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# A STUDY ON DEVELOPING ATTITUDE SCALE TOWARDS NURSES

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**ABSTRACT**

*The aim of this study is to develop an attitude scale towards nurses which can be used for providing important feedback to the institutions that educate and train nurses and the health institutions. The trial items of the prepared scale were applied on 493 individuals aged 18 and above with different demographic characteristics. The construct validity of the scale was examined with the principal components analysis. As a result of the analysis, a two-component construct which is constituted by positive and negative items appeared. As an evidence for the construct validity, the difference of the attitude means among distinct groups was examined. However, no statistically significant difference was found as for the educational background and the type of the hospital they receive service. The reliability of the scale and the components were analyzed in terms of internal consistency. Accordingly, Cronbach alpha coefficient of the 21-item final scale was 0.94, the first component which is constituted by positive items was 0.92, and the second component which is constituted by negative items was 0.77.*

***Keywords:*** *nursing service, Likert type attitude scale*

## HEMŞİRELERE YÖNELİK TUTUM ÖLÇEĞİ GELİŞTİRME ÇALIŞMASI

**ÖZ**

*Bu çalışmada, hemşirelere yönelik tutumların belirlenmesi ile hemşire yetiştiren eğitim kurumlarına, sağlık hizmeti sunan kurumlara önemli dönütler sağlayabilecek bir ölçek geliştirmek amaçlanmıştır. Hazırlanan denemelik ölçek maddeleri, 18 yaş ve üstü farklı demografik özelliklere sahip 493 bireye uygulanmıştır. Temel bileşenler analizi ile ölçeğin yapı geçerliği incelenmiştir. Analiz sonucunda olumlu ve olumsuz maddelerin oluşturduğu iki bileşenli yapı ortaya çıkmıştır. Yapı geçerliğine bir kanıt olarak, farklı gruplar arasındaki tutum ortalamaları farkı incelenmiştir. Fakat katılımcıların eğitim durumları ve hizmet aldıkları hastane türü açısından, gruplar arası istatistiksel olarak anlamlı bir fark bulunamamıştır. Ölçeğin ve bileşenlerin güvenirliği iç tutarlılık açısından incelenmiştir. Buna göre 21 maddelik nihai ölçeğin Cronbach alfa değeri 0,94, olumlu maddelerin oluşturduğu birinci bileşen 0,92, olumsuz maddelerin oluşturduğu ikinci bileşen 0,77 Cronbach alfa değerine sahiptir.*

***Anahtar Kelimeler:*** *hemşirelik hizmetleri, Likert tipi tutum ölçeği*

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## 1. INTRODUCTION

A profession meets a service required by the society. This service should be well understood by the members of the profession and those who are served. The professional groups which offer certain services required by the society are granted some values and privileges such as reputation and status by the society. In this regard, there is a kind of agreement between any profession and the society (Dinç, 2009). According to this agreement, the society gives powers to the professional groups in terms of the functions which are vitally important for the society and grants them the independency required by these groups to carry out their own functions. In return, it expects the professional groups to behave within responsibility and consciousness and in a way not to abuse the trust of the public opinion (Korkmaz, 2011). The status of a profession in the society increases parallel to the usefulness of the service it offers to the society and this positively improves the profession member's image of self (Korkmaz, 2002).

Today, it is accepted that nursing has a significant place within health care service in Turkey and in the world. Nursing is known to have an indispensable and important place in protecting, improving the health of the individual, the family and the society (Özpancar, Aydın & Akansel, 2008; Adıgüzel, Tanrıverdi, Sönmez & Özkan, 2011). In the light of these expectations of the society, the duty of the nurse is to help the individuals, families and groups determine and assess their physical, mental and social competences in the environment they live and work. Nursing profession fulfills such a duty by using its functions in the society (Korkmaz, 2011).

