

Original Article

Evaluating the Properties of the Evidence-Based Practice Attitude Scale (EBPAS-50) in Nurses in Turkey

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Abstract

Background: The Evidence-Based Practice Attitude Scale (EBPAS) is a relatively new construct for the study of attitudes toward the adoption of innovation and evidence-based practices (EBPs) in mental health service settings. Despite widespread interest in measuring the attitudes of health care providers in conjunction with the adoption of EBPs, no prior research has used the EBPAS with nurses, a different population than that with which the scale was originally developed.

Aim: The aim of this study is to determine the psychometric properties of EBPAS in nursing population.

Methodology: In the present study, the factor structure, reliability, and validity of EBPAS scores were tested with a sample of 250 nurses working in a hospital and a school of nursing in Turkey.

Results: Cronbach's alpha of .783 showed moderate reliability and no statistically significant difference was observed between test-retest scores ($t=0.956$; $p=0.318$). Confirmatory factor analyses support the 4-factor structure and provide convincing evidence for the validity of the scale.

Conclusion: The scale was found valid and reliable for nurses in Turkey. The results supported the construct validity and reliability of the EBPAS for measuring attitudes toward the adoption of innovation and evidence-based practices in a population of Turkish nurses.

Key Words: Evidence-based practice attitude scale, EBPAS, nursing

Introduction

Evidence-based practice (EBP) is the process of collecting, processing, and implementing research findings to improve clinical practice, the work environment, or patient outcomes. According to the American Nurses Association (ANA), nursing interventions should be practical, methodical decisions based on EBP research studies (Chrisman et al. 2014).

Utilizing the EBP approach to nursing practice helps us provide the highest quality and most cost-efficient patient care possible. The concept of

evidence based practice (EBP) continues to gain credibility and importance in the health professional community (Brady and Lewin 2007). Evidence based practice is defined by Sackett *et al.* (1996) as "Evidence based practice is the judicious use of current best evidence in making decisions about care of individual patients. Its use makes diagnostic tests and therapies more powerful, more accurate, more efficacious and safer." Evidence is the key element of the definition, but how and under what conditions it is used is of greater importance. The other definition of Sackett *et al.*

(2000) is “the integration of best research evidence with clinical expertise and patient values.” The components of this definition are also important: evidence from research, clinical expertise and patient values. Evidence based nursing is defined by Brown (1999) as “the conscientious, explicit and judicious use of current best evidence in making decisions about care of individual patients.”

EBP combines the best available research evidence with clinical proficiency and patient values to support clinical decision making.⁶ EBP is the bridge between research and practice. Currently, 55% of all nursing practices are based on research findings. The ANA predicts that by 2020, 90% of all nursing practice will be based on EBP research findings (Chrisman et al. 2014). However, the gap between research findings and implementations is far too long. Bridging research and practice by designing answerable questions, utilizing appropriate research databases, implementing nursing practice changes, and evaluating outcomes are all strategies that liven up practice and enhance patient outcomes. However there are some barriers to practice change. Resistance is a factor to plan and implement evidence based changes. Barriers may be classified into individual and organisational. Individual barriers include nurses' educational level, job descriptions, time spent studying (both at work and off hours), nurses' time on the internet, staff attitudes and beliefs and level of emotional exhaustion (Estabrooks et al. 2007, Meijers et al. 2007, Ploeg et al. 2007). Nursing culture and leadership, hospital size, staffing support, organizational innovativeness, administration responsiveness, access to resources, organizational climate, provision of education, Access to research findings, availability of knowledge and skills within organisations, money, workload, resistance to change and time are the organisational and contextual barriers (Meijers et al. 2007, Ploeg et al. 2007, Dobbins et al. 2007, Davies et al. 2008).

The implementation of EBP by nursing organizations requires to determine the attitudes of nurses towards EBP. The Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004) is a relatively new construct for the study of attitudes toward the adoption of innovation and evidence-based practices (EBPs) in mental health service settings (Aarons 2004). Despite widespread interest in measuring the attitudes of health care providers in conjunction with the

adoption of EBPs, no prior research has used the EBPAS with nurses, a different population than that with which the scale was originally developed. The aim of the study is to test the psychometric characteristics of EBPAS-50 with nurses.

Methods

Design and setting

This study was planned and applied as a methodological study. Survey was conducted in a military education and research hospital and a school of nursing in the capital city Ankara of Turkey between September 2013 and April 2014.

