

Validation of the Wexner scale in women with fecal incontinence in a Turkish population

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Abstract

Introduction and hypothesis The main aim of this study was to validate the Turkish translated version of the Wexner scale.

Methods After establishing the test–retest reliability and internal consistency of the Turkish version of Wexner scale on 31 patients, total and subscale scores and anal manometric measurements of 60 participants were performed. Correlation between Wexner scale scores and manometric measurement values were analyzed and those values of patients with or without anal incontinence symptoms were compared.

Results Of the 60 participants, 47 (78%) showed no signs or symptoms of anal incontinence. Wexner scale showed a high internal consistency (Cronbach's $\alpha=0.816$). Total and each subscale score of Wexner scale showed strong correlation with resting and maximal squeeze pressures and between each other ($p<0.005$). The pressure values were significantly less in asymptomatic patients compared to patients with any degree of symptoms ($p<0.05$).

Conclusion The Turkish translated version of the Wexner scale is a reliable, consistent, and valid instrument to

evaluate anal functions in women with anal incontinence for Turkish speaking women. Total and subscale scores of the Wexner scale and anal manometric measurements showed significant correlation.

Keywords Wexner scale · Turkish version · Anal incontinence

Introduction

The involuntary passage of flatus, liquid, or solid stool may lead to poor self-image and social isolation, thus significantly impairs quality of life of women [1]. Prevalence of anal incontinence (AI) has been reported to vary widely between the studied patient populations. As expected, it is more frequent among nursing home patients. Although not frequent, anal incontinence is also observed in a significant number of young women [2].

In the women with reproductive age, vaginal delivery is the most frequently associated event which may be attributed as the causative of damage of the anal sphincter muscles [3]. It has been reported that more than half of the women with sphincter tears complained of AI symptoms at least 5 years following vaginal delivery [4]. Sharing common etiologic risks, women with urinary incontinence (UI) are also likely to have concomitant AI compared to those without UI [5]. The rate of AI have been reported as high as 54% in the urogynecologic patient population [6].

Despite the heavy burden of AI on quality of life, affected women usually do not complain of incontinence symptoms to their physicians. Even on the setting of a pelvic floor dysfunction clinic, only 17% of women with at least monthly AI had discussed the problem with a physician and only 2.4% of women with AI reported their

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symptoms prior to being specifically asked through a questionnaire [6]. There are two types of questionnaires currently in use for the evaluation of the severity of the AI symptoms. Generic questionnaires have been designed to screen large populations but may not detect fine changes within a specific population. Disease-specific questionnaires are used to evaluate patients suffering from specific medical conditions and are, therefore, more sensitive to specific aspects of the disease. Specific validated questionnaires are essential for the accurate assessment of symptom severity prior to selecting an appropriate treatment plan. Jorge and Wexner devised a disease-specific questionnaire for anal incontinence [7] and this questionnaire, generally known as the Wexner scale (Table 5), has been widely used because of its simplicity [8, 9].

In the Turkish language, there is no validated instrument measuring the impact of AI in women's QoL. The aim of this study was to validate the Turkish translated version of Wexner scale (Table 6) for Turkish speaking patients.

Materials and methods

Questionnaire

Two professional English–Turkish translators, not familiar with the Wexner scale worked independently to produce the Turkish version of the questionnaire. The translated version was reverse translated by two bilingual translators whose native languages were English. No discrepancies were found between the original and reverse translated version of the questionnaire. At the first meeting, a common draft of the Turkish version was produced with a list of alternatives for the controversial items and response choices. At the second meeting between the two translators and Turkish physicians with experience of “health and QOL terminology,” some revisions were made as needed and a second draft was produced. Three items needed revision. The item ‘liquid’ was replaced with ‘diarrhea’ because culturally, the word liquid represents ‘something to drink’ rather than something to spell out. Since the word ‘wearing’ refers to ‘put on something over the body’, in native language, the item ‘Pad wear’ was replaced with ‘pad use’. Finally, the word ‘lifestyle’ was replaced with ‘behavior’. Ten symptomatic women were asked to self-complete the second draft and then they were interviewed for possible ambiguous questions. At the third meeting, the final Turkish version was completed.

The questionnaire consisted of five questions: three about AI (gas, liquid, and solid), a coping mechanism (pad wear), and a lifestyle question (alteration). Same scoring system as described in the original questionnaire was used and respondents were instructed to rate the

frequency of stool loss, frequency of use of coping behavior, and frequency of lifestyle alteration through the use of quantifiers (0=never, 1=rarely, 2=sometimes, 3=usually, 4=always). The score was developed by totaling the numerical values associated with the quantifiers. It provides a single AI severity score and higher scores indicate the severity of AI. The total score of the instrument ranged from 0 (no incontinence) to 20 (complete incontinence).

