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Hatice Sahin & Zumrut Gedik

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Hatice Sahin[a] and Zumrut Gedik [b]

[a]Faculty of Medicine, Ege Universitesi, Izmir, Turkey; [b]Psychology, Izmir Katip Celebi Universitesi, Izmir, Turkey

ABSTRACT

This study aimed to carry out the Turkish adaptation of the Disability Attitudes in Health Care Scale (DAHC). A total of 283 medical students were recruited. Data was collected using a sociodemographic information form, the Turkish version of the DAHC, and the Disability Attitudes Scale (DAS). Reliability and validity of the DAHC was estimated using Cronbach's alpha, item-total correlations, exploratory and confirmatory factor analyses, and Pearson correlation. Examination of item-total correlations pertaining to the DAHC led to the exclusion of two items. Exploratory factor analysis of the 15-item Turkish DAHC yielded a two-factor solution. Confirmatory factor analysis supported the existence of two related factors, namely Burden and Inclusion. Internal consistency of the DAHC was deemed satisfactory. Total DAHC score had a moderate positive correlation with the DAS, providing evidence for criterion validity. Females held more positive attitudes compared to males. It was concluded that the Turkish version of the DAHC is a valid and reliable measure which can be used for evaluating attitudes towards people with disabilities in healthcare professionals.

Introduction

Developments in healthcare services and technologies have improved the long-term survival rates of people with disabilities (PwD). As a result, limitations in activities of daily living and social exclusion, which reduce quality of life, emerged as new problems to address. Changes in the definition of disability also denoted a paradigm shift from the medical model to a social model of disability (Bricher, 2000; Pledger, 2003). Healthcare students need to learn about the social model of disability in order to improve QoL in PwD, which would promote health and reduce health costs.

Healthcare professionals' attitudes towards PwD influence treatment outcomes as well as satisfaction with and quality of healthcare. Biased beliefs such as assuming that the treatment of PwD is futile constitute hindrances to healthcare services, risking the health status of PwD. It is also reported that PwD experience personal barriers to healthcare such as healthcare personnel's insensitivity and lack of respect (Drainoni et al., 2006). Healthcare professionals need to modify their personal biases and learn how to

communicate with PwD in order to provide appropriate patient-centred treatment (Lindgren & Oermann, 1993). Attitudes towards PwD should also be addressed from a human rights framework, as PwD 'have the right to the enjoyment of the highest attainable standard of health without discrimination on the basis of disability' (United Nations, 2006). Medical education programmes should cultivate positive attitudes towards PwD among future healthcare professionals by modifying biased beliefs and focusing on enabling and empowering PwD (Lindgren & Oermann, 1993; Shakespeare, Iezzoni, & Groce, 2009).

Negative attitudes towards PwD are not uncommon among healthcare professionals (Brown et al., 2009; Matziou et al., 2009; O'Donnell, 1993; Tervo, Azuma, Palmer, & Redinius, 2002; Tervo & Palmer, 2004). Previous studies indicated that healthcare professionals may feel discomfort and anxiety while providing services for PwD (Au & Man, 2006; Satchidanand et al., 2012). On the other hand, a large number of studies found that healthcare professionals hold positive attitudes towards PwD (Satchidanand et al., 2012). This inconsistency may be related to the utilisation of generic measures of attitudes towards PwD rather than using instruments specific to healthcare. There are only three measures of attitudes towards PwD specifically developed for healthcare professionals (Chadd & Pangilinan, 2011; Dunn, Umlauf, & Mermis, 1992; Lee & Sonis, 1983). Utilisation of generic measures makes it difficult to transfer research results into medical education, which plays a significant role in promoting an empathic and egalitarian approach towards PwD. However, such an approach is seldom incorporated into the curricula due to the paternalistic view of the medical model (Hubbard, 2004; Shakespeare et al., 2009).

A limited number of previous studies conducted in Turkey examined attitudes towards PwD among nursing, medical, and physical therapy students (Girli, Sarı, Kırkım, & Narin, 2016; Sahin & Akyol, 2010; Şahin & Bekir, 2016; Uysal, Albayrak, Koçulu, Kan, & Aydın, 2014). These studies provided inconsistent results regarding the level of positive societal attitudes towards PwD. Only Sahin and Akyol (2010) found that medical and nursing students held relatively favourable attitudes towards PwD, whereas others found less favourable attitudes among Turkish nursing and physical therapy students. All of these studies used questionnaires prepared by the researchers and/or general attitude scales. In other words, there is a need for a Turkish measure that investigates disability attitudes in healthcare because generic measures do not equate with healthcare specific instruments and societal attitudes may differ from those experienced in a health professional's or trainee's practice (Chadd & Pangilinan, 2011). Furthermore, the availability of a measure evaluating disability attitudes in healthcare might increase the number of research conducted with Turkish samples.