Whether the expectations of the society on nursing profession is realized or not can be determined as a result of the practical interaction of the society with the nurses. This interaction determines the attitudes of the society towards the nurses. Fingering the pulse of the society with respect to the attitudes towards the nurses provides important feedbacks about the quality of the instruction programs and student outcomes of the education institutions which train nurses in terms of professional competences. It also provides important feedbacks to the institutions which offer health service in terms of in-service training to nurses and removing their problems for the purpose of carrying nursing profession onward and reaching better service quality. Therefore, it is supposed that developing Attitude Scale Towards Nurses (ASTN) will make significant contributions to the health system.

The studies related to the quality of the nurses can be found in the literature. When studies conducted through scales are examined, they are seen to be researched in which assessment is made related to the professional aspect of the nurses' attitudes either towards the specific patience or the illnesses, or those of the attitudes of the health staff to each other. In addition to this, attitude scale for nursing profession developed by Çoban and Kaşıkçı (2011) has been conducted. The study group of the research is comprised of final-year students of high schools, the patients, the nurses and students of nursing department. The resulting attitude scale for nursing profession consists of 40 items across the following three domains: Properties of nursing profession, prefer to nursing profession, general position of nursing profession (Çoban and Kaşıkçı, 2011).

### 1.1. Attitudes and Likert Type Scale

What is primarily important in attitude scale development studies is to set the theoretical definition of attitude at the beginning phase. It is necessary to set the operational defini-

tion and create the measurement tool within the framework of the theoretical definition since attitudes cannot be directly observed. Therefore, it is necessary to set the indicators of the attitude indirectly.

Thurstone (1931) states that attitude is the effect for or against a psychological object. Thus, he paves the way for measuring the attitude on a linear continuum. Allport (1935) defines attitude as a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related. Anderson (1981) defines attitude in detail as a moderately intense emotion that prepares or predisposes an individual to respond consistently in a favorable or unfavorable manner when confronted with a particular object. As it can be understood from these definitions, attitude is a psychological construct associated with the affective domain.

The components which determine the degree of attitude in affective domain are the individual's experiences. Every attitude has three interrelated components, although they vary in terms of which element predominates and in the nature of their relationship (Feldman, 1996). However affective, cognitive and behavioral components can be considered under individuals' experiences which determine their potential response coming from the affective domain related to the attitude.

A Likert type attitude scale consists of the attitude items to which the individual can give positive or negative reactions to the attitude object. Likert (1932) says "If five alternatives has been used, it is necessary to assign values of from one to five with the three assigned to the undecided position on each statement". The reactions in the Likert type attitude scales are scored as follows for a positive item with respect to the attitude object: Strongly disagree (1 points), disagree (2 points), undecided (3 points), agree (4 points), strongly agree (5 points).

The total scores obtained from the attitude scale show the place of the individuals in the measured attitude dimension. If the score of an individual decreases to the middle or around the scaling dimension, it can be said that the attitude of this individual is in the middle or a certain attitude has not been created; if it falls to a point near the ends, it can be said that it has a positive or negative attitude based on the name of that end (Turgut and Baykul, 1992). This study aims to develop a Likert type scale towards nurses, one of the commonly used methods of summated ratings. Likert type scales are also known as summated ratings scales (Moser and Kalton, 1979). This method is based on getting the respondent's reactions given to the expressions (items) with respect to the related object over the scored ordinal categories supposed within a linear continuity and equal intervals.

## 2. METHODS

This study is about developing a scale which is an instrument to get quantitative measures in social research. Therefore this study is a quantitative research. To develop a Likert type scale, it is needed to get the respondents' reactions to the items of the scale. So this study is also an empirical study which is based on observations.

### 2.1. Study Group

ASTN was applied to 493 individuals who are voluntary applicants aged above 18 covering different demographic variations such as sex, age, education, social assurance and monthly

income in the society. The biggest part of the study group is settled in Mersin province (75.6%). The distribution of the other part of the group by provinces is İstanbul (9.6%), Adana (6.5%), Adıyaman (2.6%) and other provinces (5.7%) like Osmaniye, Hatay and Kahramanmaraş.

