البناء العاملي والخصائص السيكومترية لمقياس وعي الأفراد ذوي الإعاقة بحقوقهم

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المستخلص: هدفت الدراسة الحالية إلى تطوير والتحقق من صدق مقياس لتقييم وعي الأفراد ذوي الإعاقة بحقوقهم. وبعد مراجعة الأدبيات وتحليل صلاحية المحتوى مع خبراء بحقوق ذوي الإعاقة، تم تطوير 43 بندًا. تم التحقق من مدى وضوح البند بتطبيقه على مجموعة أولية من الطلاب ذوي الاعاقة لتحسين صياغة البنود قبل إدراجها في المقياس. وخضعت البنود أيضًا لتحليلات الانحراف والتفرطح. وبعد هذا الاجراء تكون المقياس من 29 بنداً. تم تطبيق المقياس مع عينة مكونة من 212 مشاركًا. تم التحقق من صدق المقياس باستخدام التحليل العاملي الاستكشافي (EFA) والتوكيدي (CFA) ، استوفي 17 بنداً المعايير السيكومترية وتشبعت جميعها علي عامل واحد ، وقد دعمت معاملات ألفا كرونباخ ثبات المقياس. ونستنتج أن المقياس المكون من 17 فقرة صالح وموثوق كأداة لتقييم وعي الأفراد ذوي الإعاقة بحقوقهم. من المتوقع أن يساعد مقياس وعي الأفراد ذوي الإعاقة بحقوقهم في تسهيل البحث في هذا المجال.

الكلمات المفتاحية: الوعي بالحقوق، ذو الإعاقة، الصدق، الثبات، السعودية.

Factor Structure and Psychometric Properties of the People with Disabilities Rights Awareness Scale (PDRAS)

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Abstract: The current study aimed to develop and validate a scale to assess awareness of their rights in persons with disabilities. After a literature review and content validity analysis with disability rights experts, 43 items were developed. Item understandability was checked with a preliminary group of students to refine the items before inclusion. Items were also subjected to skewness and kurtosis analyses. A pool of 29 items that fulfilled the inclusion criteria then comprised the questionnaire that was used in interviews with a sample of 212 participants. Construct validity was checked with exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In the EFA, 17 items fulfilled the psychometric criteria and the scree plot indicated one factor whose eigen values were greater than one. In the CFA, good model fit was reached after inclusion of five correlated errors. Cronbach's alpha coefficients supported the reliability of the scale. We conclude that the 17-item scale is valid and reliable as an assessment instrument. It is envisaged that the PDRAS will help facilitate unified research in the field.

Keywords: Rights awareness, People with disability, Validity, Reliability, Saudi Arabia.

Introduction

It has been estimated that one billion people worldwide live with some form of disability (World Health Organization & World Bank, 2011). The World Health Survey (World Health Organization, 2002-2004), conducted in fifty-nine countries, reported the prevalence of persons aged 18 and older with disabilities is 15.6 percent, ranging from 11.8 percent in higher income countries to 18 percent in lower income countries. In the United States, Statista (2022) reported that in 2020 13.4% of the US population had some form of disability. In the Kingdom of Saudi Arabia, estimates of the prevalence of persons with a disability are as high as 3.73 percent, whereas others have reported 0.8 percent, depending on the definition of disability used (Al-Jadid, 2013). Recent data estimated a prevalence between 7 and 10% in 2021 in Saudi Arabia (Salama, 2021).

People with disabilities are historically poor and experience various forms of social discrimination (Shakespeare et al., 2009). Society often marginalizes people living with disabilities by stigmatizing them (Campbell, 2006). The World Health Organization (WHO) (2001) asserts that disability is increasingly being understood as a human rights issue, that people with disabilities experience inequalities, are subject to violations of dignity, and some are denied autonomy. Studies have postulated that some forms of inequity are still persistent for people with disability (Iezzoni et al., 2022; Pita et al., 2023). WHO calls for equal rights and providing appropriate accommodations for persons with disabilities.