Participants

The population of the survey was composed of nurses who work in the hospital and school of nursing. In application of a scale to another culture, it is required to reach 5–10 times of article number (Akgül 2003). The scale, which was to be tested for validity and reliability, contained 50 items for the solicitation of participants along with 5-step Likert scales for each of the items. The required sample size was calculated as at least 250 nurses (50 items × 5 Likert preference; equals to 250). Sample of the survey was composed of 250 volunteer nurses who work in the hospital and school of nursing.

The criteria to be included in the study were: (i) being a nurse work in the hospital and school of nursing; (ii) ability to read and write Turkish; and (iii) willingness to participate.

Measures

To collect data in the survey, EPBAS-50 Survey, Barriers Scale and data collection form that was prepared for socio-demographic properties of participants were used.

Data collection form

The data of the study were obtained through the use of survey questionnaire. It is prepared by researchers and contains 13 multiple-choice questions about socio-demographic properties of participants.

EPBAS-50 survey

EPBAS-50 Survey, which was developed as 10 items, and validity and reliability studies were done by Aarons *et al.* (2004); redefined, improved validity and reliability studies (50 items) were done by Aarons *et al.* in 2012. The survey consisted of 50 items and four categories:

(i) Appeal factor, (ii) Requirements factor, (iii) Openness factor and (iv) Divergence factor. The EPBAS consists of 50 items measured on a 5-point Likert scale ranging from 0 (Not at all) to 4 (To a very great extent) (Aarons 2004, Aarons 2007, Aarons 2010). Item values were transformed to reach a scale of 0–200. The EPBAS is conceptualized as consisting of four lower-order factors/subscales and a higher-order factor/total scale (i.e., total scale score), the latter representing respondents' global attitude toward adoption of EBPs. For the lower-order factors, the Appeal factor assesses the extent to which the provider would adopt an EBP if it were intuitively appealing, could be used correctly, or was being used by colleagues who were happy with it. The Requirements factor assesses the extent to which the provider would adopt an EBP if it were required by an agency, supervisor, or state. The Openness factor assesses the extent to which the provider is generally open to trying new interventions and would be willing to try or use more structured or manualized interventions. The Divergence factor assesses the extent to which the provider perceives EBPs as not clinically useful and less important than clinical experience.

"Barriers Scale" in utilization of research results by nurses

Barriers Scale was developed and validity and reliability studies were done by Funk (1991). Turkish validity and reliability studies were done by Yava *et al.* (2007). Barriers scale consisted of 30 items and has been classified into four factors which are:

Factor 1. Nurse: the characteristics of the adopter: the nurse's research values, skills and awareness (N).

Factor 2. Setting: characteristics of the organization: setting barriers and limitations (S).

Factor 3. Research: characteristics of the innovation: qualities of the research (R).

Factor 4. Presentation: characteristics of the communication: presentation and accessibility of the research (P) (Funk *et al.* 1991).

Procedures

At the beginning of the study, Gregory A. Aarons, one of the developers of the survey, was interviewed via the Internet, and his permission and approval was obtained for the use of the scale in this study. First, two experts translated

the original scale into Turkish, and these translations were retranslated into English by two other experts in the English language, in order to identify the compatibility of EPBAS-50 Turkey (Guillemin, Bombardier and Beaton 1993). The survey, which was translated from Turkish to English, was compared with the original survey by an English language expert and by researchers, and it was determined that there is no difference in meanings of two surveys' text. In order to validate the content of the Turkish translation of the scale and to determine the cultural appropriateness of the tool, an expert on Turkish languages and two nurse academician were involved in the evaluation process and endorsed it accordingly.

Data collection

Study was conducted after obtaining written ethical approval from International Review Board (Session Nu:31/07 January 2014/ 1648.4-83). The pilot study of the scale was implemented on ten nurses and two researchers obtained feedback about the comprehensibility of questions/items. The data from the pilot study were not used with the data for analysis. After explaining the aim of the study and required information about the application to participating nurses, the application was conducted to the volunteer participants as a questionnaire. After receiving written consent from volunteer participants, data were collected using a questionnaire, which lasted between 10 and 15 min.