As for the gender, 58.6% of the individuals were women, and 41.4% were men. Individuals were 18-80 years old and 46% of them were aged 30 and above. Nearly 80% of the individuals were high school and university graduates and 20% at the participants was elementary or middle school graduate. When whether the individuals have social assurances is taken into consideration, it is seen that 86% of them have social assurance, and the remainder 14% do not have any social assurance.

3.9% of the participants stated that they have not been to any hospitals as patients or relatives of the patients within the last one year, and the remainder 96.1% stated that they have been to the hospital at least once within the last one year.

**2.2. Trial Scale Preparation Phase**

In the scale development study which is started out by inductive strategy, a scale form was prepared in Likert type 5 point scale. The content validity of the attitude scale is determined by obtaining the contextually desired representativeness of the attitude items prepared for the trial scale form by consulting attitude experts' judgments (Aiken, 1996). In this context, the survey and scale items prepared by the researchers were given their revised version by taking the opinions of total 7 experts; namely, 3 instructors from the School of Health, 1 instructor from the Faculty of Education Department of Guidance and Psychological Counselling, and 3 instructors from the Department of Measurement and Evaluation in Education. A 32-item ASTN consisting of 16 negative, 16 positive attitude expressions was prepared to. Moreover, the demographic information survey was made ready for application together with the scale.

**2.3. Analysis of the Data**

Likert type scales have two main psychometric properties. The first one is the reliability and the other is the validity. One of the important validity type which should be analysed in the attitude scales is the construct validity (Tezbaşaran, 1997). In this research the evidence of factor analysis and the evidence from distinct groups have been examined for the construct validity.

At the first phase, Pearson Product-Moment correlation coefficient should be calculated and its statistical significance should be tested to find consistency between the total scale score and the items in the scale. A positive item-total correlation indicates that the item measures the same thing that is being measured by the test (Murphy and Davidshofer, 1991). This interpretation can be done for an attitude scale and its items as well.

At the second phase, construct validity will be studied. In the construct validity which is made over factor analysis, the purpose is to find the dimensions of the construct with respect to the scale over the data obtained. The technique to be used in the factor analysis in this study is the principal components analysis and the dimensions set forth will be referred to as 'components'.

In the principal components analysis, primarily the items which do not show a statistically significant correlation with any other items should be discarded. Moreover, whether the

item-item correlation matrix is a unit matrix or not should be analysed through Bartlett test. Besides, the items which show very high association mutually form multicollinearity. Whether an item is a repetition of another item is tested over the determinant of the matrix. If the determinant is found high as a result of the test (D>,00001), it means that the items show high correlation with each other (r>,8). In this case, one of the items is excluded from the scale (Field, 2005). Furthermore, whether the study group is of great size enough for the analysis is analysed through Kaiser-Meyer-Olkin (KMO) test.

At the third phase, items have been subjected to rotation. Two tours of axis rotation can be performed in order to set forth the principal components (subscales) of the scale. The first one is orthogonal rotation. The resulting components are independent from each other. The second one is Oblique rotation. The difference of oblique rotation from the first one is that it allows the formation of the components which are correlated. At this phase, primarily, orthogonal rotation is made using varimax rotation method. Oblique rotation will be made using oblimin rotation method if the components do not seem to be independent from each other.

At the fourth phase, analysis of variance – ANOVA was used in order to look at the difference among the groups. And at the last phase, the reliability of the scale and the subscales were analysed through Cronbach alpha which is an internal consistency coefficient.

## 3. FINDINGS

Upon the analysis of Table 3.1 that includes the correlations between the test scores which consist of trial items and the items, it is seen that all items have a significant association with the construct which is desired to be measured. Accordingly, all of the trial items have been taken to principal components analysis for construct validity.