The Independent Living Movement (Frieden, 1983; Roberts, 1989) played early roles in providing services that enabled people with disability to reside in communities along with able-bodied persons, not in institutions for individuals with disabilities, and advocated for their rights. Subsequently, new movements were formed to raise awareness in people with disabilities of their civil rights and help them with strategies for integration in the community (Beaulaurier & Taylor, 2001). A turning point in the advocacy for the legal rights of the disability community was reached with the Americans with Disabilities Act (ADA) passed in 1990, making the rights of people with disabilities a priority, as failure to meet their social and physical needs is a violation of their rights (Beaulaurier & Taylor, 2001). The ADA "prohibits discrimination against people with disabilities in several areas, including employment, transportation, public accommodations, communications and access to state and local government programs and services" and mandates accommodations "to ensure that buildings, facilities and transit vehicles are accessible to people with disabilities" (U.S. Department of Labor, n.d.). Another milestone in the rights of people with disabilities was achieved when the United Nations Convention on the Rights of Persons with Disabilities (CRPD) was approved by the UN General Assembly in 2006 (Mukhopadhyay & Moswela, 2020). The CRPD applies general human rights to persons with disabilities and outlines principals for non-discrimination, respect for inherent dignity, and full and effective participation and inclusion in society. It also obliges ratifying states to adopt and adapt legislation, policies, and other appropriate administrative measures where needed to the needs of persons with disabilities (World Health Organization & World Bank, 2011).

Laws in the Kingdom of Saudi Arabia are shaped by the Islamic Sharia, which recognizes human rights (Al-Jadid, 2013). The Disability Code mandates free and adequate medical, social, psychological, educational, and professional services to enable individuals with disabilities "to achieve the maximum feasible degree of functional efficiency" (King Salman Center for Disability Research, n.d.). The Saudi Ministry of Health incorporates an anti-discrimination policy to protect and reinforce the rights of

persons with disabilities (Ministry of Health, n.d.). In the Vision 2030 initiative in KSA, the goals of which are to create a flourishing Saudi economy, an ambitious nation, and a resilient society, the rights of people with disabilities are also on the agenda, where legislation and policies are to be improved for the well-being of people with disabilities (Vision 2030, 2016). As an example of the implementation of rights of people with disabilities, an initiative was launched in Huraymila National Park in order to involve people with disabilities and their families in community activities (Arab News, 2021), which emphasizes two of the objectives of Vision 2030, namely, empowering people with disabilities , where rights of persons with disability are emphasized, and combating desertification (Vision 2030, 2016).

A number of studies have indicated the importance of raising awareness among people with disabilities of their rights (Hammell, 2016; Malhotra, 2008). Without awareness of their rights, it is difficult for people with disabilities to seek out and avail themselves of those rights. There have been disability rights awareness studies in the general population (Lindsay & Edwards, 2013), however, awareness of their rights in the population of persons with disabilities has received little attention, despite the claim of Bannerman and Harchik (1990) that people with disabilities may not be aware of their rights.

Many studies have investigated the realization of the rights of people with disability after the United Nations on Rights of Persons with Disabilities (UNCRPD) was adopted as a human right in 2006. A systematic review examined the realization of the rights of people with disability in Rwanda and concluded that, although there were many efforts made, there were still some forms of discrimination and they recommended more awareness (Njelesani et al., 2018). Winkler and colleagues investigated the adherence to the UNCRPD in Czech psychiatric hospitals and reported that none of the rights of UNCRPD was fully implemented ion those hospitals (Winkler et al.,2020). Others investigated how people with disability realize their rights. They found that some people with disability were not aware of their rights (Muhammad Jahanzaib et al.,2021).

Previous studies have also evaluated the effectiveness of interventions designed to increase awareness of the rights of people with disability. Hayward and colleagues investigated the effectiveness of a Disability Awareness Training (DAT) in Ecuador. They reported that the DAT enhanced the awareness of the rights of people with disability and decreased negative beliefs towards them (Hayward et al., 2019). Another intervention study from South Korea concluded that school-based interventions facilitated positive attitudes towards persons with disability (Chae et al., 2018). Among boy scouts also, it was reported that an intervention to increase their awareness of their peers with disability was successful, especially in younger boy scouts. They recommended more interventions at early stages of life (Anderson et al., 2019).