Statistical analysis

Descriptive statistics were shown in numbers and percentages (%) for the variables obtained by counting and in mean \pm Standard deviation (SD) for variables obtained by measurement. The Pearson's correlation coefficient was calculated for the "correlation-based item analysis". The Cronbach's alpha value was calculated for the reliability analyses of the scale. Furthermore, the "Paired Sample Test" and the correlation coefficient were calculated in the test-retest analyses performed for evaluation of the reliability. In the validity analyses of the scale, the Pearson's correlation coefficient was used for the criterion validity. The Kaiser-Meyer-Olkin (KMO) test was used prior to the factor analysis. The SPSS for Windows Ver. 15.0 (SPSS Inc. Chicago, IL, USA) package program was used. $p < 0.05$ was considered statistically significant.

Results

Characteristics

The sociodemographic characteristics of participants are shown at Table 1. The average participant age was $33,80 \pm 6,83$ years. Nurses' duration of work in current clinic was 12.35 ± 7.48 years. Most of the nurses were female (96.4%).

Face and Content validity

Feasibility or practicality of the EPBAS-50 was determined by addressing the issues of brevity, simplicity, and easy scoring, and from the percentage of missing values. There was no missing value and the participants expressed that there is no incomprehensible item. The time needed to complete the EPBAS-50 was 10.4 min. (8-12 min.).

Criterion validity

Criterion validity is a measure of the extent to which values on an instrument agree with those of a gold standard. The Barriers Scale was accepted as the gold standard for evaluation of the criterion validity. A correlation coefficient was calculated between the total scores obtained in the EPBAS-50 scale and the Barriers scale. The criterion of assuring the criterion validity of EPBAS-50 was obtained a minimum value of 0.30 from the calculated correlation coefficient (Nunnally and Bernstein 1994, Fidanci et al. 2012). Because of the absence of openness and divergence subdimensions in the barriers scale, if we ignore these subdimensions, a significant and positive correlation was observed between the EPBAS-50 scale and the Barriers scale scores ($r=0.113$; $p=0.054$) (Table 2).

Table 1. Socio-demographic characteristics of the participants

	Mean±SD	
Age (year)	33.80±6.83	
Duration of working in current clinic (year)	12.35±7.48	
	n	%
Gender	Female	96.4
	Male	3.6
Total	250	100

Table 2. The correlation analyses between EPBAS-50 and Barriers Scale (n=250)

	Barriers Scale (n=250) Total score (mean±SD) 60.43±14.74
EPBAS-50 (n=250) Total score (mean±SD) 115.56±14.19	$r=0.113$ $p=0.054$

r: Pearson correlation coefficient $p < 0.05$ was considered statistically significant.

SD: Standard deviation

Table 3. Confirmatory Factor Analysis

	Component			
	1	2	3	4
Item 1	-.187	.272	.284	.126
Item 2	.141	.226	.197	.100
Item 3	.237	.096	-.056	.363
Item 4	-.323	.126	.258	.109
Item 5	.552	.027	-.264	-.130
Item 6	.216	.020	-.276	.279
Item 7	.484	-.057	-.159	.009
Item 8	-.230	.415	.292	-.008
Item 9	.047	.357	.247	-.119
Item 10	-.062	.563	.184	.135
Item 11	.026	.388	-.046	.155
Item 12	-.104	.493	-.065	-.050
Item 13	-.070	.524	-.015	.149
Item 14	-.194	.636	-.054	-.054
Item 15	-.179	.613	-.026	-.085
Item 16	.135	.406	.258	-.283
Item 17	.208	.392	.284	-.244
Item 18	.033	.660	.221	.020
Item 19	-.011	.634	.246	.043
Item 20	-.044	.695	.174	.080
Item 21	-.173	.712	.087	-.167
Item 22	-.030	.683	.111	.008
Item 23	.640	-.187	-.108	.025
Item 24	.640	-.074	-.079	.083
Item 25	.482	.047	.066	.089
Item 26	.584	-.032	-.097	.262
Item 27	.572	-.059	-.179	.309
Item 28	.242	-.045	-.097	.381
Item 29	.526	-.115	-.117	.266
Item 30	.090	-.071	.147	.713
Item 31	.179	-.116	.157	.741
Item 32	.201	.060	-.031	.760
Item 33	.277	.056	.031	.750
Item 34	-.139	.183	.184	.567
Item 35	.500	.017	-.047	.229
Item 36	.011	.217	.462	.069
Item 37	.151	.174	.071	.363
Item 38	.684	-.147	.065	.017
Item 39	.610	-.140	.157	.156
Item 40	.574	-.006	.018	.093
Item 41	.486	.030	-.185	.355
Item 42	-.184	.022	.420	-.011
Item 43	.133	.016	.726	-.072
Item 44	.182	.115	.735	-.169

