

Original Article

The Relationship Between Nurses' Individual Innovativeness and Attitudes Towards Evidence-Based Nursing: A Cross-Sectional Descriptive Study in Turkey

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Abstract

Aim: This study aimed to determine the relationship between individual innovativeness and attitudes towards evidence-based nursing among nurses.

Background: Innovative and evidence-based practices are important in the development and maintenance of quality in nursing care.

Methods: A cross-sectional study with a descriptive design was carried out in the summer period at a private hospital in Turkey. The data were collected from 273 nurses with the Structured Questionnaire Form, the Individual Innovativeness Scale and the Evidence-Based Nursing Attitude Questionnaire.

Results: The perceptions of the nurses towards innovativeness and attitudes of the nurses towards evidence-based nursing were found to be moderate to high level. Higher level of innovativeness ($\beta = 0.120$, $p < 0.05$), lower level of resistance to change ($\beta = -0.335$, $p < 0.001$) and higher level of risk taking ($\beta = 0.390$, $p < 0.001$) were associated with nurses' higher level of attitudes towards evidence-based nursing.

Conclusions: This study demonstrates that innovativeness and risk taking are crucial to develop positive attitudes towards evidence-based nursing, and resistance to change affects negatively attitudes towards evidence-based nursing.

Keywords: innovation, evidence-based nursing, evidence-based practice, nurses

Introduction

In order to meet the changing health needs of the individual, family and society, a rapid innovation process simultaneously with scientific and technological developments is experienced in the nursing (Asurakkody & Shin, 2018; Huber et al., 2019). Today, nurses with largest number of members among the health care professionals are expected to adopt and design innovative nursing practices and transform evidence into practice (Gardner et al., 2014; Saunders & Vehviläinen-Julkunen, 2017).

Innovativeness and evidence-based practice are essential for high quality care that eventuate in better structures and processes by minimizing the gap between research evidence and care in clinical practice (Huber et al., 2019; Pashaeypoor et al., 2016). For this reason, all over the world, nursing organizations continue to works building innovation and evidence-based practices cultures among nurses to improve and maintain health, to ensure cost effectiveness in nursing practices, and to regulate the working conditions of nurses (de Veer et al., 2011; Gardner et al., 2014). The themes of the International Council of Nurses

(ICN) in 2009 (Innovation in Nursing Care) and 2012 (Closing the Gap: From Evidence) advocate that nurses should exhibit and maintain innovative behaviors and evidence-based nursing practices (ICN, 2009, 2012). In addition to, Rogers' Diffusion of Innovation Model and the Iowa Model point out that innovation and evidence-based practice are important in the development and maintenance of quality in nursing care (Collaborative et al., 2017).

However, nurses as much as organizations should take the responsibility of continuously evaluating the care practices effectively within the health system and researching the care practices. In order to fulfil this responsibility, it is important that nurses are ready to initiate and sustain innovation and evidence-based practices (Cullen,

Methods

Aim; The current study aimed to determine the relationship between individual innovativeness and attitudes towards evidence-based nursing among nurses.

Design, setting and sample: A descriptive cross-sectional study design was conducted at a private hospital in the summer period in Turkey. The study population consisted of 528 nurses. The study sample consisted of 273 nurses selected through convenience sampling method. The inclusion criteria were that nurses agreed to participate, and were over 18 year- old.

Data Collection Tools: The Structured Questionnaire Form, the Individual innovativeness Scale (IIS) and the Evidence-Based Nursing Attitude Questionnaire (EBNAQ) were used to collect the data.

Individual and professional characteristics: The Structured Questionnaire Form was prepared by the researchers based on the literature (Kemer & Altuntas, 2017; Turan et al., 2019). It consisted of 13 questions about individual and professional characteristics (students' age, gender, marital status, educational status, and professional time, department, etc.) evaluated based on their self-reported of the nurses.

Individual innovativeness: The Individual Innovativeness Scale (IIS) was developed by Hurt et al. (1977) to determine individual innovativeness levels. The adaptation of it to Turkish society was performed by Sarioglu Kemer and Altuntas in 2017. It consists of 18 items and three subscales: "Idea Leadership" (Items 1, 3, 5, 8, 9, 11, 12), "Resistance to Change" (Items 6, 7, 10, 13, 15, 17, 20), and

2015; Saunders & Vehviläinen-Julkunen, 2016). Therefore, nurses should develop innovative solutions with other health care team members to develop evidence-based health care for patient needs. In addition, innovative developments that guide nursing care practices should be supported by new information that emerges as a result of evidence-based studies (Porter-O'Grady & Malloch, 2017).