The objective of the current study was to carry out the Turkish adaptation of the Disability Attitudes in Health Care Scale (DAHC) (Chadd & Pangilinan, 2011).

Materials and Methods

Study Design

The current study was designed as a cross-sectional research. Stages of cross-cultural scale adaptation were undertaken. Data was collected from October 2017 to December 2017.

Participants

Undergraduate medical students were selected as representing of healthcare professionals. In a study by Paris (1993), it was found that general attitudes towards PwD were not different across three groups of participants, which consisted of first year medical students, fourth year medical students, and healthcare professionals where the majority consisted of medical doctors. Thus, in the current study, medical students were recruited as a proxy for healthcare professionals.

Medical students studying at two separate Turkish schools of medicine located in the city of Izmir were invited to participate in the study. At the time of the study, approximately 2500 medical students (1260 in years 1–3 and 1240 in years 4–6) were studying at University A and 700 (400 in years 1–3 and 300 in years 4–6) were studying at University B. None of the sixth year students agreed to participate in the study since they were preparing for the Examination for Speciality in Medicine. Participation in the study was voluntary. It was aimed to reach a minimum sample size of 260 (number of items in the DAHC multiplied by 15) (Gorsuch, 1983). A total of 400 questionnaires in closed envelopes were distributed to medical students by the registrar's office at both universities and 283 were returned. In the study, the response rate was 70.75%.

Measures

Demographic Information Form

This self-report form was prepared by the researchers in order to gather information on gender, age, university, year of study, prior experience in disability related projects, prior clinical experience with PwD, and prior experience of providing care for PwD in non-professional settings such as caring for a disabled relative or friend.

Disability Attitudes in Health Care Scale (DAHC)

The DAHC is a 17-item 5-point Likert type measure which evaluates attitudes towards providing healthcare to PwD. The scale contains items which evaluate general attitudes towards PwD and perceptions regarding the cost-effectiveness of and the time and energy devoted to treating PwD (Chadd & Pangilinan, 2011). A total score can be calculated, ranging between 17 and 85. Higher scores indicate more positive attitudes.

Disability Attitudes Scale (DAS)

The DAS is a 30-item 5-point Likert type instrument in Turkish developed by Dokmen (2000) in order to assess societal attitudes towards PwD. The DAS contains three subscales – compassion, social value, and resource distribution. In addition to subscale scores, total scores can also be calculated, ranging between 30 and 150. Higher scores obtained from the total scale and the subscales indicate more positive attitudes (Sahin & Akyol, 2010).

Procedure

Permission to adapt the DAHC for the Turkish population was received from Percival Pangilinan through electronic mail. The study protocol was approved by the Izmir Katip Celebi University Ethics Board. After obtaining written informed consent, pencil-and-

paper questionnaires were administered in classroom settings. Data was analysed using IBM SPSS 25 and AMOS 21.

The Adaptation Procedure of the DAHC

Translation

The original DAHC was independently translated into Turkish by a doctor of clinical psychology who worked with PwD and two doctoral students of clinical psychology, all of whom were native Turkish speakers. These three independent translations were synthesised into a draft. This draft was back-translated into English by a professional bilingual translator. The pre-final version of the scale was revised by a professor of medical education who specialised in disability research and a doctor of clinical psychology who worked with PwD. Face validity of the scale was also determined by these two experts.

Reliability Analyses

Internal consistency of the Turkish version of the DAHC was estimated using Cronbach's alpha. Item-total correlations were calculated in order to investigate the associations between each item and the total score. Item discrimination was evaluated by comparing the responses of participants who scored in the top 27% and the bottom 27% of the item scores using independent samples t-tests.

