A Turkish Language Equivalence of the Exercise of Self-Care Agency Scale[1]

Nursen O. Nahcivan

This article is about the pilot test of a Turkish version of the Exercise of Self- Care Agency Scale (ESCA) using a randomized convenience sample of 119 bilingual Turkish adolescents. The instrument was translated into Turkish, back translated, and pilot tested to linguistic equivalence. Bilingual participants were randomly assigned to four groups. Each participant was administered both the English and the Turkish versions of the scale but in different order at 5-week intervals. The results show that the Turkish version of the ESCA was linguistically equal to the English form. Test-retest correlations were acceptably high (r = .80 to .90). Internal consistency of the total scale of the ESCA was adequate, with an alpha coefficient of .89 for the Turkish version and .88 for the English version. Further research in the development of this translated form would need to demonstrate its applicability and generalizability to monolingual Turkish adolescents.

Keywords: *self-care agency; instrument testing; linguistic equivalence; Turkish adolescents*

Nursing theories provide a guide to nursing education, practice, and research in a variety of settings. A nursing theory developed in a foreign culture should be examined and tested for its transcultural applicability and usefulness. Before deciding the usefulness of a nursing theory in transcultural settings, the concepts in the theory need to be well understood (Robertson & Kelley, 1996). Orem's general theory of nursing is one of the most tested and widely used theories in nursing (Meleis, 1991). According to this theory, "the ability to exercise self-care among individuals, families, and groups is an important consideration in the planning and delivery of nursing care" (Riesch & Hauck, 1988, p. 245). Valid and reliable research tools are needed to study the ability to exercise self-care of individuals from various cultural groups. This study examined the equivalency of the two language (English

Nursen O. Nahcivan, B.S.N., Ph.D., associate professor, Istanbul University, Florence Nightingale School of Nursing, Public Health Nursing Department, Istanbul, Turkey.

813

and Turkish) versions of the Exercise of Self-Care Agency Scale (ESCA) on a group of Turkish bilingual adolescents. It is hoped that this equivalency study will provide a reliable tool for use with Turkish adolescents.

SELF-CARE AGENCY

Self-care, as the central concept in Orem's (1991) theory, is described as "the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being" (p. 117). Self-care is also purposeful and contributes to human structural integrity, functioning, and development (Orem). Individuals constantly act to maintain a balance between their abilities to achieve self-care and the various therapeutic self-care demands. The ability of an individual to meet these demands depends on his or her self-care agency. When a self-care agency is not sufficient in meeting the therapeutic self-care demands, a self-care deficit forms, and in this case, nursing is required (Aggleton & Chalmers, 1986; Riesch, 1988).

According to Orem (1991), self-care agency is the individual's ability to perform self-care activities, and "it varies with health state; with factors that influence educability; and with life experiences as they are enabling for learning, for exposure to cultural influences, and for use of resources in daily living" (p. 145). Certain conditions and factors in the environment of an individual influence self-care agency. These factors that affect individuals' abilities to engage in self-care or affect the kind and amount of self-care required are named *basic conditioning factors* (i.e., age, gender, developmental state, health state, sociocultural orientation, health care system, and family system factors). These cultural influences have been proposed as an important contributing factor to self-care agency. Orem also states that the activities of self-care are learned by the individual who is influenced by the beliefs, habits, and practices that characterize the cultural way of life. It is important for nurses to understand such cultural elements to be able to help patients with prejudicial attitudes. Therefore, nurses should have a valid basis for diagnosing self-care deficits and their reasons, be able to select a reliable method of help, and prescribe and design a nursing system.