This study search answers to following questions: What are innovativeness levels of nurses? What are attitudes towards evidence-based nursing of nurses? What factors affect nurses' innovativeness and attitudes towards evidence-based nursing? Is there a relationship between innovativeness and attitudes towards evidence-based nursing among nurses?

"Risk Taking" (Items 2, 6, 18, 19). It uses a 5-likert type scale (1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree). The items 5, 6, 9, 12, 13, 15 and 18 are reverse-scored. The minimum and maximum scores to be obtained from it are 18 and 90. The scores indicate that nurses having above 82 are considered "Innovators"; between 75 and 82 are "Early Adopters; between 66 and 74 are "Early Majority"; between 58 and 65 are "Late Majority"; and finally below 57 are "Traditionalists". The IIS had a Cronbach's alpha of 0.82 in the study of Sarioglu Kemer and Altuntas (Kemer & Altuntas, 2017). Table 1 shows the Cronbach's alpha values of IIS and subscales in this study.

Attitudes towards Evidence-Based Nursing: The Evidence-Based Nursing Attitude Questionnaire (EBNAQ) was developed by Ruzafa-Martínez, López-Iborra and Madrigal-Torreset (2011) to measure nurses' attitudes towards evidence-based nursing. The adaptation of it to Turkish society was performed by Ayhan, Kocaman and Bektas in 2015. It formed consists of 15 items and three subscales: "The Beliefs and Expectations" (Items 1, 2, 7, 9, 11, 13, 14), "The Intention of Conduct" (Items 3, 5, 6, 12), and "The Feelings" (Items 4, 8, 10, 15). It uses a 5-likert type scale 1=strongly disagree; 2=disagree; 3=agree a little; 4=agree; 5=strongly agree). The items 4, 6, 8, 10, 12 and 15 are reverse-scored. The minimum and maximum scores to be obtained from the scale are 15 and 75. High scores indicate that nurses have positive attitudes towards evidence-based practice. The EBNAQ had a Cronbach's alpha of 0.90 in the study of Ayhan, Kocaman and Bektas (Ayhan et al.,

2015). Table 1 shows the Cronbach's alpha values of EBNAQ and subscales in this study.

Data collection: The purpose, duration and benefits of the study and what was expected from them were explained to nurses in institutions where the data would be collected. The nurses were given a period of time to review the data collection forms, without interrupting their patient care functions, and their questions, if any, were answered. The questionnaires left to nurses who agreed to participate in the study were gathered back in closed envelopes on agreed days.

Data analysis: The data were analyzed using IBM SPSS Statistics 22.0 (IBM Corp., Armonk, New York, USA) package program. There were no missing values in the data collection forms. The frequency, minimum, maximum, mean, and SD were calculated for descriptive analyses. The Kolmogorov-Smirnov (KS) test was used to determine whether the data met the assumptions for parametric test. The Independent Samples t Test and One-way ANOVA were performed to compare IIS and EBNAQ scores according to descriptive and professional characteristics. Pearson correlations were conducted to assess the bivariate correlations among study variables. Simple and multiple regression analyses were conducted to evaluate factors associated with attitudes towards evidence-based nursing. Standardized coefficients (β) were computed to compare the relative significance of each variable in the model. Indirect effects with 95% confidence intervals (CI) were estimated. The data were checked for multicollinearity, using tolerance, and the variance inflation factor (VIF). The results were considered statistically significant at $p < 0.05$.

Ethical considerations: This study confirms to the principles outlined in the Declaration of Helsinki. The study was approved by the Clinical Research Ethics Committee of Acibadem University (Ethical Approval Number: 2019-13/6). To use the IIS and the EBNAQ in this study, the written permission was obtained from the researchers who adapted them to Turkish of the IIS and the EBNAQ. The written permission was received from the institutions where the study would be conducted and all nurses voluntarily who accepted to participate in the research.

Results

Individual and professional characteristics:

The mean age of the nurses was 24.96 ± 5.06 years. Of the nurses, 76.9% were female, 52.0% were undergraduate and graduate degree, 84.2% were single, 74.7 were clinical nurses, 77.3% chose the profession voluntarily, 56.8% had a working experience of 6 months-3 years, 67% were working under changing shifts and 49.1% worked at surgical units. In addition to, it was determined that of the nurses, 81.7% were satisfied with the working environment, 68.5% followed scientific studies, 72.2% did not participate in scientific studies and 63.7% did not participate in scientific programs.