Scales to assess attitudes on people with disability have been developed. The Attitudes towards Disabled Persons scale (ATDP) (Yuker et al., 1960), the Multidimensional Attitude Scale towards Persons with Disabilities (MAS) (Findler et al., 2007), the Social Worker's Attitudes Toward Disability Scale (SWADS) (Cheatham et al., 2015), and the Attitudes to Disability Scale (ADS) (Power & Green, 2010). Nonetheless, these scales were developed for the perceptions and awareness in the general population about the rights of people with disabilities. There is no current scale that can be used to investigate the level of people with disabilities' awareness of their rights. This study draws on this gap and develops and validates a scale that can be used to that end.

Problem statement:

Efforts to raise awareness of the rights of people with disability have yielded significant improvements in many parts of the world. Parallelly, scales to evaluate people with disability's rights awareness in the general population have been developed and widely used. Nonetheless, the is no scale that assesses that level of awareness in people with disability, as previous research pointed out that people with disability may not be aware of their rights. Thus, this study develops a scale to be used to this end, the People with Disability Rights Awareness Scale (PDRAS). PDRAS was developed after reviewing the literature on people with disability rights and after conducting semi-structured interviews with people with disability.

Study objectives:

The objective of this study was to develop and validate a scale (PDRAS) that can be used to assess people with disability rights awareness.

Importance of the study:

Referencing on this lack of scales in the literature to assess people with disability awareness of their rights, this study designs and develops one that can be used in this purpose. The scale of this study can be used by research to investigate how people with disability are aware of their rights. As such, this study contributes to the literature by providing a scale that can be used in people with disability to assess the antecedents and outcomes of people with disability awareness in people with disability. Practically, the scale can be used by social workers and nurses as well as other professionals to keep track of the awareness of rights in people with disability.

Study terminologies:

1. *Rights awareness*:

this is a process where people acquire knowledge about their rights and learn skills and values to claim and protect these rights (Hayward et al.,2021; Lindsay & Edwards ,2013).

2. People with disabilities:

these are people who have long-term mental, physical, sensory, or intellectual impairment that prevents them to participate in society at the same level as other people (Winkler et al.,2020).

Materials and Methods

Research approach

To achieve the goals of this study, a mixed-method approach was most suitable. We used qualitative methodology to conduct interviews with respondents in the process of developing the items of the scale, and quantitative methodology to validate the scale.

Item development stage

Since there are no previous scales that assess awareness of the rights of persons with disability in the people with disability population, preliminary items of the scale were developed after reviewing the literature about the rights of individuals with disabilities. In addition to the literature review, a series of semi-structured interviews were then conducted to gauge the views of specialists (11 participants, 6 females and 5 males) on various aspects of the rights of individuals with disabilities. Although the scale was conceived as unidimensional, the items were developed in 5 content areas that were inspired from the UN Convention on the Rights of Persons with Disabilities: rights to education, rights to health, rights to mobility, rights to facilities, and rights to work and employment. Consequently, a pool of 43 items for the scale was developed and was subjected to content validity analysis with 14 experts who had more than five years of academic experience in learning and teaching the rights of individuals with disabilities in special education and psychology departments, and who had dealt with individuals with disabilities. These experts were selected because of they were university professors with experience in special education for individuals with disability. Eight professors were from special education department and six professors were from psychology department. These professors were also selected because of their knowledge and experience in scale development and validation. Content validity ratio (CVR) was used to test the preliminary content validity of the items. Only items whose CVR was greater than 0.56, the cutoff recommended for more than 12 but less than 20 experts (Kassiani Nikolopoulou, 2022), were included in the final item pool in order to avoid expert agreement due to coincidence. Consequently, 11 items did not meet the criteria and were removed, yielding a pool of 32 items. This item pool was then presented to 12 students who read and gave feedback regarding the understandability of the items. Their feedback was used to refine the items before including them in the questionnaire.