Several instruments were developed to measure Orem's (1991) concept of self-care agency. The most preferred instrument is the ESCA (Kearney & Fleischer, 1979). This 43-item scale was based on Orem's general theory of nursing. It aims to measure human capabilities or dispositions about self-care abilities (Meleis, 1991; Whetstone, 1987). It has been widely studied for its reliability, validity, and factor structure (McBride, 1987, 1991;

Riesch & Hauck, 1988; Robichaud-Ekstrand & Loiselle, 1998; So & Lee, 1989; Whetstone, 1987; Whetstone & Hansson, 1989; Yamashita, 1998). It has also been studied in different cultures such as East German (Whetstone, 1987), Sweden (Whetstone & Hansson, 1989), Korean (So & Lee, 1989), French (Robichaud-Ekstrand & Loiselle, 1998), Japanese (Yamashita, 1998), and Taiwanese (Wang & Laffrey, 2000). These studies tested Orem's nursing theory in cross-cultural settings. According to Whetstone, such cross-cultural studies provide nurses with a challenge for testing nursing assessment tools, which can be used in nursing responding to human needs.

MEASURING SELF-CARE AGENCY AND HEALTH CARE IN TURKEY

The nature of health problems, people's demands from the health system, and people's preferences are changing in Turkey. The demographic profile of this country is relatively young when compared to other European countries. The survey implies that 50% of the population is under age 22, indicating a high fertility level (Ministry of Health, 1996, 1997). Although there is insufficient epidemiological data in this country in terms of quality, results show that the most common causes of mortality and morbidity are preventable and controllable. In 1990, approximately 55.2% of the causes of death in all ages reported were caused by coronary heart diseases (33.5%), cancer (10.1%), perinatal causes (9.5%), and pneumonia (3.1%; Ministry of Health, 1997). Such high rates show the importance of health prevention and professional priorities. It is also important to advance the understanding of the promotion of healthy behaviors and to prevent disease among this growing population. The demographic trend implies the need for change in service provision. To deliver health services in accordance with community needs, a new reform process has been initiated in Turkey. Although one of the objectives of the proposed health care reform in this country is concerned with disease prevention and health promotion among its citizens (Ministry of Health, 1996, 1997), it has not been established fully in practice. The concept of self-care has not been defined thoroughly and therefore is not practiced by health care professionals.

According to Orem (1991), the promotion and maintenance of health are recognized as outcomes to be achieved through self-care. Orem's theory also "values personal responsibility for health, while recognizing that prevention and health education can be key aspects of nursing intervention" (Aggleton & Chalmers, 1986, p. 59). Utz (1990) suggests that the nurse's

role is to enhance clients' abilities and help the clients create positive conditions that influence their healthy behaviors. Through the acquisition of self-care skills, people are able to more actively participate in creating their own health and in shaping the conditions that influence their health. In addition, it has been reported that "the promotion of self-care is necessary to improve the quality and appropriateness of care, and to counter tendencies toward excessive recourse to professional services and costly technology" (Minister of Public Works and Government Services Canada, 1997, p. vii). Because self-care behavior is learned, nurses can stimulate and support people's self-care efforts, and they can increase the agency of the individual by providing health teaching (Chang, 1980; Minister of Public Works and Government Services Canada, 1997).

Even though self-care is not a new concept in the world, limited information exists concerning the self-care practices of Turkish people. This is partly because of a lack of valid and reliable instruments available in the Turkish language. On the other hand, identification of a valid and reliable cross-cultural instrument is important to enable nurses in promoting the self-care of Turkish people. The purpose of this study was to test a Turkish-language translation of the ESCA and evaluate the equivalency between the Turkish and English-language versions on a group of Turkish adolescents.

METHOD

Study Design and Sample

Most cross-cultural studies use instruments that have been developed in one language and translated into another. The traditional method of translation includes back translation, which alone is not sufficient to ensure equivalence (Bontempo, 1993; Oner, 1987). Carlson (2000) suggests that bilinguals should be used to field test the instrument and to ensure the most reliable translation. In this study, the Turkish-language translation of the ESCA, originally developed in English, was pilot tested on bilingual adolescents. A counterbalanced design was used to evaluate the equivalency of the two language versions.