Results about the analysis of the individual innovativeness levels and attitudes towards evidence-based nursing of the nurses and factors related to them:

Table 1 shows that the total score mean of IIS were 67.18 ± 6.45 . When the subscales of IIS were examined, the score means were respectively, 27.54 ± 3.71 for "idea leadership", 22.78 ± 2.96 for "resistance to change" and 16.84 ± 2.03 for "risk taking". Of the nurses, 2.2% were innovators, 8.7% were early adopters, 43.2% were early majority, 39.2% were late majority, and 6.7% were traditionalists. The total score mean of the EBNAQ was 60.17 ± 8.44 . When the subscales of EBNAQ were examined, the score means were respectively, 29.30 ± 3.94 for "the beliefs and expectations", 15.35 ± 3.34 for "the intention of conduct" and 15.51 ± 3.55 for "the feelings" (Table 1).

Table 2 shows the distribution of nurses' IIS and EBNAQ scores according to their individual and professional characteristics. The independent samples t-test revealed that the nurses who reported that they followed scientific studies about nursing ($p < 0.001$), and those who were male ($p < 0.05$) had higher IIS score.

The ANOVA revealed that the nurses who had an undergraduate and graduate degree ($p < 0.001$), and those who were training nurses ($p < 0.01$), those who reported that they followed and made scientific studies about nursing ($p < 0.001$), and those who reported that they attended a certified scientific program about innovation and evidence-based nursing ($p < 0.05$) had higher EBNAQ score.

Correlations among the individual innovativeness levels and attitudes towards evidence-based nursing of the nurses:

The correlation coefficients are shown in Table 1. Firstly, the correlation between nurses' total score for individual innovativeness levels and the scores for subscales of EBNAQ were examined. Although statistically positive correlations were found between individual innovativeness levels and "the beliefs and expectations" ($r = 0.382$; $p < 0.001$), there was negative correlation between individual innovativeness levels and "the feelings" ($r = -0.140$; $p < 0.05$). In addition to, there was no correlation between nurses' individual innovativeness levels and "the intention of conduct" ($r = 0.001$; $p > 0.05$).

Secondly, the correlation between nurses' total score for attitudes towards evidence-based nursing and the scores for subscales of IIS were examined. Although statistically positive correlations were found between attitudes towards evidence-based nursing and "idea leadership" ($r = 0.247$; $p < 0.001$) and "risk taking" ($r = 0.346$; $p < 0.001$), there was negative correlation between attitudes towards evidence-based nursing and "resistance to change" ($r = -0.285$; $p < 0.001$). Finally, statistically positive correlations were found between total both scores of individual innovativeness levels and attitudes towards evidence-based nursing ($r = 0.120$; $p < 0.05$).

Individual innovativeness as a determinant of attitudes towards evidence-based nursing:

The results of the simple regression analysis for individual innovativeness as a determinant of attitudes towards evidence-based nursing revealed that innovativeness was a positive factor for attitudes towards evidence-based nursing. In the first model, only total score of IIS was included in the analysis. A significant regression equation was found ($F = 3.978$, $p = 0.047$), and individual innovativeness explained 1.4% of the total variance. Innovativeness had a significant positive indirect effect on attitudes towards evidence-based nursing ($B = 0.157$, $CI [-0.002, 0.313]$). Higher level of innovativeness ($\beta = 0.120$, $p < 0.05$) were associated with nurses' higher level of attitudes towards evidence-based nursing (Table 3).

Idea leadership, resistance to change and risk taking as a determinant of attitudes towards evidence-based nursing:

A multiple linear regression was calculated to predict EBNAQ based on idea leadership, resistance to change, and risk taking. The second (enter method) and third model were analyzed with only all dimensions of IIS. In the second model (enter method), a significant regression equation was found ($F=27.726$, $p < 0.001$), and these variables explained 22.8% of the total variance. It was determined that there was no indirect effect of idea leadership on nurses' attitudes towards evidence-based nursing ($B=0.205, CI[-0.108, 0.518]$). In addition to, there was no association between idea leadership and attitudes towards evidence-based nursing ($\beta=-0.090$, $p= 0.198$). On the other hand, resistance to change had a significant negative indirect effect on attitudes towards evidence-based nursing ($B= -0.983$, $CI [-1.287,-0.679]$) while risk taking had a significant positive indirect effect on attitudes towards evidence-based nursing ($B=1.392, CI[0.823, 1.960]$). Lower level of resistance to change ($\beta = -0.345$, $p < 0.001$) and higher level of risk taking ($\beta=0.335$, $p < 0.001$) were associated with nurses' higher level of attitudes towards evidence-based nursing. Nurses' EBNAQ scores decreased 0.983 for each scores of resistance to change while nurses' EBNAQ scores increased 1.392 for each scores of risk taking (Table 4). In the third model (stepwise), idea leadership was excluded since there was no association between idea leadership and attitudes towards evidence-based nursing. In this model, a significant regression equation was found ($F= 40.654$, $p < 0.001$), and these variables explained 22.6% of the total variance. Resistance to change had a significant negative indirect effect on attitudes towards evidence-based nursing ($B=-0.962$, $CI [-1.267,-0.658]$) while risk taking had a significant positive indirect effect on attitudes towards evidence-based nursing ($B = 1.624$, $CI [1.183, 2.065]$). Lower level of resistance to change ($\beta= -0.335$, $p < 0.001$) and higher level of risk taking ($\beta= 0.390$, $p < 0.001$) were associated with nurses' higher level of attitudes towards evidence-based nursing. Nurses' EBNAQ scores decreased 0.962 for each scores of resistance to change while nurses' EBNAQ scores increased 1.627 for each scores of risk taking (Table 4).

Table 1. Mean, standard deviation, and correlation values of variables (N=273)

Variables		α	Mean	SD	1	2	3	4	5	6	7	8
IIS	Idea Leadership	0.7	27.54	3.71	-							
	Resistance to Change	0.7	22.78	2.96	0.167**	-						
	Risk Taking	0.7	16.84	2.03	0.640** *	0.135*	-					
	Total Score	0.7	67.18	6.45	0.854** *	0.597***	0.745** *	-				
EBNAQ	Beliefs and Expectations	0.8 3	29.30	3.94	0.338** *	0.071	0.492**	0.382**	-			
	Intention of Conduct	0.7 0	15.35	3.34	0.165**	-0.298***	0.137*	0.001	0.352***	-		
	Feelings	0.8 0	15.51	3.55	0.056	-0.474***	0.145*	-0.140*	0.295***	0.600***	-	
	Total Score	0.8 2	60.17	8.44	0.247** *	-0.285***	0.346** *	0.120*	0.731***	0.813***	0.797***	-

Pearson correlation analysis; SD: Standard Deviation; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2. Comparison of IIS and EBNAQ scores of nurses according to individual and professional characteristics (N=273)

Individual and professional characteristics	n	%	IIS			EBNAQ		
			Mean \pm SD	t/F	p	Mean \pm SD	t/F	p
Gender								
Female	210	76.9	66.73 \pm 6.40	2.094 ^a	0.037	60.64 \pm 8.42	1.678 ^a	0.095
Male	63	23.1	68.66 \pm 6.43			58.61 \pm 8.39		
Educational status								

Medical vocational high school	75	27.5	67.84 ± 7.31	0.628 ^b	0.535	56.10 ± 7.50 ^x	13.998 ^b	<0.001
Associate degree	56	20.5	67.25 ± 6.54			60.55 ± 8.03 ^y		
Undergraduate and graduate degree	142	52.0	66.80 ± 5.92			62.18 ± 8.36 ^y		
Duty in the organization								
Clinical nurses	204	74.7	66.61 ± 6.40	1.813 ^b	0.127	59.69 ± 8.57 ^y	3.930 ^b	0.004
Special branch nurses	23	8.4	67.95 ± 6.49			58.43 ± 7.98 ^y		
Training nurses	8	2.9	70.00 ± 6.14			70.62 ± 5.12 ^x		
Unit charge nurses	23	8.4	69.39 ± 7.05			61.65 ± 6.53 ^{xy}		
Administrative nurses	15	5.5	68.86 ± 5.46			61.66 ± 7.87 ^{xy}		
Following scientific studies about nursing								
Yes	187	68.5	68.18 ± 6.34	3.889 ^a	<0.001	61.45 ± 8.33	3.767 ^a	<0.001
No	86	31.5	65.00 ± 6.17			57.40 ± 8.05		
Making a scientific study about nursing								
Yes	76	27.8	68.06 ± 6.08	1.407 ^a	0.161	63.64 ± 8.37	4.348 ^a	<0.001
No	197	72.2	66.84 ± 6.57			58.84 ± 8.10		
Attending a certified scientific program about innovation and evidence-based nursing								
Yes	99	36.3	67.98 ± 6.39	1.563 ^a	0.119	61.63 ± 8.17	2.165 ^a	0.031
No	174	63.7	66.72 ± 6.45			59.35 ± 8.50		

^bIndependent samples t-test; ^aOne-way ANOVA; SD: Standard Deviation; ^{x-y}: No difference between groups with the same letter for each measurement value.

