Validity And Reliability Of The Turkish Version Of Constipation Assessment Scale In Nursing Students

Konstipasyon Değerlendirme Ölçeğinin Hemşirelik Öğrencilerinde Geçerlilik Güvenirlik Çalışması

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ABSTRACT

Aim: Constipation is a common symptom for many patients and constipation assessment scales used by the nurses providing care take a long time to apply. Assessment of constipation is important to improve its management. Therefore, our study aimed to determine the validity and reliability of the Turkish version of The Constipation Assessment Scale.

Methods: The Constipation Assessment Scale was translated into Turkish and was administered to a sample of 140 participants after the validation of cultural adaptation. The test–retest method was used to assess the scale's stability over time. Internal consistency reliability was evaluated with Cronbach's alpha coefficients.

Results: The Constipation Assessment Scale's structural validity was determined with confirmatory factor analysis and exploratory factor analysis was used to examine dimensionality. The test-retest reliability showed almost perfect agreement, with an ICC of 0.744 (p<0.001) for the total score of the Turkish version of the Constipation Assessment Scale. The internal consistency of the Turkish version of the Constipation Assessment Scale was good (Cronbach's alpha = 0.784).

Conclusion: The linguistic and psychometric evaluation demonstrated the validity of the Turkish version of Constipation Assessment Scale. It is consisting of eight items and providing easy use. So that nurses can assess constipation in less time.

Keywords: constipation, reliability and validity, nursing assessment

ÖZET

Amaç: Konstipasyon birçok hastada sık görülen bir semptomdur ve bakımı yapan hemşireler tarafından kullanılan mevcut konstipasyon değerlendirme ölçekleri uygulamak uzun zaman almaktadır. Konstipasyonun değerlendirilmesi, tedavisini geliştirmek için önemlidir. Bu nedenle, çalışmamızda Konstipasyon Değerlendirme Ölçeği'nin Türkçe versiyonunun geçerlik ve güvenilirliğini saptamayı amaçladık.

Yöntemler: Konstipasyon Değerlendirme Ölçeği, Türkçe'ye çevrildi ve kültürel adaptasyonun doğrulanmasından sonra 140 katılımcıdan oluşan bir örneklem grubuna uygulandı. Ölçeğin zaman içindeki stabilitesini değerlendirmek için test-tekrar test yöntemi kullanılmıştır. İç tutarlık güvenilirliği Cronbach alfa katsayıları ile değerlendirildi.

Bulgular: Konstipasyon Değerlendirme Ölçeği' nin yapısal geçerliliği doğrulayıcı faktör analizi ile belirlendi ve boyutsallığı incelemek için exploratory faktör analizi kullanıldı. Test- tekrar test güvenilirliği, Konstipasyon Değerlendirme Ölçeği' nin Türkçe versiyonunun toplam puanı için ICC 0,744 (p<0,001) ile neredeyse mükemmel bir uyum gösterdi. Konstipasyon Değerlendirme Ölçeği' nin Türkçe versiyonunun iç tutarlılığı iyiydi (Cronbach alfa = 0,784).

Sonuç: Dilsel ve psikometrik değerlendirme, Konstipasyon Değerlendirme Ölçeği' nin Türkçe versiyonunun geçerliliğini göstermiştir. Konstipasyon Değerlendirme Ölçeği sekiz maddeden oluşur ve kolay kullanım sağlar. Böylece hemşireler konstipasyonu daha kısa sürede değerlendirebilirler.

Anahtar kelimeler: konstipasyon, güvenilirlik ve geçerlilik, hemşirelik değerlendirmesi

Introduction

Constipation is a common symptom for many patients (1,2). Risk factors include narcotic analgesics, a decrease in physical activity, a low-fiber diet, a decrease in fluid intake, and bed rest (1,3).

Many studies indicate that constipation is a common problem among oncology patients (4-6) and affects 40-64% of patients referred to palliative care (2,7). This ratio is between 70-100% in hospitalized cancer patients and up to 90% of patients are treated with opioids (2,7). Constipation is not a problem unique to the cancer patients. It is seen nearly in 15% of the adult population and this range varies from 4% to 28% in western countries (8).

Constipation has been shown to affect the activities of daily life, well-being, social and personal functions negatively (8,9). Some of the studies show that constipation negatively affects the quality of life (10,11). Thus, assessment of constipation symptoms and clarification of the constipation definition is very important (12). One of the studies suggests that 80% of community nurses spend up to 12 hours (half a day a week) to treat constipation (13). However, there are difficulties in detecting the constipation, and constipation assessment scales used by the nurses providing care take a long time to apply. Therefore, this study was planned to conduct the Turkish adaptation study of The Constipation Assessment Scale (CAS) consisting of eight items and providing easy use.

Methods

The population of the study consisted of the students of Nursing Department at Gümüşhane University, Health School. The study sample was determined as 140 students who agreed to participate in the study. The students without known health problems were included in the study. Validity of scale language was performed between June and August, 2015. Data for test and re-test were collected between September 28 and October 23, 2015.

The Constipation Assessment Scale is a scale which measures the presence and intensity of constipation. This scale is an eight-item and three-point summated rating scale. Each item is self-rated by the patient as 0 = no problem, 1 = some problem, or 2 = severe problem. CAS's total scores may range from 0 = no constipation to 16 = worst possible constipation. This scale's reliability and validity were analyzed by McMillan & Williams (14).

Ethical considerations

The required permission was taken from the administration of the Nursing Department of Gümüşhane University, Health School. The students were informed, and verbal consent was obtained.