Questionnaire development stage

The questionnaire sent to study participants included 32 items about awareness of the rights of people with disabilities, as well as questions to gather demographic information. It included items specifically about Vision 2030, which includes provisions regarding the rights of people with disabilities: 1) Have you heard about Vision 2030? (with options never, little, a lot); 2) Have you heard about the rights of individuals with disabilities included in Vision 2030? (with options never, little, and a lot).

Scale assessment stage

The assessment of the scale was performed via construct and reliability analyses. The construct validity was done using exploratory factor analysis (EFA), with the maximum likelihood extraction and oblimin rotation methods, and confirmatory factor analysis (CFA). In the EFA model, items whose communalities were less than 0.5 were removed from the item pool and factors whose eigen values were greater than 1 were retained (see Figure 1). In the CFA model, fit indices were used to check model fit, including Chi-

square, RMSEA, SRMR, CFI, and TLI (Hu & Bentler, 1999). Finally, the reliability was checked with Cronbach's alpha values for the factors of the scale.

Data and participants

This study's sample was comprised of 212 students and employees in Saudi Arabia. This sample size was specified by applying the recommendation of 5 items per item for EFA and CFA. The mean age for the participants was 25.5 (SD = 18, range = 62). Around 65 percent were females. In terms of disability, around 17.5 percent of the sample had auditory disabilities, 4.5 percent had chronic diseases, 1 percent had learning disabilities, 22.7 percent had mobility disabilities, 3.7 percent had multiple disabilities, and 50.9 percent had visual disabilities. About 11.8 percent were college students and 88.2 percent were employees. The sample was determined using snowball sampling, where participants helped in finding new participants. Table 1 display the socio-demographic characteristics of the sample. The data were collected via face-to-face interviews and video calls. For individuals with auditory disabilities, the experimenters were aided by a sign language expert. Prior to data collection, respondents were apprised of the goal and intended outcome of the study, and they provided informed consent. Permissions to conduct this research were obtained from King AbdulAziz University.

Table 1

Socio-Demographic Characteristics of the Sample

Variable	n	%
Gender		
Female	138	65
Male	74	35
Occupation		
College students	25	11.8
Employees	187	88.2
Marital status		
Divorced	3	1.4
Single	189	89.2
Married	20	9.4
Father's education		
No education	10	4.7
Less than high school	56	26.4
High school	61	28.8
University degree	71	33.5
Masters	14	6.6
Mother's education		
No education	40	18.9
Less than high school	63	29.7
High school	48	22.7
University degree	53	25
Masters	8	3.7
Monthly income		
Less than SR 5000	68	32
SR 5000 - less than SR 10,000	60	28.3

Variable	n	%
SR 10,000 - less than SR 15,000	39	18.4
SR 15,000 and greater	45	21.3
Disability		
Auditory	37	17.5
Chronic disease	10	4.7
Learning disability	2	1
Mobility	47	22.2
Multiple disabilities	8	3.7
Visual	108	50.9
Severity		
Simple	22	10.4
Moderate	88	41.5
Severe	63	29.7
Very severe	39	18.4
Have you heard of Vision 2030?		
Never	20	9.4
Little	43	20.3
A lot	149	70.3
Have you heard of rights of people with disabilities in Vision 2030?		
Never	73	34.4
Little	74	34.9
A lot	65	30.7

Data analysis

All the data analyses were conducted using RStudio statistical software[2]. Item analysis, skewness, and kurtosis analyses were conducted first. Then, the descriptive statistics were compiled. The exploratory factor analysis was done using the *psych* software package (Revelle, 2017), a scree plot was inspected to check the number of factors to be extracted, and the confirmatory factor analysis was done using the *lavaan* package (Rosseel, 2012). The internal consistency reliability analysis was checked with Cronbach's alpha coefficients using the *psych* package (Revelle, 2017). The plotting was performed using the *lavaanPlot* package (Lishinski, 2020).

