USE OF STANDARDIZED PATIENT IN NURSING EDUCATION: A SYSTEMATIC REVIEW

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HEMŞİRELİK EĞİTİMİNDE STANDARDİZE HASTA KULLANIMI: SİSTEMATİK İNCELEME

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Abstract

Introduction: Nursing students' education begins in the classroom prior to clinical training. The use of standardized patient during the education process is an alternative to traditional teaching methods. By enhancing the interaction between classroom and clinics, standardized patients in nursing education may contribute to the learning process by providing a realistic clinical learning experience in the classroom prior to actual clinical education.

Aim: This systematic review was intended to investigate the studies that have evaluated the outcomes of standardized patient use in nursing education.

Methods: A literature review was conducted by searching the databases of "CINAHL Plus", "Medline", "Health Source: Nurse/Academic Edition (EBSCO host)", "Sciences Direct" and "Google Scholar" through 573 articles. Articles were selected from a pile of full text studies that were written in Turkish or English, released in the last decade (January, 2015 – April, 2015) and found by entering the keywords of "simulated patients", "standardized patients", "nursing education", "simulated patients in nursing" and "standardized patients in nursing". Of these studies, 23 matching the research criteria were included in this study.

Results: The selected studies were divided into two groups of which one group evaluated the cognitive abilities and the other evaluated the psychomotor skills of the students. Selected articles were assigned to be used in experimental, quasi-experimental, descriptive and mixed research designs. In 7 of the studies, it has been determined that training with a standardized patient helps students to acquire communication skills. In addition, 7 of the studies reported an increase in students' satisfaction, self-efficacy, and self-confidence levels after training with a standardized patient. Students evaluated the use of standardized patient in nursing education as a beneficial and positive experience as it provides a realistic case presentation.

Conclusions: Although training with standardized patients in nursing education can be expensive and time consuming, it is considered an effective teaching method that contributes to students' satisfaction, self-efficacy and self-confidence, and improves their communication and motor skills.

Key words: standardized patient, nursing education, systematic review.

Özet

Giriş: Hemşirelik öğrencilerinin beceri öğretimi sınıfta başlayıp klinik uygulamayla devam eden bir süreci kapsar. Bu eğitim sürecinde Standardize hasta kullanımı geleneksel öğretim yöntemlerine alternatif olan bir yaklaşımdır. Standardize hasta kullanımı sınıfla klinik arasındaki engeli kaldırarak, öğrencinin gerçek klinik ortama gitmeden önce sınıf ortamında gerçekçi bir klinik öğrenme deneyimini yaşayarak öğrenmesine katkı sağlamaktadır.

Amaç: Bu sistematik inceleme, hemşirelik eğitiminde standardize hasta kullanımının sonuçlarını değerlendiren çalışmaları sistematik olarak incelemek amacıyla planlanmıştır.

Yöntem: Çalışmanın evrenini Aralık 2014 -Nisan 2015 tarihinde "CINAHL Plus", "Medline", "Health Source: Nurse/Academic Edition(EBSCO host)" "Sciences Direct " veri tabanları ile "Google Scholar" kaynaklarından taranarak ulaşılan 573 makale oluşturmuştur. İnceleme "Simulated Patients", Standardized Patients"," "nursing education" ,"Simulated Patients in nursing" ve "Standardized Patients in nursing" anahtar kelimeleriyle son on yılda yayınlanmış (Ocak 2005- Nisan 2015), yayın dili Türkçe ya da İngilizce olan ve tam metni bulunan makaleler seçilmiştir. Bu makalelerden araştırma kriterlerini karşılayan toplam 23 çalışma incelemenin örneklemini oluşturmuştur.