Study population and data collection

Initially, a pilot study was carried out for the evaluation of the internal consistency and test–retest reliability of the Turkish version of the questionnaire. Thirty-one women completed the final version at the beginning of their first visit at the urogynecology outpatient clinic of Zeynep Kamil Hospital (a tertiary referral teaching institution, Istanbul, Turkey) prior to meeting a physician. Questionnaires were printed in large fonts (>16 points) so that women with poor eyesight could read and self-complete them. If a particular woman could not read or write, a relative or a company of her helped to complete the questionnaire when available. If not, support personnel, not familiar with the concepts of urogynecology and QOL, provided nondirective assistance to those patients.

To measure the test–retest reliability of the final version, a ‘2-week test–retest analysis’ was used. Thirty-one women were asked to complete the questionnaire at their initial visit and repeat the procedure 2 weeks later in the same clinic. All women completed the 2-week retest. The responses of the two completed questionnaires were then analyzed which revealed significant correlation.

After the test–retest analysis of reliability, 67 patients were enrolled into the study between November 2009 and September 2010. The enrollment followed a sequential basis. Patients who attended to our urogynecology clinic were asked to complete the questionnaire. Manometrical investigation was performed in the women who completed the questionnaire regardless of the score of their questionnaires. Among 67 participants, a total of 60 women was available to validate the questionnaire. Seven patients with no incontinence rejected to answer the questions and were excluded from the study. Mentally incapacitated patients were excluded from the study. The participants completed the questionnaire and the total scores were calculated as explained above.

After completing the questionnaire, all the participants underwent anal manometric assessment which was performed by the same investigator (CC) who was blinded to the questionnaire scores of the patients. The

Table 1 Characteristics of the participants

		Anal incontinence (n=47)	No abnormality (n=13)	<i>p</i>
Age ^a	Mean±sd (min–max)	51.89±8.88 (33–75)	54.75±13.80 (30–80)	0.382
BMI ^a		28.81±5.78 (17–44)	30.52±4.27 (15–42)	0.347
Parity ^a		2.93±1.20 (1–7)	3.83±2.25 (2–10)	0.064
Education <i>n</i> (%) ^b	Illiterate	13 (21.7%)	5 (8.3%)	0.575
	Primary school	22 (36.7%)	4 (6.7%)	
	High school	12 (20.0%)	4 (6.7%)	

BMI body mass index

^a Student's *t* test

^b Chi-square test

institutional research board approved the study and a written informed consent was obtained from all of the participants.

Statistical analysis

Data were collected and analyzed using SPSS for Windows 15.0 software. To assess the internal consistency for the evaluation of the overall correlation between the items within each scale, Cronbach's alpha test was performed. The content/face validity, which indicates whether the questionnaire makes sense to the patients and experts and whether all the important and relevant domains were included, was assessed by an expert panel that included two urogynecologists and one psychometrician. Levels of missing data were used as the indicator of inappropriate questions [10].

Validity of the criteria, which describes how well the questionnaire correlates with existing standards [10], was assessed by comparing the scores with the results of manometric investigations. For statistical purposes, patients were divided into two groups according to their scores. The first group consisted of women who scored 0 (without any type of incontinence of any degree, no pad wear, or no lifestyle alteration) and the second group consisted of women who scored at least 1 point (any degree of any type of incontinence or pad wear or lifestyle alteration).

The Wexner scale scores were given as mean±standard deviation. Spearman's correlation test was used for evaluating the correlation between Wexner scale scores and the maximal

squeeze (MSP) and resting pressure (RP) values. The pressure values were also compared between patients with or without any complaint of incontinence (Wexner score=0 or ≥1, respectively) by Student's *t* test. Comparisons of the demographics of these two groups were performed by Student's *t* or chi-square tests, as appropriate. The level of significance was set at *p*=0.05 level and all given *p* values were two-tailed.

Results

Among 60 participants, 13 (21.7%) scored 0 (no incontinence, no pad, wear or no lifestyle alteration) and the remaining 47 (78.3%) scored ≥1 (any level of gas, liquid, solid incontinence or pad wear, or lifestyle alteration). The characteristics of both groups were shown in Table 1. Both groups were similar with respect to age, education, body mass index, and parity (*p*>0.05). The number of missing items was nil (0%). The responses of the two completed questionnaires of the 2-week's test–retest revealed significant correlation and its Spearman's rho for the test–retest reliability was 0.924 (*p*<0.001). The Cronbach's alpha value of the translated version for total score of the scale was 0.816, showing a high level of internal consistency. A high degree of internal consistency was also present in each item of the questionnaire (Table 2).