[2] https://posit.co/

Study results and discussion

Item analysis

The items in the scale were subjected to skewness and kurtosis analyses. Following the recommendations of West, Finch, and Curran (1995), items with a skewness absolute value ≥2 and a kurtosis absolute value ≥7 were removed from consideration; this included items 1, 2, and 20. The items were also subjected to item-total correlation analysis. Items whose item-total correlations were <0.3 would have also been removed (Boateng, Neilands, Frongillo, Melgar-Quiñonez, & Young, 2018), but all the items had a correlation of ≥0.3. Thus, a pool of 29 items was then used in the exploratory factor analysis.

Construct validity

The Kaiser–Meyer–Olkin (KMO) test showed a value of 0.92 and the Bartlett's test of sphericity was 311.52, df = 28, p<0.001. These results support the factorability of the data. The 29 items were subjected to exploratory factor analysis. As per Mooi, Sarstedt, and Mooi-Reci (2017), communalities should be greater than 0.5 for all items. Twelve items – numbers 3, 4, 5, 14, 15, 18, 21, 22, 29, 30, 31, and 32 – were removed due to low communalities. A second exploratory factor analysis model was fitted with the remaining 17 items. The scree plot (see Figure 1) suggested a one-factor model, as there was only one factor whose eigen value was greater than 1. The total variance explained was 70.1 percent. The factor loadings are presented in Table 2.

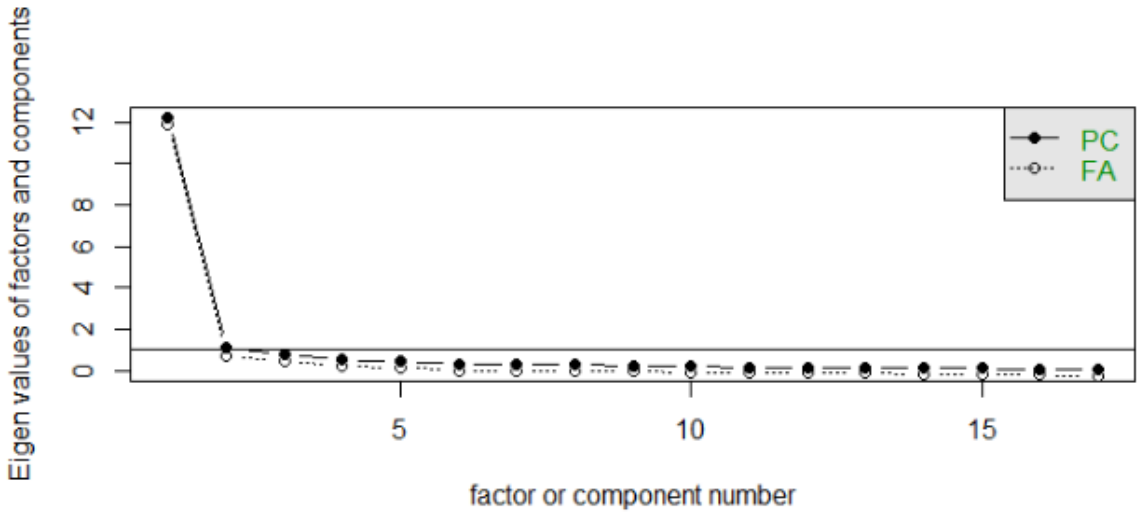
Table 2

Factor Loadings and Crobach's alpha

Item	Skewness	Kurtosis	EFA loadings	CFA loadings	Cronbach's alpha
1	-1.145	0.84	0.78	0.80	
2	-1.51	0.84	0.91	0.91	
3	-1.21	0.18	0.88	0.88	
4	-0.90	-0.35	0.85	0.84	
5	-1.95	3.79	0.66	0.65	
6	-0.85	-0.87	0.81	0.80	
7	-1.66	2.35	0.69	0.68	
8	-1.21	-0.02	0.85	0.85	0.97
9	-1.08	-0.36	0.86	0.86	
10	-1.21	-0.10	0.87	0.87	
11	-0.94	-0.09	0.70	0.70	
12	-1.38	0.55	0.90	0.90	
13	-1.49	1.09	0.87	0.87	
14	-1.66	1.58	0.90	0.91	
15	-1.17	0.31	0.85	0.85	
16	-1.54	1.29	0.88	0.89	
17	-1.84	2.88	0.84	0.86	