Table 3. Simple regression analysis for innovativeness as a determinant of attitudes towards evidence-based nursing (N=273)

Variables	B (95% CI)	β	t	p	R ²	SE	F	Model (p)	Zero order	Partial	VIF	DW
(Constant)	49.602 (39.113 – 60.091)		9.310	<0.001	0.014	8.398	3.978	<0.047	0.247	0.078	1.715	1.887
IIS	0.157 (-0.002 - 0.313)	0.120	1.994	0.047								

B: Unstandardized coefficient; β : Standardized coefficient ; CI: Confidence interval; SE: Standart Error; VIF: Variance Inflation Factor; DW=Durbin-Watson

Table 4. The multiple regression analysis for idea leadership, resistance to change and risk taking as a determinant of attitudes towards evidence-based nursing (N=273)

	Variables	B (95% CI)	β	t	p	Adjusted R ²	SE	F	Model (p)	Zero order	Partial	VIF	DW
Model 1 (Enter method)	(Constant)	53.489 (43.862 - 63.117)		10.938	<0.001	0.228	7.420	27.726	<0.001				2.003
	Idea leadership	0.205 (-0.108 - 0.518)	0.090	1.291	0.198					0.247	0.078	1.715	
	Resistance to change	-0.983 (-1.287 - -0.679)	-0.345	-6.375	<0.001					-0.285	-0.362	1.030	
	Risk taking	1.392 (0.823 - 1.960)	0.335	4.820	<0.001					0.346	0.282	1.698	
Model 2 (Stepwise method)	(Constant)	54.749 (45.235 - 64.263)		11.329	<0.001	0.224	7.437	40.301	<0.001				1.999
	Resistance to change	-0.962 (-1.267 - -0.658)	0.335	-6.216	<0.001					-0,283	-0,354	1.018	
	Risk taking	1.624 (1.183 - 2.065)	0.390	7.247	<0.001					0,346	0,404	1.018	

B: Unstandardized coefficient; β : Standardized coefficient ; CI: Confidence interval; SE: Standart Error; VIF: Variance Inflation Factor; DW=Durbin-Watson

Discussion

This study is the first study that evaluated the relationship between individual innovativeness and attitudes towards evidence-based nursing among nurses. Since innovativeness and

attitudes towards evidence-based practice are highly effective factors in enhancing the nursing care quality, these characteristics and attitudes should be gained to nurses. Therefore firstly, it is important to identify nurses' individual innovativeness levels and attitudes towards evidence-based nursing. In this regard, to guide nursing education, studies and practices, the results of this study revealed findings on the relationship between nurses' individual innovativeness and attitudes towards evidence-based nursing.

The perceptions of the nurses towards innovativeness were found to be moderate to high level (Mean±SD = 67.18±6.45) indicated that nurses generally were "early majority". In addition to, the largest percentage (43.2%) of nurses fell into the innovativeness category of early majority. In the Innovation Diffusion Theory, Rogers stated even if early majority also serve as opinion leaders by adopting new ideas earlier from the others, they are pragmatists. In addition to, it was emphasized that they are averse to taking risks, and they typically need to see the success stories and evidence of the innovation's effectiveness before adaptation (Rogers, 2003). In this study, however nurses had the highest score for "idea leadership" subscale (Mean±SD = 27.54±3.71), they had the lowest score for "risk taking" subscale (Mean±SD= 16.84±2.03), and these results also support the results of "early majority" characteristics.

On the other hand, given the importance of innovators emphasized by Rogers, the small percentage of nurses (2.2%) who are characterized as innovators is of concern. This finding is in line with the findings of other studies in Turkey and other countries of nurses (Baksi, Sürücü, & Kurt, 2020; Sarikose & Turkmen, 2020; Stilgenbauer & Fitzpatrick, 2019) while indicate a higher level than those of other studies (Silveira Thomas Porto & Catal, 2021). The differences between the results of these studies could be related to personal awareness of innovativeness based on individual and professional characteristics of nurses.