Table 2 Internal consistency of the Wexner scale scores

	Cronbach's alpha
Solid	0.832
Liquid	0.770
Gas	0.827
Pad wear	0.757
Lifestyle	0.702
Total	0.816

Table 3 Spearman's correlations between manometric measurements and the domains of Wexner scale

Wexner domains	MSP (mmHg)		RP (mmHg)	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Solid	−0.458	<0.001	−0.303	0.019
Liquid	−0.323	0.012	−0.285	0.027
Gas	−0.577	<0.001	−0.478	<0.001
Pad wear	−0.668	<0.001	−0.544	<0.001
Lifestyle	−0.559	<0.001	−0.450	<0.001
Total score	−0.585	<0.001	−0.479	<0.001

MSP maximal squeeze pressure, *RP* resting pressure

Table 4 Comparison of manometric measurements according to the domains of Wexner scale

Wexner scale	Score (n)	MSP (mmHg)	<i>p</i>	RP (mmHg)	<i>p</i>
Solid	0 (47)	143.72±43.295	<0.001	62.04±18.851	0.048
	≥1 (13)	93.38±42.258		50.23±17.740	
Liquid	0 (33)	144.06±41.793	0.048	62.91±16.174	0.138
	≥1 (27)	119.07±51.250		55.30±21.761	
Gas	0 (19)	158.16±38.097	0.002	65.79±16.277	0.082
	≥1 (41)	121.07±47.296		56.56±19.791	
Pad wear	0 (41)	153.59±38.258	<0.001	65.85±17.339	<0.001
	≥1 (19)	88.00±32.542		45.74±15.391	
Lifestyle	0 (39)	150.18±41.383	<0.001	64.67±18.938	0.003
	≥1 (21)	100.57±41.706		49.86±15.685	
Total	0 (13)	165.62±35.432	0.002	69.85±15.598	0.026
	≥1 (47)	123.74±46.751		56.62±19.134	

MSP maximal squeeze pressure,
RP resting pressure

Total and all subgroup scores of Wexner scale showed significant correlation with the MSP and RP values (Table 3). The comparison of MSP and RP of both groups were shown in Table 4. The MSP values of women with no incontinence (as indicated with a total score equals to zero) were significantly higher than those of the patients with any form of incontinence (as indicated with any score greater than 0). Likewise, comparing the RP values of both groups revealed that patients with symptoms of incontinence had higher values but the difference was not significant in liquid and gas subscales.

Discussion

According to the results of this study, the Turkish version of Wexner scale has a high internal consistency and test–retest reliability. All scores of the scale showed significant correlation with the objectively assessed pressure values. Overall, asymptomatic women were associated with higher pressure values compared to those with any degree of AI symptoms or alteration in lifestyle (Tables 1, 2, 3, and 4). It has been assumed that pre- and postoperative resting and maximal squeeze pressures may not necessarily correlate with the Wexner scale scores [11].

However, in this study, total and all subscales of the Wexner scale scores not only showed significant correlation between each other but also with the pressure measurements ($p < 0.005$). Based on our findings, a cutoff of pressure that would distinguish continence from incontinence could not be established and so the utility or significance of this correlation seems not to be clear. But it should be noted that the lowest pressure values were recorded in women who were wearing pads or reporting lifestyle

alterations (Table 4). This is especially important for determination of the QoL. Our data reveal that coping mechanism and lifestyle alterations show strong correlations with lower pressure values, whereas the correlation between the various types of incontinence (gas, liquid, solid) and pressure values was less strong. Adopting the coping mechanisms (pad wear) and the need of changing the lifestyle might be more important for a woman's QoL than the consistency of the lost stool. Indeed, Rockwood states that the various types of incontinence (gas, liquid, solid), coping mechanisms, and lifestyle alterations are not equally important in determining severity [8]. It was clearly shown that Wexner scale is able to distinguish women with poor QoL secondary to anal sphincter dysfunction.

Women with urogynecological problems are likely to have concomitant AI and one may expect that up to more than half of the women with UI may also suffer from AI. Therefore, evaluating women with urinary incontinence without assessing her anal functions could be incomplete. However, manometric evaluation of such patients is not justified and is not always easy to be accomplished when required. Symptom scores and other QoL instruments could be used to screen patients with lower urinary tract symptoms.

The Wexner scale has the strength of its ease of scoring and is widely used because of its simplicity. Like the original English questionnaire, the Turkish translated version of the Wexner scale is a reliable, consistent, and a valid instrument for assessing the symptom severity and impact on quality of life among women with anal incontinence. The scores correlated and are associated and with objective measures obtained during manometric investigations. In conclusion, it seems to be a reliable, consistent, and valid instrument for assessing AI in Turkish speaking women.

Conflicts of interest None.

Appendix

Table 5 Wexner scale

	Never	Rarely	Sometimes	Usually	Always
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Wears pad	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

Table 6 Turkish translated version of Wexner scale

	Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
a. Katı	0	1	2	3	4
b. İshal	0	1	2	3	4
c. Gaz	0	1	2	3	4
d. Pet kullanımı	0	1	2	3	4
e. Davranış değişikliği	0	1	2	3	4

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