**Table 3.1:** ASTN Item-Test Correlations

| Item No | r | Item No | r | Item No | r |
|---|---|---|---|---|---|
| 1 | ,603* | 12 | ,634* | 23 | ,720* |
| 2 | ,505* | 13 | ,740* | 24 | ,658* |
| 3 | ,565* | 14 | ,447* | 25 | ,648* |
| 4 | ,665* | 15 | ,646* | 26 | ,718* |
| 5 | ,696* | 16 | ,701* | 27 | ,588* |
| 6 | ,642* | 17 | ,598* | 28 | ,682* |
| 7 | ,610* | 18 | ,721* | 29 | ,790* |
| 8 | ,670* | 19 | ,676* | 30 | ,688* |
| 9 | ,706* | 20 | ,739* | 31 | ,686* |
| 10 | ,639* | 21 | ,695* | 32 | ,740* |
| 11 | ,690* | 22 | ,749* | | |

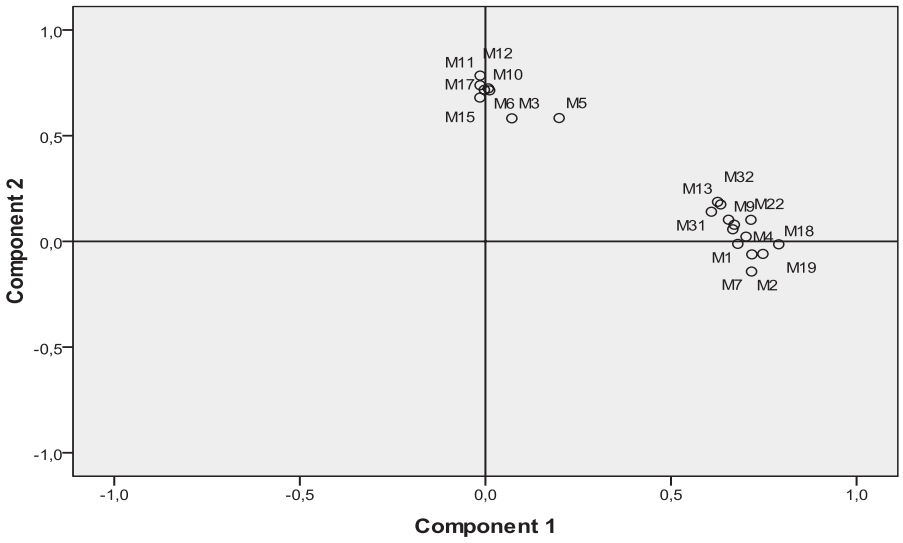
* p<,001

At the principal components analysis phase, the sample size was found sufficient for analysis as a result of KMO test (KMO=0,964). Moreover, upon the analysis of the item-item

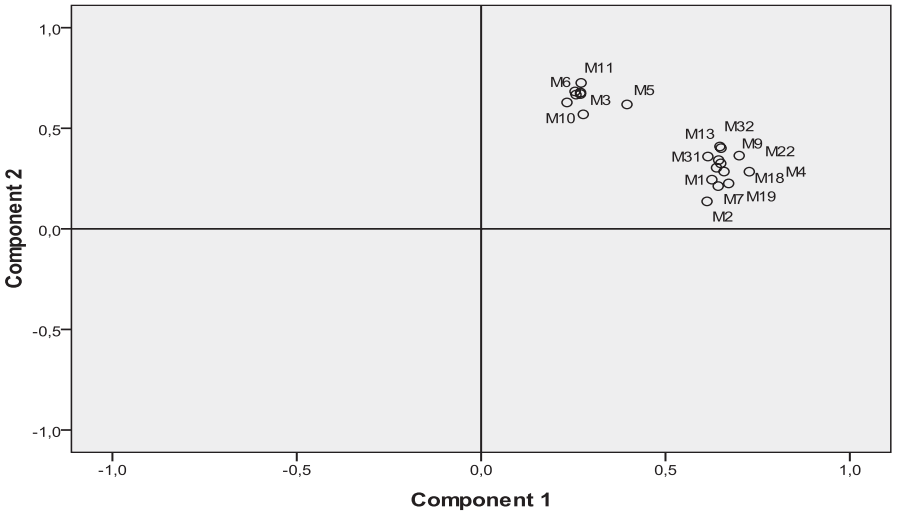
correlation, it was found that there was no low correlation (singularity) between the items and the matrix did not serve as a unit matrix through Barlett test ($X^2$(496)=6862, p<,000). In order to prevent high correlation between the items, in other words, a second variable which can be a repetition of the variable, the determinant of the item-item correlation matrix was analysed, and it was seen that there were no items which can be regarded as the repetitions of each other (|R|>,00001). In this case, the eigenvalues of the components were calculated on all of the 32 items. Based on Kaiser Criteria, 4 components were found with an eigenvalue above 1 and the total variance explained by these 4 components is 56.7% of the whole variance. However, upon the analysis of the component matrix, it was seen that there were many items which gave common load to the components. In the comparison of the orthogonal and oblique rotation results, it was found that more items decisively gave a common load to a component as a result of the orthogonal rotation and many items loaded to 3 or 4 components in oblique rotation. As a result of the orthogonal rotation, items no 8, 14, 16, 20, 21, 23, 24, 25, 27, 29 and 30 loaded to multiple components. Thus, the items which load to multiple components were excluded and principal components analysis was repeated.