In this study, nurses' individual innovativeness level who followed scientific studies tends to be higher ($p < 0.001$), and individual innovativeness in men seems to be stronger than in women ($p < 0.05$) when it was examined the factors affecting individual innovativeness level. Especially, it is thought that following scientific studies raised awareness of nurses having early majority characteristics to identify problems in the care environment, and thus guided them to generate innovative ideas.

The attitudes of the nurses towards evidence-based nursing were found to be moderate to high level (Mean±SD = 60.17±8.44) indicated that nurses had positive attitudes. This finding is in line with the findings of other studies in Turkey (Asi Karakas et al., 2021; Kiliçli et al., 2019) and other countries of nurses (AbuRuz et al., 2017; Ramos-Morcillo et al., 2015). Additionally, the mean scores of subscales were respectively 29.30±3.94 for "the beliefs and expectations", 15.35±3.34 for "the intention of conduct" and 15.51±3.55 for "the feelings". These results are considered that however nurses had positive beliefs and expectations and positive feelings, they had not positive intention of conduct as expected levels. Evidence-based practice as a scientific approach is easy to be accepted, but difficult to be implemented (Li et al., 2019).

Therefore, identifying the facilitators of evidence-based nursing may be the cornerstone to develop nursing care quality. In this study, it was observed that having associate or above degree ($p < 0.001$), being a training nurses ($p < 0.01$), following and making scientific studies ($p < 0.001$), and attending a certified scientific program about innovation and evidence-based nursing ($p < 0.05$) increased their attitudes towards evidence-based nursing.

This was considered as a consequence of the fact that these facilitators offer them the opportunity to training and research contexts, time and resources, and hence also increase nurses' awareness for assessing and implementation of evidence based research results. In addition to, these facilitators may enable to share their newly acquired beliefs with colleagues about evidence-based nursing (Clavijo-Chamorro et al., 2021). As a result, they developed positive attitudes towards evidence-based nursing to concern about quality of care and adapt to new changes.

This study suggested that individual innovativeness was an important mechanism by which affects nurses' attitudes towards evidence-based nursing. In the first model, it was found that higher level of innovativeness was associated with nurses' higher level of attitudes towards evidence-based nursing. This finding is in line with the findings of other studies (Erol et al., 2022; Yayla & Kemer, 2020). In addition to, it was found that however there was no association between idea leadership and attitudes towards evidence-based nursing in the second model, lower level of resistance to change and higher level of risk taking were associated with nurses' higher level of attitudes towards evidence-based nursing in the second and third models. This findings are in line with the findings of other studies that indicated that resistance to change and risk taking influence attitudes towards evidence-based nursing (Karacay et al., 2021; Pericas-Beltran et al., 2014). It is worth noting that nurses' innovativeness characteristics are important for nurses' to develop evidence-based care practices and products for individuals' needs, and use also these evidences to advance the care of individuals by identifying evidence levels (Kim & Park, 2015; Porter-O'Grady & Malloch, 2017). Change is inevitable in the evidence-based care practices to ensure that we're providing quality care to our patients through a constant state of regenerating policies. Successful adoption of evidence-based nursing practices is not only possible with idea leadership that first element in accomplishing change. It also requires risk taking and not resistance change to introduce new processes and practices, address and solve problems for quality health care through evidence-based practices, and implement these evidence-based practices.

Study Limitations: This study had some limitations to consider. First, this study had a descriptive cross-sectional study design, which could not confirm causality, so further experimental studies are necessary. Second, although the sample size of the study was adequate, the data were collected only from nurses working at a private hospital. Due to these limitations, the results of the study cannot be generalized to all nurses. Third, all variables were measured based on nurses' self-reported, which may lead to potential reporting bias. Fourth, the direct effect of individual innovativeness on attitudes towards evidence-based nursing is

presented without analyzing effects of different mediator or moderator variables.

Conclusions: The current manuscript provides an overview of relationship between the relationship between individual innovativeness and attitudes towards evidence-based nursing among nurses. According to the results, the importance of developing nurses' innovative characteristics and attitudes towards evidence-based nursing to improve the quality of nursing care has once re-emerged. Thus, individual, professional and innovativeness characteristics, and innovativeness level should be fully considered in the development of attitudes towards evidence-based nursing aimed to improve the quality of nursing care. In this regard, nurse managers and healthcare organizations should determine the educational contents, and organize training programs and scientific programs for nurses through the collaboration of training nurses. Additionally, nurses should be encouraged to participate in the projects, studies and campaigns carried out by nurses and health institutions. Moreover, more awareness on nurses for nursing innovation and evidence-based nursing should be created and raised through creating committees or using technologies.

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