This pilot study was conducted in a private high school in Istanbul, Turkey. In this school, the language of instruction is English, and the academic program is designed to enable talented and highly motivated students to pursue academic excellence and to achieve fluency and literacy in English and Turkish (Robert College, 1999). A convenience sample consisted of

students who understand and speak Turkish and English well and who volunteered to participate in the study. All participants were Grade 11 students (*N* = 132). These native-born Turkish students had at least 6 years of education in English and, therefore, were considered bilingual. They were randomly assigned to 4 groups (1, 2, 3, and 4). Each group was composed of 33 students. The final statistical evaluation consisted of 119 students because of some failure to report valid responses. Sixty-two of the participants were women and 57 were men. The mean age of the sample was 17.38 (*SD* = .67; range = 16 to 19). All participants came from high-income-level families and lived at home with their parents. They all reported that they were not ill and did not have any medically diagnosed diseases.

Instruments

The ESCA, developed by Kearney and Fleischer (1979), is a 43-item scale. Participants rate each item on a 5-point (0 to 4) Likert-type scale, with responses ranging from 0 = *very uncharacteristic of me* to 4 = *very characteristic of me*. The 11 negative scored items are reversed. Kearney and Fleischer reported that the test-retest reliability was .77 for the nursing students. Internal consistency reliability coefficients ranged from .77 to .80 on samples of nursing and psychology students. Means reported for both testing of nursing students ranged from 122.72 to 125.57 (*SD* = 13.75 to 14.26). The means and standard deviations for psychology students were 120.04 and 17.74, respectively.

The ESCA used in this study was the main instrument. Permission was obtained from Kearney to use the tool. In addition to the original English form of the ESCA, three versions were developed. These consisted of the English, Turkish, and two mixed language forms. The first form was the original English scale and was called *Form A*. The second form was the translated Turkish scale and was called *Form B*. The remaining two, *Form C* and *Form D*, were split language forms. These forms contained randomly selected 21 Turkish and 22 English items. Turkish items in Form C were given in English in Form D. Similarly, English items in Form C were given in Turkish in Form D.

Procedure

The linguistic equivalence study was carried out in two phases: (a) translation and back translation of the scale and (b) testing for the equivalence

between the English and Turkish versions of the scale. In the first phase of the study, bilingual professionals (the investigator and three nursing school members) translated the English ESCA into Turkish. After satisfactory agreement was reached regarding the translated forms, the Turkish scale was subjected to back translation. A bilingual American teacher, who was resident in Turkey and who had not seen the original English version, translated the Turkish items into English. Then, the investigator compared the translated Turkish and the original English ESCA, and minor revisions were made with the help of the back translator. This final form was then used in testing the linguistic equivalence of the scale.

The second phase of this study was to validate the linguistic equivalence of the English version to the Turkish version using a counterbalanced design as suggested in Oner's study (1987). The major method for achieving equivalence of a test involves using two different forms or parallel forms of an instrument that are given to the respondents on the same measurement occasion (Mishel, 1998). In the current study, the four forms (A, B, C, and D) of the ESCA were administered randomly in a counterbalanced form to four different groups. In this way, each participant responded to every item in both English and Turkish within a 5-week period.

The criterion for linguistic equivalence was taken to be the similarity of scores obtained from the Turkish and English forms of the ESCA. If the translated items are meaningful for the Turkish bilingual respondents, then scores obtained from different language forms of the scale, presented in varying orders and in different formats (single and split language forms), would not differ significantly. It was also expected that there would be significant correlations between the two language versions of the ESCA.

All potential participants were approached, and the purpose of the study was explained, after institutional approval to conduct the study was obtained. Participants who consented to participate were asked to complete the scale. For test-retest reliability, all participants were administered the scale forms 5 weeks following the first administration. All forms were completed in classrooms. Data collection averaged 15 to 20 minutes per participant.

Data Analysis

The four forms, the four groups, the single and split language forms, and the English-Turkish items were compared using analysis of variance and *t* tests. The four groups were classified according to the order of forms administered (Group 1 = A-B, Group 2 = B-A, Group 3 = C-D, and Group 4 = D-

C). This was done to find if taking the forms in different orders (language sequence) made any difference in the participants' responses. The test-retest reliability was computed using the Pearson product-moment correlation technique. The internal consistency of the Turkish and English versions of the ESCA was tested by use of Cronbach's alpha. The relevant language versions of the scale were analyzed by 63 participants. Data from Groups 1 and 2 were combined for testing the English and Turkish versions. Item-total correlations of the scale were only computed for the Turkish version.