As a result of the second principal components analysis, a two-component construct was obtained. As a result of discarding 11 items, the variance explained by the two-component construct which is obtained with the remainder 21 items is 51.8% with a loss at the rate of nearly 5%.

Components obtained were primarily subjected to orthogonal rotation and then oblique rotation. As it can be seen in Figure 3.1, the items were more decisively decomposed as a result of the oblique rotation. This result means that two components are not independent constructs (r=0,685).




**(a)**




**(b)**

**Figure 3.1:** ASTN Component Plot in Oblique Rotated Space (a) and Orthogonal Rotated Space (b)

Upon the oblique rotation, 13 items which contain positive expressions about nurses are seen in the first component, and 8 items which consist of 8 items are seen in the second component. Upon the contextual analysis of the items which constitute the two components, components can be named under *sensitivity* and *insensitivity* shown by the nurses in their duties.

The items in the first component are respectively items with numbers 1, 2, 4, 7, 9, 13, 18, 19, 22, 26, 28, 31, 32, and the items which constitute the second component are items with numbers 3, 5, 6, 10, 11, 12, 15 and 17. Since the factors are not independent, the structure matrix derived after oblique rotation should be preferred instead of pattern matrix for interpreting of factor loadings (Field, 2005; Thompson, 2005). Factor loadings can be thought of as the correlation between a factor and a variable (Field, 2005). As it can be seen in Table 3.2, each item has correlations with two components, because two components are dependent. Hence, sensitivity and insensitivity are expected to be related with each other on theoretical level.

**Table 3.2:** ASTN Factor Structure Matrix

| Item No | Component 1 | Component 2 | Item No | Component 1 | Component 2 |
|---|---|---|---|---|---|
| 1 | ,672 | ,455 | 13 | ,754 | ,616 |
| 2 | ,619 | ,349 | 15 | ,493 | ,729 |
| 3 | ,471 | ,631 | 17 | ,452 | ,670 |
| 4 | ,718 | ,504 | 18 | ,781 | ,529 |
| 5 | ,599 | ,720 | 19 | ,707 | ,454 |
| 6 | ,489 | ,715 | 22 | ,785 | ,593 |
| 7 | ,676 | ,431 | 26 | ,725 | ,539 |
| 9 | ,725 | ,552 | 28 | ,706 | ,515 |
| 10 | ,502 | ,722 | 31 | ,705 | ,558 |
| 11 | ,524 | ,775 | 32 | ,754 | ,610 |
| 12 | ,505 | ,729 | | | |

In this research, as a method for another evidence for construct validity is to see the attitude difference between distinct groups. For this purpose, the difference of the scores of the attitude scale towards nurses with 21 items have been examined according to the type of the hospital they receive service and their educational background. In the research conducted with 419 participants, the mean of the attitude scores of the individuals who graduated from primary education are observed to be the highest (71.3) while the mean of the attitude scores of those who graduated from higher education are seen to be the lowest (67.8) However according to the educational background, no statistically significant difference has been observed between the means of the attitude scores as a result of ANOVA test ($F(2,416)=2.6$ $p>.05$) (Table 3.4).