Bulgular: Hemşirelik eğitiminde standardize hasta kullanımına ilişkin çalışmaların sistematik incelemesi, bilişsel becerileri ve psikomotor becerileri değerlendiren araştırmalar olarak iki grup altında gerçekleştirilmiştir. Çalışmaya dahil edilen makalelerde deneysel, yarı deneysel ve tanımlayıcı ve mix araştırma tasarımlarının kullanıldığı saptanmıştır. Araştırmaların 8'inde, iletişim becerilerinin kazandırılmasında standardize hasta ile eğitimin etkili olduğu belirlenmiştir. Ayrıca 7 araştırmada da standardize hasta ile eğitimden sonra öğrencilerin, memnuniyeti, öz etkililik ve öz güven düzeylerinde artma saptanmıştır. Öğrenciler standardize hasta ile çalışmayı gerçekçi vaka sunumu nedeniyle yararlı ve olumlu deneyim olarak algılamışlardır.

Sonuç: Hemşirelik eğitiminde standardize hasta ile çalışma pahalı ve zaman alıcı bir eğitim yöntemi olmasına karşın öğrenciye iletişim ve motor becerilerinin kazandırmasının yanı sıra öğrenci memnuniyeti, öz etkililik ve öz güvenin de gelişmesine katkı sağlayan bir öğrenme yöntemi olduğu görülmektedir.

Anahtar kelimeler: Standardize hasta, hemşirelik eğitimi, sistematik inceleme

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Introduction

The training of nursing students begins in the classroom and continues with clinical practice. However, current changes in health care such as the rising awareness about medical errors and the concerns regarding these errors complicate the clinical training of health professionals (Ryan et al., 2010). In addition, clinical practices can be even more difficult and troublesome for nursing students due to fear of harming the patient, having difficulty in transferring the theoretical knowledge into clinical practice and lack of supportive relationships (Flynn, 2012). Despite all these problems, educators are expected to well prepare the students for ever-changing health environment and acute clinical problems (Rauen, 2004). In order to overcome these challenges encountered in clinical practice, the use of simulation in nursing education has been initiated and become widespread (Metcalfe, Hall & Carpenter, 2007).

Simulation education facilitates learning for students without posing certain risks to patients, allows them to gain experience without feeling anxiety and provides a safe learning environment (Rhodes & Curran, 2005). Simulation is defined as imitation of actually existing tasks, relationships, equipment, behaviors or some cognitive activities (Gaba, 2004). A variety of simulation strategies are used in nursing education such as video recording, DVD playback, computer based simulations, computer controlled simulators, interactive patient simulators and interaction with simulated/standardized patients (Alinier, 2007).

SP was first used by Howard Barrows as a simulation approach in 1963 (Levine & Swartz, 2008). An SP is an actor or actual patient who is trained to show true history and examination findings related to a certain disease (Dikici & Yarış, 2007; Levine & Swartz, 2008). They are trained to simulate a particular case precisely and repeatedly and they can provide feedback on the process of interview about a patient's perspective by evaluating the skills and performances of the learner based on the goals set by the instructor (Beullens, Rethans, Goedhuys & Buntinx, 1997; Vu and Barrows, 1994, Churchouse & McCafferty, 2012). SPs have been given many descriptive names in the literature in relation to their roles like "programmed patient", "prepared patient", "trained patient", "standard patient", "actor", and

"pseudo-patient". However, 'simulated patient' and 'standardized patient' are currently the most used terms. Although these two terms are different from each other, today the abbreviation SP is used to refer to both (Sarıkoç, Özcan & Elçin 2016; Barrows 1993). Beigzadeh et al. (2016) conducted a study in which they reviewed the literature in order to determine whether there was a difference between the terms of SP and simulated patient. The findings suggested that there were differences between these two modalities. Accordingly, a simulated patient, directed by a facilitator, is a person who is given a history to portray and acts a role in the clinical encounter with a medical student. On the contrary, an SP is not an actor but a patient who presents his or her personal, physical, social, and psychological history (Beigzadeh et al., 2016). Therefore, an SP is a real patient who does not act, and is a layperson who must be trained and coached carefully for portraying the patients, but a simulated patient is someone who portray a real patient (Beigzadeh et al., 2016).