Validity Analyses

Face validity was evaluated by two experts. The construct validity of the Turkish version of the DAHC was examined using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The original DAHC produced a single total score, indicating a single factor structure. Due to the fact that the sample of the current study is culturally distinct from the one recruited for the original study, an EFA was conducted, where factors were extracted using principal components analysis and Varimax rotation. CFA with maximum likelihood was then conducted in order to evaluate how well the data fit the factor structure obtained from the EFA. Criterion validity was tested by examining the Pearson correlation between the DAHC and DAS.

There was no cut-off value for the total DAHC and subscale scores. Also, the DAHC subscales did not include an equal number of items. Thus subscale scores needed to be standardised in order to interpret attitude scores. For this reason, the approximation rate to the maximum score (ARMS) was estimated. The ARMS for the DAHC was calculated using the following formula: [(Self-reported score/number of items) – 1 x 25] (Sezer, Sahin, & Uluer, 2017). Higher ARMS values indicated that attitudes towards PwD were more positive.

Results

Descriptive Statistics

A total of 283 medical students agreed to participate in the study. Among the participants, 53% were female (N = 150) and 47% (N = 133) were male. Mean age was 21.25 (SD = 2.19, range = 18–34). Eighty five per cent of the participants (N = 242) were studying at university A and 14.5% (N = 41) were studying at university B. It was found that 47.3%

(N = 134) of the participants were in the fifth year of study, 13.1% (N = 37) were in the fourth year, 5.3% were in the third year (N = 15), 16.6% were in the second year (N = 47), and 17.7% (N = 50) were in the first year. Finally, 39.6% of the students (N = 112) were in the preclinical phase (years 1–3) and 60.4% (N = 171) were in the clinical phase of medical education (years 4–6). It was found that 8.5% (N = 24) of the participants had prior experience in disability related projects, 9.9% (N = 28) had prior clinical experience with PwD during medical education, and 20.1% (N = 57) had prior experience of providing care for PwD in non-professional settings.

Independent samples t-tests were conducted to examine the differences in mean DAHC scores according to gender, phase of medical education, and experiences of previous caregiving for PwD. Mean DAHC scores of female students ($M = 58.14$, $SD = 6.67$) were significantly higher than male students ($M = 54.27$, $SD = 7.81$) ($t(281) = 4.49$, $p < .001$). Mean DAHC scores of preclinical ($M = 56.80$, $SD = 7.44$) and clinical phase students ($M = 56.01$, $SD = 7.49$) did not show significant differences ($t(281) = .86$, $p > .05$). Mean DAHC scores did not differ significantly based on previous experience in disability related projects ($t(281) = 1.54$, $p > .05$), previous experience with PwD during medical education ($t(281) = .47$, $p > .05$), and previous caring experiences with PwD in non-professional settings ($t(281) = .69$, $p > .05$).

Reliability Analysis

Internal consistency of the 17-item DAHC was examined using the Cronbach alpha coefficient. The alpha coefficient for the total scale was .77. Item-total correlations showed that items 13 and 15 had negative correlations with the total score ($r = -.22$ and $-.04$, respectively). The translations of these items were re-examined for any misunderstandings, however this was not an issue. Thus it was decided to remove items 13 and 15 from the scale. The Cronbach's alpha coefficient for the total scale was recalculated for the remaining 15 items and was found to be .81.

In item discrimination analysis, it was tested whether each item discriminated between the 27% top and bottom score groups. It was found that the mean item responses of participants who scored in the top 27% and the bottom 27% were significantly different. Every item on the scale significantly discriminated between students with top and bottom attitude scores.

Validity Analysis

Face validity of the scale was evaluated by two experts, who concluded that all items in the scale were relevant to attitudes towards PwD in healthcare settings. It was concluded that the scale had good face validity.

Construct validity was evaluated using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The KMO measure of sampling adequacy was .83 and the Bartlett's test of sphericity was significant ($p < .001$). Thus, data was deemed suitable for factor analysis. The initial results of the principal components analysis with Varimax rotation yielded 4 factors with eigenvalues above 1, explaining 54.24% of the variance. However, in the scree plot, the last substantial leap in the magnitude of eigenvalues indicated the presence of three factors. The three-factor solution was not suitable in terms of the