**Table 3.3:** Some Statistics on ASTN Total Scores by Educational Level

| Educational level | N | Mean | Std. deviation |
|---|---|---|---|
| Primary Education | 76 | 71.3 | 13.3 |
| Secondary Education | 94 | 71.0 | 15.9 |
| Higher Education | 249 | 67.8 | 14.5 |

**Table 3.4:** ANOVA Results by Educational Level

| | Sum of squares | df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 1117.4 | 2 | 558.7 | 2.6 | 0.074 |
| Within groups | 88901.5 | 416 | 213.7 | | |
| Total | 90018.9 | 418 | | | |

Moreover, whether there is a difference of the scores of the attitude scale towards nurses has been examined according to the type of hospitals (private, state, university hospitals) the participants receive service. The data from 393 individuals are available for the analysis. When the table 3.5 is examined, when ranked as regards attitude means, university hospitals ranked the first (72.4), private hospitals ranked the second (69.2), and the state hospitals ranked the third (67.8) as for the participants' preferences. As a result of ANOVA, among the attitude scores mean, there is no statistically significant difference according to the types of hospitals. ($F(2,390)= 2.0$, $p>.05$) (Table 3.6).

**Table 3.5:** Some Statistics on ASTN Total Scores by Types of Hospital

| Types of hospital | N | Mean | Std. Variation |
|---|---|---|---|
| Public Hospitals | 160 | 69.2 | 14.2 |
| Private Hospitals | 181 | 67.8 | 14.3 |
| University Hospitals | 52 | 72.4 | 15.5 |

**Table 3.6. ANOVA Results by Types of Hospital**

| | Sum of squares | df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 841.5 | 2 | 420.7 | 2.0 | 0.134 |
| Within groups | 81080.4 | 390 | 207.9 | | |
| Total | 81921.9 | 392 | | | |

The reliability of the scale was analyzed over Cronbach alpha reliability coefficient in terms of internal consistency. Cronbach alpha of the whole scale which consists of total 21 items is 0.94. Upon the analysis of the scale on components basis, Cronbach alpha coefficient of the first component which consists of 13 positive items is 0.92. The second component consists of 8 negative items and its Cronbach alpha coefficient is 0.77.
Based on Table 3.7, when items are discarded, the change in the statistics of the scale and Cronbach alpha coefficient is at a negligible level.