The use of SP in nursing education is an alternative approach to traditional teaching methods. The SP application is an innovative, popular and learner oriented method of education by which the student can learn in a more controlled and motivated manner through the facilitation of an instructor, and which brings the clinical and theoretical knowledge and experience together (Bland, Topping & Wood, 2011; Shin, Ma, Park, Ji & Kim, 2015). The SP contributes to the learning process by representing a realistic clinical case in the classroom prior to a clinical education and removing the barriers between the classroom and clinics. (Dikici & Yarış, 2007; Levine & Swartz 2008; Sarmasoglu, Dinç & Elçin 2015). Studies evaluating the outcomes and efficiency of SP use in nursing education are increasing day by day. The SP use in nursing education and its outcomes can guide the nursing educators. However, the number of systematic review studies that investigate and exhibit the outcomes of these researches is limited. One such study covering all the health professions in the period 1996-2005 was a review study carried out by May et al. (2009), and another was a meta-analysis (Oh, Jeon and Koh, 2015) which investigated the studies conducted on the SP use mainly in Korea. In this context, this paper presents an analysis of the studies investigating the SP use in nursing education and provides researchers with some actual data.

Research Questions

Throughout the study, answers to two questions were sought:

-What are the situations where SP is used in nursing education?

-How does the use of SP affect the knowledge and skills of students?

Method

The research was performed by two independent reviewers in accordance with the published protocol corresponding to the PRISMA statement (Moher, Liberati, Tetzlaff, Altman & Group, 2009) and the Cochrane Handbook of Systematic Reviews of Interventions (Higgins & Green, 2011). No ethical approval was required, since no human subjects were used in the experiments.

Sources of Data and Research Strategy

Following the databases of "CINAHL Plus", "Medline", "Health Source; Nurse/Academic Edition (EBSCO host)", "Sciences Direct'' and "Google Scholar" were used to search the relevant articles from January 1, 2005 to April 1, 2015. The keywords were used in various combinations: "simulated patients", "standardized patients", "nursing education", "simulated patients in nursing" and "standardized patients in nursing". Then, original articles were retrieved from their sources.

Eligibility criteria and study selection

The following criteria were taken into account in the selection of articles that were included in the study:

- The study should investigate the outcomes of standardized/simulated patient use (SP) in nursing education,
- SPs must be selected from humans so that a face to face interaction can take place,
- The students must be selected from undergraduate and graduate level nursing students,
- Articles must be written in Turkish or in English,
- Articles must be published between January 1, 2005 and April 1, 2015, and
- Full text versions of the studies should be accessible.

The articles which were not published in English or Turkish languages and which focused on the virtual patients like computerized cases and simulators like mannequins were not included in this study.

Data Extraction, Analysis and Synthesis

The titles and abstracts of all related articles found through database search were evaluated three times by different researchers independently. If the title or abstract was not clear, the full-text version of the study was reviewed to understand whether it matched the inclusion criteria of the study or not. The reasons for exclusion of some articles were recorded and given in Table 1. The reviews were compared and 550 studies out of 573 were eliminated based on the inclusion criteria. As a result,

the full texts of 22 studies were determined as the source material for the systematic review (Table 1). Each of the selected articles included studies that were conducted on nursing education and SP use. The authors declared no conflicts of interest.

An in-depth analysis of the selected articles was performed for the possible risk of bias. Critical and quality appraisals of the related studies were carried out using the appropriate tools. Systematic reviews were appraised using the ROBIS assessment tool (Whitinging et al., 2016).

Limitations of the Study

The literature review was carried out with limitations because some case studies that present valid findings for the research were not accessible. In addition, some limitations were encountered regarding the data analysis because of insufficiency of sample sizes in certain research investigated.