Cultural adaptation

The original English version of the CAS was translated into Turkish by three independent English academic judges, who are all Turkish native speakers. The scale was then back-translated into English by three independent Turkish-speaking English teachers and a doctor who has fluent English.

Reliability

The test–retest method was used to assess the scale's stability over time. In this study, students were re-evaluated one hour later. The correlation between the two measurements was calculated using the intra class correlation coefficient (ICC). Internal consistency reliability was evaluated with Cronbach's alpha coefficients.

Validity

The Kayser–Meyer–Olkin was used to measure the sampling adequacy and sphericity was analyzed with Bartlett's test. The CAS scale's structural validity was determined with confirmatory factor analysis and exploratory factor analysis was used to examine dimensionality. Varimax rotation was used to identify the major sources of variance.

Results

The mean age of the students was 20.61±1.63 and the majority of students were female (62.9%) and second year students at Nursing Department (65%) (Table 1).

Table 1. Socio-demographic characteristics of students

	n	%
Gender		
Female	88	62.9
Male	52	37.1
Class		
2	91	65.0
3	7	5.0
4	42	30.0

Table 4. Inter-Item Correlation Matrix

	C1	C2	C3	C4	C5	C6	C7	C8
C1	1,000	0,232	0,247	0,157	0,308	0,252	0,295	0,249
C2	0,232	1,000	0,156	0,137	0,367	0,159	0,217	0,208
C3	0,247	0,156	1,000	-0,030	0,208	0,227	0,385	0,492
C4	0,157	0,137	-0,030	1,000	0,354	0,021	0,088	0,165
C5	0,308	0,367	0,208	0,354	1,000	0,521	0,345	0,468
C6	0,252	0,159	0,227	0,021	0,521	1,000	0,218	0,416
C7	0,295	0,217	0,385	0,088	0,345	0,218	1,000	0,374
C8	0,249	0,208	0,492	0,165	0,468	0,416	0,374	1,000

Reliability

The correlation between the two measurements was calculated using the intra class correlation coefficient (ICC). The test-retest reliability showed almost perfect agreement, with an ICC of 0.744 (p<0.001) for the total score of the Turkish version of the CAS. The internal consistency of the Turkish version of the CAS was good (Cronbach's alpha = 0.784) (Table 2).

Validity

For the final shape of the scale in terms of content validity, 10 people who were experts in their fields such as nurses and nurse academicians were determined and consulted. In accordance with their suggestions, the scale was finalized by doing necessary changes. The mean score given by the experts for the evaluation of the whole scale was 2.72 ± 0.19 out of 3 for 8 questions. Lawshe calculation of the content validity ratio is given in Table 3.

Table 3. Content Validity Ratio Calculation

Questions	n	n/2	CVR=$\frac{n-n/2}{n/2}$	Content Validity Ratio (CVR)
1	10	5	5/5	+1.00
2	10	5	5/5	+1.00
3	10	5	5/5	+1.00
4	8	5	3/5	+0.60
5	10	5	5/5	+1.00
6	10	5	5/5	+1.00
7	10	5	5/5	+1.00
8	10	5	5/5	+1.00

The structural validity of the tool was tested using factor analysis. The Kaiser–Meyer–Olkin measure was 0.732, and the Bartlett's test provided a value of (p<0.001); these results were highly significant and indicated that the data were suitable for factor analysis. The factor load of the questions was controlled. The questions were listed under the relevant factor along with the factor load and questions were grouped under one factor (Table 4).

Table 4. Factor structure for the Constipation Assessment Scale

Factors	Question number	Factor load
F1	1	0.42
F1	2	0.51
F1	3	0.79
F1	4	0.79
F1	5	0.71
F1	6	0.55
F1	7	0.65
F1	8	0.73

Discussion

Assessment of constipation is important to improve its management (15). The scales which are used in the evaluation of the constipation take a long time to apply. If we use a simple and short scale for evaluation of constipation, it will help us save time. The original CAS is a simple and short scale which determines the severity of constipation among cancer patients. Therefore, our study aimed to determine the validity and reliability of the Turkish version of CAS.

In the previous studies, the validity and the reliability of CAS scale had always been tested on patients. However, in our study, we tested the validity and the reliability of the scale on healthy individuals.

Since healthy people were selected, total score of CAS was found low (2.28). The original study of

CAS showed that there was a statistically significant difference between scale scores of healthy group and cancer patients and healthy people's scores were determined to be lower (14).

The test-retest reliability showed almost perfect agreement, with an ICC of 0.744 (p<0.001) for the total score of the Turkish version of the CAS. Previous studies showed similar results (14,16-18). These studies were carried out with sick individuals and thus showed the validity of the scale in sick individuals while our study showed the validity of scale in healthy individuals. For that reason, the results of test, re-test demonstrated that the scale was valid for both sick and healthy individuals.

The internal consistency of the Turkish version of the CAS was good (Cronbach's alpha = 0.784). The internal consistency was very acceptable for this scale. The original version's Cronbach's alpha value was 0.70 (14), the Italian version of the CAS's Cronbach's alpha value was 0.768 (16). The results of this study were similar to the results of our study.

Factor analysis of the scale demonstrated that the scale had a single factor structure and factor loading was suitable. Confirmatory factor analysis also showed that the scale did not have a sub-scale and factor loads were appropriate. Similar structures and results were obtained both from the original validity and reliability study of the scale (14) and the Italian version of it (16).

Conclusion

The results of this study provide evidence that Turkish version of the CAS instrument is valid, consistent, and reliable and will be of value in clinical practice. However further studies with larger sampling in which the scale is administrated by nurses in the field are required.

Conflict of Interest

There was no conflict of interest for the study.

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