conceptual coherence of factors as well as not meeting the criteria of including a minimum of four items in each factor. Thus, the number of factors to be extracted was set to two. The final two-factor solution accounted for 39.6% of the variance. The two factors were named according to the content of related items. All items in Factor 1 reflected negative attitudes towards PwD such as believing that treatment of PwD is hopeless and too time consuming and that PwD do not contribute to society. Such content reflected perceiving PwD as a burden both in social life and in healthcare. Accordingly, Factor 1 was named as 'Burden'. The Burden subscale included 9 items. Higher scores obtained from this subscale indicated that the healthcare professional does not perceive PwD as a burden. All items in Factor 2, which consisted of statements such as it is society's responsibility to care for PwD and PwD can be examined as quickly as other patients if handled properly, involved an accepting stance towards PwD rather than isolating them. Thus, Factor 2 was labelled as 'Inclusion'. The Inclusion subscale consisted of 6 items. Higher scores obtained from this subscale corresponded to favourable attitudes towards the inclusion of PwD in society and in medical settings (Table 1).

CFA with maximum likelihood was used to test the two-factor structure obtained from the EFA. The initial model fit indices were $x^2 = 285.45$, $x^2/df = 2.8$, df = 102, GFI = .87, AGFI = .85, RMSEA = .08, NFI = .71, CFI = .79, RMR = .09, indicating poor fit. Modification indices recommended by the software were applied and error terms of items 5–6 and 9–11 were correlated. The resulting model had adequate fit indices: $x^2 = 272.19$, $x^2/df = 2.7$, df = 100, GFI = .87, AGFI = .85, RMSEA = .07, NFI = .72, CFI = .81, RMR = .09 (Figure 1).

In order to test criterion validity, the correlation between the total DAHC and the total DAS was calculated. The Pearson correlation analysis yielded a significant positive correlation of moderate size between the DAHC and the DAS ($r = .42$, $p < .01$) (Table 2).

Table 1. Validity and reliability of the DAHC subscales.

| Subscale	Item-total correlations	Items
Burden α = 0.78	.491	2. If I have the choice, I would rather see able-bodied patients than patients with disabilities.*
r = 0.95 Min-max = 16–45	.400	5. Medical care for people with disabilities uses up too many resources.*
Communalities = 0.18–0.48 Eigenvalue = 4.26	.416	6. Taking a medical history from a patient with disability is frequently an ordeal.*
Total variance explained = 28.38%	.494	7. People with disability, in general, do not contribute much to society.*
Factor loadings = 0.69–0.39	.474	8. People with disability don't contribute their fair share towards paying for their health care.*
	.333	12. Patients with disability are better off in nursing homes.*
	.467	14. The treatment of patients with disability is too time-consuming.*
	.562	16. It is unglamourous to care for people with disability.*
	.520	17. Treatment of people with disability is hopeless.*
Inclusion α = 0.66	.417	1. People with disabilities are pleasant to be with.
r = 0.70	.368	3. It is society's responsibility to provide care for its persons with disabilities.
Min-max = 12–30	.281	4. Patients with disability improve with treatment.
Communalities = 0.19–0.65	.306	9. I will welcome patients with disability into my practice.
Eigenvalue = 1.68 Total variance explained = 11.21%	.423	10. If handled properly, the patient with disability can be seen as quickly as any other patient.
Factor loadings = 0.41–0.81	.407	11. Understanding my patients with disabilities is valuable to me as a physician.

