17(29.8)	2(3.1)	10(14.3)	23(33.8)	0.0001**	52(20.0)
Moderate disability	18(31.6)	15(23.1)	14(20.0)	14(20.6)		61(23.5)
Severe disability	22(38.6)	48(73.8)	46(65.7)	31(45.6)		147(56.5)

P* are for ANOVAs test, *P* are for χ^2 test, MSK=Musculoskeletal

Table 2. Attitude to disability by severity of disability and gender

	Disability severity			Test statistics	P	Sex		Test statistics	P
	Mild	Moderate	Severe			Male	Female		
Attitude (Mean±SD)	95.2±25.6	93.3±22.5	91.6±18.7	0.582*	0.560	93.5±22.5	91.8±19.3	0.648†	0.518
Attitude [n (%)]									
Negative attitude	22(42.3)	26(42.6)	73(49.7)	1.362**	0.515	64(52.9)	57(47.1)	0.759**	0.384
Positive attitude	30(57.7)	35(57.4)	74(50.3)			81(58.3)	58(41.7)		
Sex [n(%)]									
Male	30(57.7)	34(55.7)	81(55.1)	0.105**	0.949				
Female	22(42.3)	27(44.3)	66(44.9)						

*test statistics is for ANOVA and ** is for χ^2 test, † is for t-test

Table 3. Prevalence of positive attitude towards disability as indicated by ATDP-A scale

ATDP-A items	Responses n (%)		
	Agree	Disagree	No response
1. Disabled people are often unfriendly	98(37.7)	162(62.3)	-
6. Disabled workers cannot be as successful as other workers	102(39.2)	157(60.4)	1(0.4)
7. Disabled people usually do not make much of a contribution to society	93(35.8)	165(63.5)	2(0.8)
9. Disabled people show as much enthusiasm as other people	198(76.2)	61(23.5)	1(0.4)
11. Severely disabled persons are usually untidy	115(44.2)	143(55.0)	2(0.8)
12. Most disabled people feel that they are as good as other people	170(65.4)	89(34.2)	1(0.4)
14. Disabled people are usually sociable	188(72.3)	69(26.5)	3(1.2)
17. Most disabled persons are not dissatisfied with themselves	167(64.2)	89(34.2)	4(1.5)
19. Most disabled persons do not get discouraged easily	186(71.5)	69(26.5)	5(1.9)
20. Most disabled persons resent physically normal people	115(44.2)	135(51.9)	10(3.8)
21. Disabled children should compete with physically normal children	144(55.4)	112(43.1)	4(1.5)
22. Most disabled persons can take care of themselves	186(71.5)	69(26.5)	5(1.9)
23. It would be best if disabled persons would live and work with non-disabled persons	207(79.6)	48(18.5)	5(1.9)
24. Most severely disabled people are just as ambitious as physically normal people	197(75.8)	58(22.3)	5(1.9)
25. Disabled people are just as self confident as other people	205(78.8)	51(19.6)	4(1.5)
27. Physically disabled persons are often less intelligent than non-disabled ones	116(44.6)	140(53.8)	4(1.5)
29. Disabled persons don't want any more sympathy than other people	166(63.8)	89(34.2)	5(1.9)
30. The way disabled people act is irritating	112(43.1)	144(55.4)	4(1.5)

Participant with vision and musculoskeletal disabilities were 1.06 and 1.08 times respectively more likely to have positive attitude toward disability compared with those with sensory disability. PWD who were illiterate or having education less than tertiary education were less likely to have positive attitude towards disability compared with those who had tertiary education.

4. DISCUSSION

Results from our study revealed that people with disability largely held positive attitudes towards their disability. Despite different methods of assessing attitude towards disability, our observation is similar to that of a previous study

from China which reported positive attitudes among people with disability ([15]. The positive attitude held by people with disability (PWD) has great advantage not only for the PWD but also for the general public. It has been reported that the attitudes of PWD toward themselves and others were thought to influence those of the general public toward disabilities [13], invariably leading to positive attitudes in general public and reduction in discriminatory tendency and stigma in the society towards the disabled. The mean score of ATPD-A scale is 93 which indicate a positive attitude and acceptance of disability. This score (93) is similar to that of physiotherapy students from Nigeria [24]. This might suggest that health professionals shared similar attitudes towards disability as in PWD in Nigeria.