Results

This systematic review included 22 studies released between January 2005 and April 2015. Table 2 presents the type of the investigated studies, sampling characteristics, findings and results. The studies covered in the review were categorized into three main groups of working structure: setting and design, cognitive skills and psychomotor skills of students.

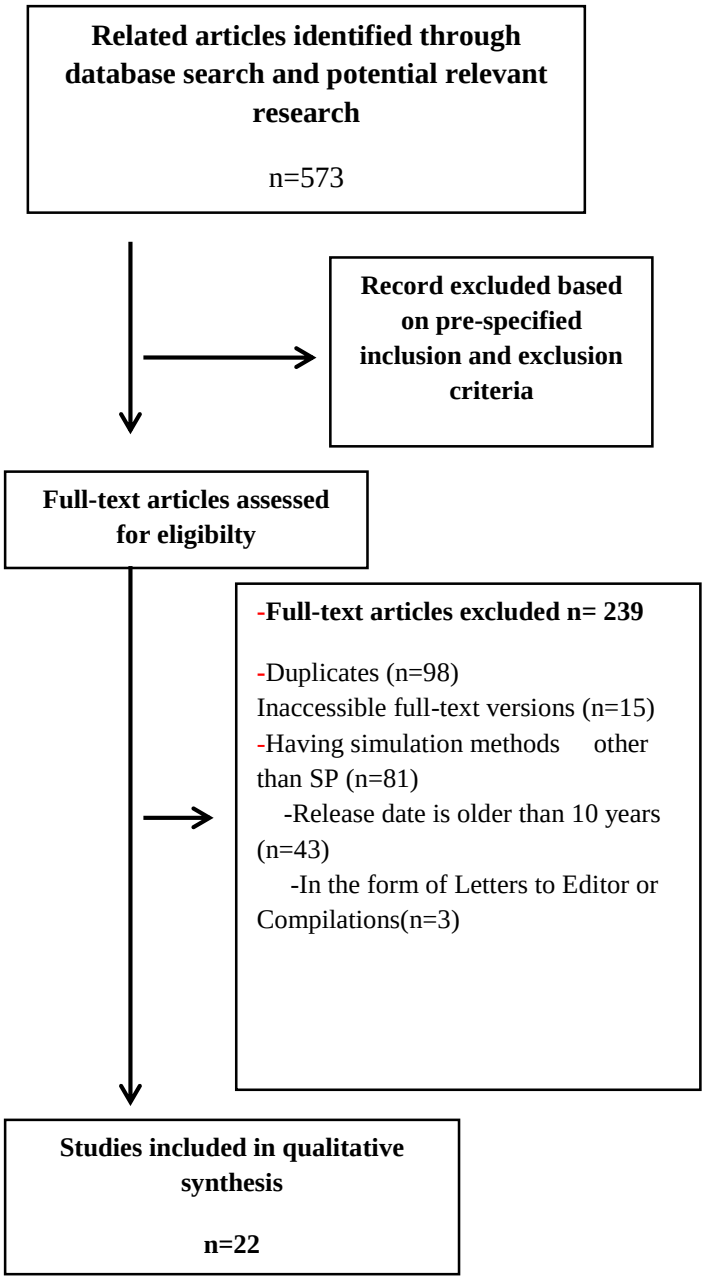

Fig 1. Summary of the study selection process (PRISMA flow chart).

Setting and Design

Setting: 10 out of total 22 studies (45.45 %) were conducted in the USA. The rest were carried out in the UK, Turkey, Canada, Ireland, Singapore, South Korea and Taiwan.

Sample Size: A total of 1709 subjects participated in the 22 studies. The sampling size varied between 7 and 348.

Study Design: 10 studies (45.45 %) were experimental design; 6 (27.27 %), descriptive; 3 (13.63 %), quasi-experimental; 3 (13.63 %), mixed (Randomized controlled and qualitative). 7 of the experimental studies (31.81 %) were randomized controlled, pre-/post-test was implemented in 4 of them, and post-test was conducted in 3 of them. In 3 of the experimental studies, control group was formed, however, the control and experimental groups were not randomized, and a post-test was implemented.