Item 45	-.250	.127	.746	.075
Item 46	-.147	.035	.790	-.062
Item 47	-.179	.131	.747	-.002
Item 48	-.254	.221	.369	.128
Item 49	-.244	.159	.363	.114
Item 50	.047	.129	.216	-.517

Table 4. Correlations between first test and re-test score

	Mean±SD	r/p*
First test (n=40)	115.56±14.19	r=0.344
Re-test (n=40)	118.10±15.35	p=0.030

r: Pearson correlation coefficient p<0.05 was considered statistically significant.

SD: Standart deviation

Construct validity

The Kaiser-Meyer-Olkin (KMO) value was found to be 0.652 with a Barlett test outcome of 706.294 and a p value of <0.01. According to the [confirmatory](#) factor analysis, a total of four factors were gathered together accounting for 38 % of the total variance, having an eigenvalue of greater than 1, that could come together meaningfully. So it is decided to use the same factors as appeal, requirements, openness and divergence ([Table 3](#)).

Reliability

Internal consistency

The Cronbach's alpha coefficient calculated for the 50 items subsequent to the item analysis was 0.783.

Test- retest reliability

The means of the total scores obtained in the first test and the re-test on 40 participants were 115.56±14.19 (first test) and 118.10±15.35 (re-test), respectively, and no statistically significant difference was observed between these two scores (t=0.956; p=0.318). In the correlation analysis performed for the test-retest reliability, a statistically significant positive correlation was observed between the first and the retest scores (r=0.344; p=0.030) ([Table 34](#)).

Discussion

The concept of evidence-based practice (EBP) continues to gain credibility and acceptance in the health professional community. EBP is the bridge between research and practice. In this study, researchers adapted last version of EPBAS-50 Survey to Turkish nation by translating the survey into Turkish to measure attitudes of nurses toward EBP. Scale was tested by criterion and construct validity and internal consistency and test-retest reliability.

According to the analysis of this study, four factors were identified for the EPBAS-50 as the original scale. Aarons (2004) who developed the scale for the first time determined four factors in their study. All the items are loaded in the same factors and the institutional bureaucracy, working settings, characteristics of the nurses did not effect the factors. For this reason, researchers decided to keep the survey in original form and grouped the items as the original.

In the analysis performed for evaluating the criterion validity, a positive significant correlation was observed between the EPBAS-50 and the Barriers scale scores (r=0.113; p=0.054). The Barriers scale is used for identifying and measuring the barriers to research utilization perceived by nurses.

Thus the correlation between EPBAS-50 and Barriers scale is important and shows that EPBAS-50 is a valid tool to determine the attitudes of nurses toward EBP.

The “reliability” of EPBAS-50 was investigated in order to demonstrate that it could collect the data on time, show no variation in time, and that it could be repeated.²⁰⁻²² The Cronbach’s alpha value for the EPBAS-50 general internal consistency in our research was calculated to be 0.783 for total scale. Aarons (2004) stated that the Cronbach’s alpha coefficient was 0.77. The test re-tests reliability analyses also demonstrated that EPBAS-50 yielded consistent outcomes and ensured the test-retest reliability.

Evidence based nursing practice, the conscientious and judicious use of current and best evidence in the selection of nursing interventions, has been adopted by nurses to ensure optimal organizational and patient outcomes (Sackett et al. 2000). Nurses’ adoption of practices based on research findings depends on nurse attitudes toward research, knowledge of research process, skills in searching relevant literature and work unit commitment to nurse research activities (Hutchinson and Johnston 2006, Melnyk and Fineout-Overholt 2005, Pravikoff , Tanner and Pierce 2005, Layman 2008).

Evaluation of nurses’ attitude and ability to make necessary changes are essential to ensure quality patient care, to enable nurses to make more informed clinical decisions and to move towards more accountable practice (Nagy et al. 2001, Miller, Ward and Young 2010).

Conclusion

In this study, the Turkish version of the EBPAS-50 was found to be reliable and valid with Turkish population. The instruments measure four main conceptual domains: appeal, requirements, openness and divergence. It could be a valuable instrument to assess nurses’ attitudes toward EBP in Turkey.

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