RESULTS

Equivalence of the Turkish and English Forms of the ESCA

The findings among the four forms, four groups, and single and split language forms were compared to determine the ESCA linguistic equivalence. Means and standard deviations for the Turkish, English, and split-language forms of the four groups (first and second testing) are reported in Table 1. Results show that the obtained scores for four groups in two testing periods ranged between 115.03 ($SD = 19.59$) and 119.03 ($SD = 22.79$). In general, first testing scores were higher than the second testing scores. Differences among the four groups were not significant, except for the third group ($p = .05$). The analysis of variance for differences among Groups 1, 2, 3, and 4, where different language forms were used in order of presentation (A-B, B-A, C-D and D-C), yielded clearly no significant results for the ESCA scores.

The difference between the English and Turkish items were tested using Forms A and B only. Because these two single-language forms were administered to participants in Groups 1 and 2, the participants' scores were combined for the Turkish and English versions, separately. Combined means were thus obtained from these groups, and dependent sample t tests were used in the analysis. The mean score obtained from the Turkish version of the ESCA ($M = 118.25$, $SD = 19.52$) was higher than that of the English version ($M = 116.38$, $SD = 18.48$); the difference was not significant ($p = 0.58$).

The last analysis was on the relationship between the English and Turkish ESCA scores obtained from the first and second testing. Participants had responded to scale items in two languages. The Pearson product-moment correlation coefficients obtained between the two language scores for each scale are shown in Table 2. Correlations varied between .80 and .90 among the four groups.

TABLE 1: Means and Standard Deviations Obtained From Groups at First and Second Testing Using Four ESCA Forms

		First Testing			Second Testing			Statistics		
Group	N	Form	M	SD	Form	M	SD	t	df	p
1	33	English form (A)	118.87	15.26	Turkish form (B)	117.60	17.62	0.70	32	.49
2	30	Turkish form (B)	117.56	23.60	English form (A)	115.03	19.59	1.19	29	.24
3	30	Split language (C)	119.03	22.79	Split language (D)	115.46	22.39	1.98	29	.05*
4	26	Split language (D)	116.73	20.04	Split language (C)	115.65	22.73	0.55	25	.59

*$p \leq .05$.

Internal Consistency of the Turkish ESCA

In this study, internal consistency of the Turkish- and English-language versions of the ESCA was determined using Cronbach's alpha. The alpha coefficients for the Turkish and English versions of the ESCA were .89 and .88, respectively, indicating a high degree of internal consistency for both versions. Item-total correlations on the Turkish version of the ESCA ranged from .20 to .70, except for Items 7, 11, 12, 19, 22, 23, 34, and 35, all for which the item remainder correlations were essentially 0. Eight of the 43 items were weakly correlated with the total score (range = .05 to .17). These low correlation items were as follows: "I know my strong and weak points"; "I usually try home remedies that have worked in the past rather than going to see a doctor or nurse for help"; "I make my own decisions"; "When I have a problem, I usually want an expert to tell me what to do"; "I have no interest in learning about my body and how it functions"; "If I am not good to myself, I believe I can not be good for anyone else"; "I have little to contribute to others"; "I can usually tell that I am coming down with something days before I get sick." The total scale alpha coefficient would not have been changed significantly if any of these low correlation items had been deleted.

DISCUSSION

The present study showed that the Turkish-language version of the ESCA was a suitable instrument to measure the ESCA among English-speaking Turkish adolescents, but it still needs further psychometric evaluation. The means for the Turkish and English forms of the ESCA were comparable in each of four counterbalanced test conditions for a bilingual sample. The analysis of variance on scale scores showed no significant differences among the four forms or among the four groups. Single and mixed language forms did not show differences either. The *t*-test results, however, yielded a significant difference ($p = .05$) between the English and the Turkish items of the third group, although the difference was not significant for the other groups. The correlations between the English and Turkish ESCA were clearly high. "If the correlation is above .80, it is said that the forms may be used interchangeably" (Mishel, 1998, p. 267). These findings provide support for the linguistic equivalence between the English and Turkish ESCA. The translated scale items are meaningful for the Turkish bilingual respondents completing the ESCA.