**Table 3.7:** ASTN Item-Total Statistics

| Items* | Scale Average except for Item | Scale Variance except for Item | Item-Total Correlation | Internal Consistency of the Scale except for Item |
|---|---|---|---|---|
| 1. One is relieved when he sees nurses in the hospital. | 65,93 | 193,95 | 0,591 | 0,935 |
| 2. They are respected persons. | 65,40 | 202,16 | 0,515 | 0,936 |
| 3. They do not care the emotions of the patients while dealing with them. | 66,19 | 197,13 | 0,539 | 0,936 |
| 4. They exhibit well-intended behaviors towards their patients. | 65,76 | 197,83 | 0,642 | 0,934 |
| 5. They behave insensitively toward the relatives of the patients. | 66,15 | 193,98 | 0,664 | 0,934 |
| 6. One never wants to go to hospitals because of nurses. | 65,61 | 195,38 | 0,590 | 0,935 |
| 7. We owe much to nurses. | 65,92 | 197,62 | 0,584 | 0,935 |
| 9. They are helpful towards patients and relatives of the patients. | 65,97 | 195,58 | 0,669 | 0,934 |
| 10. They discriminate between the patients. | 66,12 | 194,67 | 0,597 | 0,935 |
| 11. They are bad tempered people. | 65,97 | 194,88 | 0,639 | 0,934 |
| 12. They abuse the people's needy condition. | 65,64 | 196,45 | 0,605 | 0,935 |
| 13. They perform their job meticulously. | 65,78 | 195,73 | 0,719 | 0,933 |
| 15. They behave offending towards uneducated patients. | 66,13 | 193,58 | 0,595 | 0,935 |
| 17. One cannot explain his problems to nurses. | 66,06 | 197,62 | 0,541 | 0,936 |
| 18. They work with self-sacrifice. | 65,86 | 196,40 | 0,695 | 0,934 |
| 19. They relieve the patients while contacting them. | 65,90 | 196,60 | 0,610 | 0,935 |
| 22. They can empathize with the patients. | 66,01 | 194,30 | 0,728 | 0,933 |
| 26. They perform their duties willingly. | 66,01 | 195,62 | 0,662 | 0,934 |
| 28. They deserve the money they earn. | 65,65 | 194,38 | 0,638 | 0,934 |
| 31. They protect and observe the patients' rights. | 66,10 | 195,89 | 0,657 | 0,934 |
| 32. They are aware that they are responsible for public health. | 65,68 | 192,79 | 0,714 | 0,933 |

* For the translation validity, the items were translated from Turkish into English and from English into Turkish.

## 4. DISCUSSION AND RESULTS

Each of the 32 trial items prepared in ASTN development study shows significant correlation with total scale scores. As a result of the principal components analysis, there were 4 components. However, the items were excluded from the scale supposing that the items which give common load can be more clearly set forth and the analysis was repeated. As a result, we reached a scale with 21 items which explained 52% of the total variance. The first component of the scale consists of 13 items which constitute positive expressions about nurses and measure the sensitivity of the nurses in their duties. The other 8 items which constitute negative expressions are seen in the second component named insensitivity in their duties.

As another evidence for construct validity, according to ANOVA results, there is not a statistically significant difference among the primary, secondary and higher education levels when the attitude scores are examined in terms of educational background. However, the fact that the mean of attitude scores of the participants with higher education background is lower than the mean of the attitude scores of primary school graduates can be explained through the reason that the individuals with higher educational levels have higher quality expectations and the rank of the attitude score means can be presented as an evidence for construct validity. In the research carried out by Taşlıyan and Gök (2012) the highest satisfaction ratio of the views of the participants as regards to the services they receive from hospitals has emerged to belong to illiterate participants while the lowest ratio belongs to those who have primary, secondary and tertiary education levels.

When the difference of the attitude scores are examined according to the hospital preference of the participants, private, state and university hospitals turn out not to have a statistically significant difference in terms of hospital preference. When the hospitals ranked as regards attitude scores means, the highest is the university hospitals followed by the private hospitals and the lowest ratio is the state hospitals. If nurses are considered to be a factor in the preference of hospitals, this ranking can be presented to be the evidence for construct validity. Moreover, in a study carried out by Taşlıyan and Gök (2012), it has been found out that the answers to the item “nurses’ care and respectful behaviors to you” reveal that the state hospitals are discredited compared to private ones.

The reliability of the first component in terms of internal consistency is 0.92. The second component of the scale consists of 8 items and these items are the negative expressions shown by nurses towards patients and relatives of patients while performing their job within the context of insensitivity and its reliability is 0.77. The reliability of the scale is 0.94 in terms of internal consistency obtained over all items of the scale.

The psychometric properties of the scale are based on the data obtained from the sample and valid for this sample. It is not possible to say that the psychometric properties of the scale are valid for different samples. Therefore, it is recommended that this scale can be examined on different samples. The factor analysis which was used for construct validity in this study a statistical evidence, was made by using principal components analysis technique which put forth the components. Therefore, it is recommended that the confirmatory factor analysis and other evidences related to validity can be used to support the results in the following studies.

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