Table 4. Prevalence of negative attitude towards disability as indicated by ATDP-A scale

ATDP-A items	Responses n (%)		
	Agree	Disagree	No response
2. Disabled people should not have to compete for jobs with physically normal people	135(51.9)	122(46.9)	3(1.2)
3. Disabled people are more emotional than other people	190(73.1)	68(26.2)	2(0.8)
4. Most disabled persons are more self conscious than other people	203(78.1)	54(20.8)	3(1.2)
5. We should expect just as much from disabled as from non-disabled persons	101(38.8)	158(60.8)	1(0.4)
8. Most non disabled people would not want to marry anyone who is physically disabled	195(75.0)	64(24.6)	1(0.4)
10. Disabled persons are usually more sensitive than other people	194(74.6)	64(24.6)	2(0.8)
13. The driving test given to a disabled person should be more severe than the one given to the non-disabled	158(60.8)	101(38.8)	1(0.4)
15. Disabled persons usually are not as conscientious as physically normal people	135(51.9)	120(46.2)	5(1.9)
16. Severely disabled persons probably worry more about their health than those who have minor disabilities	214(82.3)	42(16.2)	4(1.5)
18. There are more misfits among disabled persons than among non-disabled persons	153(58.8)	103(39.6)	4(1.5)
26. Most disabled persons want more affection and praise than other people	224(86.2)	31(11.9)	5(1.9)
28. Most disabled persons are different from non disabled people	181(69.6)	73(28.1)	6(2.3)

Table 5. Poisson regression of attitude towards disability and associated factors

Variables	B	SE(B)	IRR	95%CI(IRR)	p value
Intercept	4.542	0.026	93.859	89.226 - 98.734	0.0001
Age					
>60 yrs (reference)					
≤60 yrs	0.035	0.018	1.036	1.000 - 1.072	0.048
Sex					
Female (reference)					
Male	-0.025	0.015	0.975	0.948 - 1.004	0.086
Marital status					
widowed/divorcee (reference)					
Single	0.045	0.031	1.046	0.984 - 1.111	0.150
Married	0.017	0.020	1.017	0.978 - 1.059	0.396
Education					
Tertiary (reference)					
Illiterate	-0.130	0.027	0.879	0.833- 0.926	0.0001
Primary	-0.080	0.021	0.924	0.887 - 0.962	0.0001
Secondary/proficiency cert.	-0.070	0.017	0.932	0.901 - 0.964	0.0001
Occupation					
Unemployed(reference)					
Artisan/trading	-0.030	0.017	0.970	0.939 -1.003	0.073
Teaching/professional	-0.057	0.021	0.945	0.907 - 0.985	0.007
Disability types					
Diabetes (reference)					
Vision	0.059	0.019	1.061	1.021 - 1.101	0.002
Stroke	0.044	0.020	1.045	1.005 - 1.086	0.027
Musculoskeletal	0.080	0.019	1.083	1.043 - 1.125	0.0001
Disability Severity					
Severe disability (reference)					
Mild disability	0.042	0.018	1.043	1.007 - 1.081	0.017
Moderate disability	0.010	0.017	1.010	0.978 - 1.044	0.546
Disability duration					
>12 months (reference)					
≤12 months	-0.031	0.014	0.970	0.943 - 0.997	0.031

CI: Confidence Interval, IRR: Incidence Rate Ratio, SE: Standard Error, B: Beta

Item by item analysis of ATDP-A scale helps in identifying specific perception of PWD (positive or negative attitudes) towards disability. The multi-item structure of ATDP-A scale allowed such analysis and facilitates identification of negative attitudes held for possible addressing misconception and negative attitudes [24]. More negative attitude was reported in 12 out of 30 items. Majority of PWD held negative attitudes regarding emotional aspects of their personality. Misconceptions were revealed in responses to five out of the seven ATDP-A scale items on emotional disposition of PWD. PWD perceived themselves as more praise, affection and attention-seeking, more emotional, self-conscious and sensitive than other people. The majority of PWD also considered severely disabled persons as worrying more about their health than those with minor disabilities. These negative attitudes have far reaching implications in rehabilitating this subgroup of disability-related population. These negative emotions may hinder participation in rehabilitation and good outcome which may impact their quality of life eventually. Equally worrisome is the fact that most PWD considered themselves misfits and different compared with other people and that not much should be expected from disabled as from non-disabled persons. These negative attitudes may hinder society integration and participation restriction.