TABLE 2: Correlations Between the First and Second Testing Using Two Different Forms in Each of the Four Groups

Group (Test-Retest)	N	r
1 (A-B)	33	.80*
2 (B-A)	30	.86*
3 (C-D)	30	.90*
4 (D-C)	26	.89*

*$p < .001$.

The mean scores for the Turkish version of the ESCA were lower than the mean scores that Kearney and Fleischer (1979) reported for American nursing and psychology students. Scores in this study, however, were higher than those reported in the Swedish (Whetstone & Hansson, 1989), East German (Whetstone, 1987), and Japanese (Yamashita, 1998) studies. The average age of the participants of this sample (17 years) was slightly younger than the average age in other relevant studies. The sample of this study came from a private school that is known to encourage its students to develop critical, creative thinking and problem-solving skills. This school believes that students gain confidence and a sense of self-worth by meeting the challenges of the demanding and varied programs (Robert College, 1999). The high scores obtained by this group could be attributed to the similarity between the curriculum and the American culture provided by this school. According to Orem (1991), self-care agency varies with influences of an individual's internal and external factors, called basic conditioning factors. This indicates that it is not possible to generalize the obtained results to all Turkish adolescents. Therefore, a replication of the study is recommended using different and larger samples.

Although the current sample was too small to permit comprehensive psychometric evaluation of the validity of the Turkish and English ESCA, the internal consistency of both language versions for the total scale was as satisfactory as that obtained in the English and other language versions. The alpha coefficient for the Turkish ESCA was better than those obtained by Whetstone and Hansson (1989) in the Swedish ESCA and Yamashita (1998) in the Japanese ESCA. The English version, tested on the current sample, showed alpha reliability coefficients for the total scale similar to those obtained by Riesch and Hauck (1988) in the English ESCA.

Of the 43-item remainder correlations of the Turkish ESCA, 8 were below the minimum acceptable level of .20. Pierce (1995, p. 278) pointed out that the researcher should carefully consider its inclusion in the scale, if the item is correlated at .20 or less. Mishel (1998, p. 263) suggested that the

items with low item-total correlation should be generally deleted. If similar findings are found with larger samples, these 8 items that produced low item-total correlations may be deleted or require further revision. In this study, lower item-total correlations may have been the result of the cultural relevance of the concepts. The scale had two items (Items 12 and 19) that may conflict with the Turkish cultural norm. People in Turkey are generally passively involved in decision making and consulting an expert. Young people also depend on their parents in decision making. Item 11, "trying home remedies rather than going to see a doctor or nurse for help," had low item-total correlation. This is a surprising finding because the use of home remedies is widespread in the Turkish culture. The other items with a low correlation are similar to the Japanese (Items 12 and 19) and English (Items 11, 19, and 35) ESCA items. The results of this study as a preliminary investigation of the Turkish ESCA must be interpreted cautiously because the group tested did not represent the typical adolescent culture of Turkey.

There are several limitations of this study. The first limitation of this study is the small size of the sample. Further item analysis is needed to evaluate the scale statistically because the initial sample was small. Second, the sample is not representative of the population of young people in Turkey. The study used only bilingual individuals. Further research would be needed to test the applicability and generalizability to monolingual populations. Based on findings of this study, further refinements of the Turkish version of the ESCA and a thorough psychometric evaluation using a larger and more heterogeneous Turkish samples should be undertaken. The next step of this study should be to test and refine further the current Turkish version of the ESCA.

NOTE

REFERENCES

Aggleton, P., & Chalmers, H. (1986). *Nursing models and the nursing process*. New York: Macmillan.

Bontempo, R. (1993). Translation fidelity of psychological scales: An item response theory analysis of an individualism-collectivism scale. *Journal of Cross-Cultural Psychology*, *24*(2), 149-166.