Notes: **EFA = exploratory factor analysis, CFA = confirmatory factor analysis**

Figure 1. *Scree plot of Eigen values*

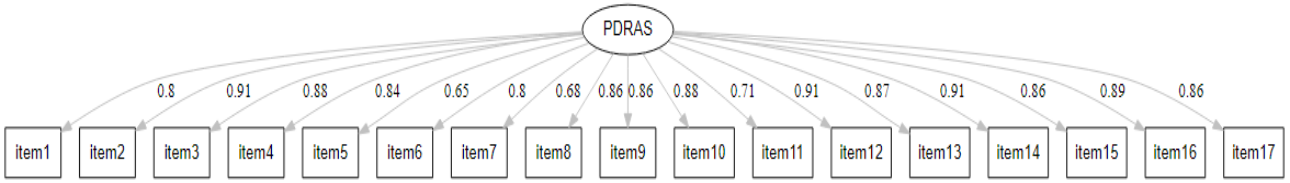


***Notes*: FA = factor analysis, PC = principal component**

A model of confirmatory factor analysis was then fitted. The model exhibited poor fit indices (Chi-square = 982.32, df = 119, p<0.001, RMSEA = 0.118, SRMR = 0.058, CFI = 0.814, TLI = 0.787). Modification indices were inspected and showed this was due to five correlated errors between items 8 and 9, items 9 and 10, items 10 and 15, items 11 and 15, and items 12 and 13. These pairs of items were then analyzed in depth to check whether they might be measuring the same construct. It turned out that they were distinct, and it was decided to include them in the model. When these errors were accounted for, the model exhibited acceptable fit indices (Chi-square = 445.40, df = 100, p<0.001, RMSEA = 0.082, SRMR = 0.042, CFI = 0.925, TLI = 0.905). The model is portrayed in Figure 2. The CFA factor loadings are summarized in Table 2.

Figure 2

Visual representation of the CFA model



***Note*: the numbers on the arrows are the CFA factor loadings**

Reliability analysis

The internal consistency reliability analysis was checked with Cronbach's alpha coefficients. The standardized Cronbach's alpha for the one factor of the 17 items was 0.97, indicating good internal consistency reliability.

Discussion

There has been significant progress in legislation and policies regarding the rights of people with disabilities. Yet, many such individuals with disabilities are not aware of their rights. It is important for people with disabilities to know their civil rights in order to more fully exercise them and live fuller lives (Madans et al., 2011). This study found that 34.4 percent of respondents had never heard of the rights of people with disabilities

provisions in Vision 2030. Similarly, Mukhopadhyay and Moswela (2020) reported that most of the people with disabilities they interviewed were not aware of their civil rights.

Scales to assess the awareness of the rights of people with disability have been developed and used in the general population. However, no scale was designed for the population of persons with disabilities. There is a need for a scale that can be used to assess the awareness of people with disabilities about their rights, and no such instrument was available prior to the work reported here. The aim of this study was to develop such an instrument, and the result is the People with Disabilities Rights Awareness Scale (PDRAS).

The development of PDRAS began with a pool of 43 items developed after a literature search and review and in-depth interviews with experts in the field. Eleven items were excluded from the pool due to a low content validity ratio. Three items were deleted because of high skewness absolute values. The remaining 29 items were then subjected to exploratory factor analysis. After inspection of communalities, 12 more items were removed due to low communalities. A unidimensional factor of the remaining 17 items was then suggested by the scree plot. This unidimensional scale was then subjected to confirmatory factor analysis. PDRAS exhibited good model fit after inclusion of correlated errors between some of the items. This is a typical practice in CFA models, especially when there is high covariation between some of the variables (Hassim et al.,2020). PDRAS is then a seventeen-item scale that is scored on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly disagree), where higher scores indicate better awareness of the rights of people with disabilities. The PDRAS and its 17 items are shown in the Appendix.