*Reverse scored.
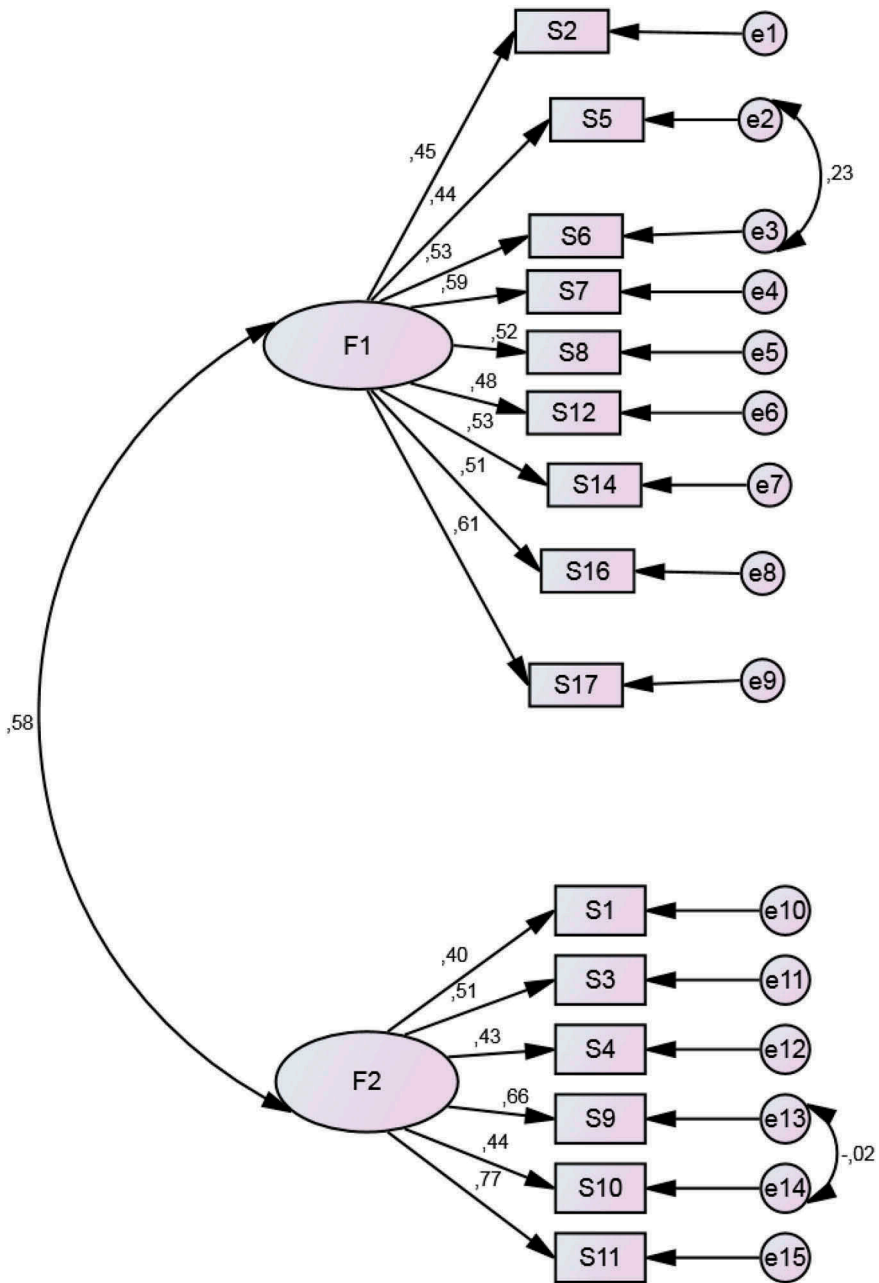
Figure 1. Confirmatory factor analysis of the DAHC.

The expected minimum-maximum scores and self-reported mean scores of the students were provided in Table 1. The approximation rate to the maximum score (ARMS) for the total DAHC, the Burden subscale, and the Inclusion subscale were 75.03%, 69.72%, and 82.95%, respectively.

Table 2. Intercorrelations, means, and standard deviations for DAHC and DAS scores.

Measures	1	2	3	4	5	6	7
1. Total DAHC	1	.95*	.74*	.42*	.39*	.36*	.43*
2. Burden		1	.49*	.39*	.36*	.33*	.39*
3. Inclusion			1	.33*	.31*	.30*	.34*
4. Total DAS				1	.97*	.89*	.96*
5. Compassion					1	.83*	.87*
6. RD						1	.83*
7. Social Value							1
M	60.02	34.10	25.91	120.82	53.12	16.47	51.22
SD	7.75	5.96	2.83	24.33	11.57	3.78	10.12

* $p < .01$.
DAHC = Disability Attitudes in Health Care Scale, DAS = Disability Attitudes Scale, RD = Resource Distribution subscale.

Discussion

The current study aimed to adapt the Disability Attitudes in Health Care Scale (DAHC) to the Turkish culture. The 15-item DAHC was found to be valid and reliable. Two items of the 17-item original scale were removed in the Turkish version since these items had negative item-total correlations. Among the removed items, one was about the cost of healthcare. In the Turkish healthcare system, the topic of health expenses is not an issue of consideration for healthcare professionals since the social security system covers all healthcare expenses without referral from any healthcare professional as part of the Turkish universal healthcare insurance system. For this reason, health expenses of PwD might not constitute a component of healthcare professionals' attitudes towards PwD. The remaining excluded item was about the training of healthcare professionals. In the study sample, this item had a negative item-total correlation and therefore lowered the internal consistency of the scale.