Carlson, E. D. (2000). A case study in translation methodology using the health-promotion life-style profile II. *Public Health Nursing*, *17*(1), 61-70.

Chang, B. L. (1980). Evaluation of health care professionals in facilitating self-care: Review of the literature and a conceptual model. *Advance in Nursing Science*, *3*(1), 43-58.

Kearney, B. Y., & Fleischer, B. J. (1979). Development of an instrument to measure exercise of self-care agency. *Research in Nursing & Health*, *2*(1), 25-34.

McBride, S. H. (1987). Validation of an instrument to measure exercise of self-care agency. *Research in Nursing & Health*, *10*, 311-316.

McBride, S. H. (1991). Comparative analysis of three instruments designed to measure self-care agency. *Nursing Research*, *40*(1), 12-16.

Meleis, A. I. (1991). *Theoretical nursing: Development and progress*. (2nd ed.). Philadelphia: J. B. Lippincott.

Minister of Public Works and Government Services Canada. (1997). *Supporting self-care: Contribution of nurses and physicians* (Cat. No. H39-401/1997 E). Ottawa, Canada: Health Promotion and Programs Branch.

Ministry of Health. (1996). *Health Services Utilization Survey in Turkey*. Ankara, Turkey: BIGAS Survey Research Group.

Ministry of Health. (1997). *Country health report 1997, Republic of Turkey*. Ankara, Turkey: Health Project General Coordination Unit.

Mishel, M. H. (1998). Methodological studies: Instrument development. In P. J. Brink & M. J. Wood (Eds.), *Advanced design in nursing research* (pp. 235-282). Thousand Oaks, CA: Sage.

Oner, N. (1987). A model of scientific method for transcultural scale adaptation. *Psikoloji Dergisi*, *6*, 80-82.

Orem, D. E. (1991). *Nursing: Concepts of practice* (4th ed.). St. Louis, MO: Mosby-Year Book.

Pierce, A. G. (1995). Measurement. In L. A. Talbot (Ed.), *Principles and practice of nursing research* (pp. 265-291). St. Louis, MO: Mosby-Year Book.

Riesch, S. K. (1988). Changes in the exercise of self-care agency. *Western Journal of Nursing Research*, *10*(3), 257-273.

Riesch, S. K., & Hauck, M. R. (1988). The exercise of self-care agency: An analysis of construct and discriminant validity. *Research in Nursing & Health*, *11*, 245-255.

Robert College, Istanbul. (1999). *The statement of purpose*. Retrieved May 28, 2002, from http:\\www.robcol.k12.tr/ admin/rcstatm.htm

Robertson, M. R., & Kelley, J. H. (1996). Using Orem's theory in transcultural settings: A critique. *Nursing Forum*, *31*(3), 22-28.

Robichaud-Ekstrand, A. S., & Loiselle, C. G. (1998). French validation of the "exercise of self-care agency" scale for heart patients [Abstract]. *Rech Soins Infirm*, *54*, 77-86.

So, H. S., & Lee, E. S. (1989). Validation of an instrument to measure exercise of self-care agency and its predictors [Abstract]. *Kanho Hakhoe Chi*, *19*(3), 273-284.

Utz, S. W. (1990). Motivating self-care: A nursing approach. *Holistic Nursing Practice*, *4*(2), 13-21.

Wang, H. H., & Laffrey, S. C. (2000). Preliminary development and testing of instruments to measure self-care agency and social support of women in Taiwan [Abstract]. *Kaohsiung Journal of Medical Science*, *16*(9), 459-467.

Whetstone, W. R. (1987). Perceptions of self-care in East Germany: A cross-cultural empirical investigation. *Journal of Advanced Nursing*, *12*, 167-176.

Whetstone, W. R., & Hansson, A. M. O. (1989). Perceptions of self-care in Sweden: A cross-cultural replication. *Journal of Advanced Nursing*, *14*, 962-969.

Yamashita, M. (1998). The exercise of self-care agency. *Western Journal of Nursing Research*, *20*(3), 370-381.