The People with Disabilities Rights Awareness Scale fulfilled the necessary psychometric properties. The construct validity was verified and the internal consistency reliability was confirmed with adequate Cronbach's alpha coefficients. Therefore, PDRAS is valid and reliable and can be used to assess the level of awareness of people with disabilities of their rights. This scale can be useful to help raise awareness in people with disabilities of their rights and therefore seek to exercise them fully. Social workers and healthcare practitioners can also use this scale to assess and educate such individuals about their civil rights, as well as by researchers to better understand issues affecting the rights of the disability community.

In spite of the strengths of this study, there are limitations that have to be acknowledged. The sample was not randomized and was comprised of adults and does not represent the total population. Future validation studies should use a randomized sample and should include people of all ages. Also, the sample was only Saudi Arabians, and the scale should be validated using samples from other Arabic and non-Arabic countries. In addition, the numbers of males and females was disproportionate. Future validation studies should use a more proportionate sample.

In conclusion, this study contributes to the literature by developing and validating a scale that can be used to investigate the level of awareness in people with disabilities of their rights. The scale was found valid and reliable and ready to be used by people with disabilities, researchers, social workers, and healthcare professionals.

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ملحق

مقياس وعي الأفراد ذوي الإعاقة بحقوقهم

فيما يلي مجموعة من العبارات التي تصـــف حقوق الأفراد ذوي الإعاقة، الهدف من هذه العبارات هو قياس وعيك أو معرفتك بهذه الحقوق، علما بأن هذه البيانات لن تستخدم سوي لأغراض البحث العلمي، ولن يطلب منك الإفصاح عن هويتك.

الرجاء قراءة كل عبارة بدقة واختيار البديل الذي يعبر عن رأيك حيث علي متصـــل من 1 إلى 5 حيث 1 تعني أرفض بشدة، 2 أرفض قليلا، 3 محايد، 4 أوافق و5 أوافق بشدة.

علما بأنه لا توجد إجابة صحيحة وأخري خاطئة.

م	العبارة	أرفض بشدة	أرفض	محايد	أوافق	أوافق بشدة
1	يجب على الجامعات تكييف المناهج الدراسية بما يتناسب مع خصائص ذوي الإعاقة.					
2	لدي الحق في تلقي الخدمات الصحية المجانية المناسبة لإعاقتي.					
3	يجب توفير التشخيص المبكر للإعاقة.					
4	لدي الحق في إحالتي إلى المكان الذي يقدم الخدمات المناسبة لنوع اعاقتي.					
5	يجب تقديم الرعاية الصحية المنزلية لمن يحتاجها من ذوي الاعاقة.					
6	لدي الحق في صرف الأجهزة التعويضية من وزارة الصحة.					
7	يجب توفير كوادر مؤهلة للتعامل مع ذوي الاعاقة في الخدمات الطبية					
8	لدي الحق في الحصول علي وصفات طبية بطرق مناسبة لإعاقتي: بريل، اشارة ، صور توضيحية .					
9	يجب تكييف التطبيقات الرسمية بما يتناسب مع خصائص ذوي الاعاقة.					
10	يجب تكييف الخدمات البنكية بما يتناسب مع خصائص ذوي الاعاقة.					
11	لدي الحق في الحصول علي دعم مالي ريال لبناء مشروعي الخاص.					
12	يجب علي الدولة صرف إعانة مالية شهرية لذوي الاعاقة الملتحقين بمراكز التعليم أو التأهيل.					
13	يجب علي الدولة تقديم إعانة نقدية لأسر ذوي الإعاقة الشديدة الذين تعذر قبولهم بمراكز التأهيل الاجتماعي.					
14	لدي الحق في الحصول علي الخدمات المساندة بما يكفل وصولي لأقصى قدر من الاستقلالية.					
15	لدي الحق في الحصول على خدمات إرشاد أسري لأفراد أسرتي.					
16	لدي الحق في الحصول على برامج التأهيل المهني.					
17	يجب توفير كوادر مختصة في التأهيل المهني للأفراد ذوي الإعاقة.					