In the current study, satisfactory evidence for the face, construct, and criterion validity of the adapted DAHC was found. These findings are in line with Chadd and Pangilinan's (2011) results pertaining to the original DAHC. In the current study, the scale items were grouped under two factors, while the original version of the DAHC had a single-factor structure. Accordingly, it is not possible to compare the structure of the original and Turkish versions of the DAHC. On the other hand, it was determined that the Burden and Inclusion subscales of the DAHC and the Compassion and Social Value subscales of the Disability Attitudes Scale (DAS) covered similar topics (Sahin & Akyol, 2010). This finding also provided some support for the construct validity of the Turkish version of the DAHC.

In the current study, the mean DAHC scores of preclinical (years 1–3) and clinical (years 4–6) medical students did not show significant differences. Brown et al. (2009) and Stachura and Garven (2007) reported that attitudes towards PwD change during medical training. On the other hand Chadd and Pangilinan (2011) found that the attitudes of preclinical and clinical medical students were not significantly different. Findings of the current study supported the latter. It seems that longitudinal studies are needed to clarify this inconsistency between findings. The current study also demonstrated that female students held more favourable attitudes towards PwD compared to male students. This finding is in line with previous studies (Chadd & Pangilinan, 2011; Paris, 1993; Tervo et al., 2002).

It is recommended to provide opportunities to work with PwD for trainee healthcare professionals since guided experiences with PwD in clinical training is deemed necessary

to be able to relate to them (Shakespeare et al., 2009). Indeed, Stachura and Garven (2007) reported that work experience with PwD significantly and positively influenced attitudes towards PwD among healthcare trainees. Contact with PwD reduces the fear of the unknown and attenuate negative stereotyping. In the current study, it was found that the percentage of medical students who had prior professional encounters with PwD was very low, indicating that the students did not gain sufficient experience with PwD in supervised clinical training. However, the ARMS value of the total DAHC was found to be relatively high (75.03%), indicating that the students had positive attitudes despite the fact that they had low levels of contact with PwD. On the other hand, this high ARMS value might be explained by the participants' tendency to give socially desirable answers to the scale. Moreover, the ARMS values for the total DAHC, the Burden subscale, and the Inclusion subscale were 75.03%, 69.72%, and 82.95%, respectively. Accordingly, it can be speculated that medical students experienced some cognitive dissonance regarding their attitudes towards PwD as they found it burdensome to provide healthcare services for PwD but also favoured the social inclusion paradigm.

Healthcare trainees share common negative societal attitudes towards PwD and transfer such attitudes to healthcare settings, which negatively impact the quality of healthcare services received by PwD. Healthcare professionals should be aware of incorrect assumptions about disability resulting from common stigmatised views. Trainee healthcare professionals in particular may encounter negative attitudes towards PwD held by their superiors and such anecdotal experiences may lead to adopting a less progressive and negative perspective towards PwD (Shakespeare et al., 2009). The DAHC may be used among healthcare students in order to investigate the nature of attitudes towards PwD, which in turn can also be used for evaluating the effects of the curricula.

The current study had certain limitations which should be noted. First, the study sample consisted of medical students only. Trainees in other fields of healthcare were not included in our study sample, which limits the generalisability of the findings. It is suggested for future researchers to administer the DAHC to other healthcare trainees including nursing, physical therapy, speech therapy, etc. in order to reach a more representative sample and also to be able to compare various trainee attitudes towards PwD. Second, medical students were recruited in this study as a proxy for healthcare professionals since they will become medical doctors in the future. However, attitudes of medical students cannot fully represent attitudes of medical doctors. For this reason, it is recommended for future researchers to test the psychometric properties of the Turkish version of the DAHC among medical doctors and also in other healthcare professionals including nurses and physical therapists.

Conclusion

The attitudes of healthcare professionals towards PwD are important in terms of PwD's access to healthcare services as well as providing a role model for the society. In order to reach more favourable and egalitarian attitudes towards PwD in healthcare settings, the first step is to be able to conduct descriptive research which identifies the level of attitudes towards PwD among healthcare professionals. To date, there are no Turkish instruments evaluating disability attitudes among healthcare professionals. The current

study provided evidence for the validity and reliability of the Turkish version of the DAHC, which can be used for identifying disability attitudes in the Turkish healthcare system.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Zumrut Gedik　http://orcid.org/0000-0003-3275-3413

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