It is noteworthy that most PWD held positive attitudes in 18 of 30 items like view of equality with non-disabled in terms of intelligence, ambition, confidence, success and enthusiasm. It is also encouraging that they overwhelmingly agreed that PWD are friendly, sociable, and are able to take care of themselves and contribute to the society. These positive attitudes should be reinforced and promoted during rehabilitation. This is necessary especially as some of the PWD did not share such attitudes. The difference between the majority with positive attitudes and those with negative attitudes was slight in some instances.

An important finding of this study is the association of types of disabilities with attitudes held towards disability. All except PWD having motor and sensory disabilities largely held positive attitudes. The reasons why PWD having motor disability in the present study largely held negative attitudes towards disability may not be unconnected to the severity of their disability and old age. The data suggest that those with motor disabilities in this study have 95% moderate/

severe disabilities and were older than 60 years of age. It has been observed that, even with a mild physical disability, personal attitude towards disability was unfavorable among Chinese people with physical disabilities [14]. This may suggest that PWD having motor disability like in stroke survivors with major motor disabilities should be focused during rehabilitation for attitudes modification to enhance positive attitude and outcome. This association was buttressed further with regression analysis. Participant with vision and musculoskeletal disabilities were 1.06 and 1.08 times respectively more likely to have positive attitude toward disability compared with those with sensory disabilities. However, when stratified by disability severity participants largely held positive attitudes irrespective of disability severity. Although, regression analysis suggests that participants with mild disability were 1.04 times more likely to have positive attitude towards disability compared with severely disabled. It might imply that PWD who have severe disabilities should have more attention during rehabilitation for attitudinal change.

Younger participants in the present study held positive attitudes towards disability while older participants were less favorable. Younger PWD was 1.04 times more likely to have positive attitude towards disability compared with older PWD, in agreement with previous study that reported older age was associated with negative attitudes [15]. It has been observed that elders with disability suffer not only disability but also the health-related consequences of ageing, including physical, psychological, and social functional degeneration toward disability among PWD [15]. This might be responsible for our observation in the present study. Thus, policy makers and rehabilitation professionals should focus on the elderly PWD who make up the vulnerable subgroups among the disability-related population. This study showed no significant gender association with attitudes held by PWD as had been previously observed [15]. This might imply that PWD have the same attitudes towards disability irrespective of gender.

The data suggest that the longer the duration of disability, the more the positive attitudes held towards disability. PWD of less duration of disability were 0.97 less likely to have positive attitude towards disability than those with longer duration. This was in agreement with previous studies which found significant association between duration of disability and attitudes held by PWD [14-15]. It has been postulated that

PWD with longer duration adapted to their disabilities and accepted it after a long year of living with disabilities [15]. It is also possible that they have developed coping mechanism with their disabilities. A focus group study of glaucoma patients revealed varied coping mechanism that such patients adopted in coping with their condition [6]. This finding may imply that those with short duration of disability might hold negative attitudes. Hence, such group should be monitored during rehabilitation for mentoring and assistance.

Our results revealed that PWD who were illiterate or education level less than tertiary education were less likely to have positive attitude towards disability compared with those who had tertiary education. This is in agreement with a previous study that reported PWD with higher educational level held more positive attitude towards disability [15]. It is likely that those who are highly educated are well informed about their disability and hence the positive attitudes they held. This may buttress the need for educating PWD about disability to enhance positive attitudes among them.

This study has important clinical implications. Although people with disabilities largely held positive attitude, negative attitudes preponderant on items relating to their emotional and competitiveness are significant determinant of outcome during rehabilitation and may impact their quality of life as earlier noted [14]. Acceptance of disability is of added advantage for their participation in rehabilitation programmes hence, all efforts should be directed at improving their emotional wellbeing towards improved outcome.

This study to our knowledge is probably the first from Nigeria that assessed the attitudes of people with disability towards disability using a validated instrument. The results should be interpreted with caution as like in many cross-sectional studies, an observed association cannot be interpreted as causality. PWD in this study are limited to those that were attending a tertiary hospital for treatment and thus, may not be generalizable to disability-related population who are not seeking medical help.

5. CONCLUSION

In conclusion, people with disabilities largely held positive attitude, accept their disability status irrespective of disability severity though negative

attitudes were common on items relating to emotion and competitiveness in comparison with others. Therefore, effort should be directed at improving emotional aspect of their personality during rehabilitation. The future study could examine the attitude of persons with congenital and acquired disability towards their disabilities.

CONSENT

Informed consent was obtained from all individual participants included in the study.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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