Population: 5 of the studies (22.72 %) were conducted with senior students; 4 (18.18 %), with freshmen, juniors and graduates; and 1 (4.54 %), with both junior and senior students, and only sophomores. One of the studies was conducted with both nursing and medical students; another study was carried out with nursing, medical, pharmacy, occupational physical therapy, and audiology students. Characteristics of the student groups were not specified in 2 of the studies.

Teaching / Learning Issue: In 15 of the studies (68.18 %) included in the review, cognitive skills of the students were evaluated; and psychomotor skills were assessed in 7 (31.81 %) of them.

Role of SPs: SP patients acted out their roles according to the scenario specified by the teaching staff. In 2 of the studies (9.09 %), SP gave feedback to the students.

Evaluating Cognitive Skills

Whereas SP was used for teaching communication skills in 7 of the studies (31.81 %) reviewed under "cognitive skills" title, (Becker et al., 2006; Robinson-Smith et al., 2009; Zavertnik et al., 2010; Ryan et al., 2010; Lin et al., 2013; Kameg et al., 2014; Webster, 2014), in some of the studies, it was used to investigate team work (Barnett et al., 2011), home visit (Kim-Godwin et al., 2013), spiritual care (Fink et al., 2014), evaluation ofrisk offalling (Beischel et al., 2014), leadership skills (Sharpnack et al., 2013), culture-sensitive care (Ndiwane et al., 2014), and learning to collect data to develop a care plan (Karadag et al., 2016). In some of the studies in this group, mental state, suicidal and depression risks, as well as communication skills were evaluated. In 2 of the studies evaluating the communication skills, SP gave feedback to students on their communication skills (Rayan et al., 2010; Lin et al., 2013). The results of the studies evaluated in this group revealed that working with the SP developed students' therapeutic communication skills (Becker et al., 2006; Robinson-Smith et al., 2009; Zavertnik et al., 2010; Kameg et al., 2014; Webster, 2014), increased self-efficacy and

confidence (Becker et al., 2006; Robinson-Smith et al., 2009; Sharpnack et al., 2013; Kim-Godwin et al., 2013; Fink et al., 2014; Ndiwane et al., 2014), boosted student satisfaction (Becker et al., 2006; Robinson-Smith et al., 2009; Zavertnik et al., 2010; Lin et al., 2014;Kameg et al., 2014; Webster, 2014), reduced anxiety particularly about contacting psychiatric patients (Kameg et al., 2014; Webster, 2014), helped the students evaluate real-like medical cases and clinical problems and contributed to planning of nursing care plan (Karadag et al., 2016), developed leadership skills (Sharpnack et al., 2013), and taught team work (Barnett et al., 2011). In a study comparing the efficiency of a video-recorded SP and patient interview by Becker et al. (2006), it was determined that there was no difference between the interpersonal communication scores of experimental and control groups, but students perceived working with SP as a positive, creative and meaningful experience. Similarly, Beischel et al. (2014) reported that they did not observe a statistically significant difference between experimental and control groups in terms of students' cognitive and attitude skills, yet a 10 minute SP-patient interview increased the experimental group students' competence in monitoring the patients and taking the necessary measures for the patients' falling risk. In their study that compares the efficiencies of SP feedback on the SP interview, group discussion and the only SP patient interview in teaching the interpersonal communication skills, Lin et al. (2013) determined that although the learning satisfaction of the students increased in both groups, there was not a statistically significant difference between the communication skills of both groups. Ryan et al. (2010) concluded that communication and counseling skills of SP patient-student could be utilized for evaluation purposes.

In a research by Barnett et al. (2011), a virtual clinical environment was created with 14 SPs, and the students from different teams made the care plans based on the interviews with the SPs. The students watched each other's interview with the SPs through the videos. Moreover, they saw how different disciplines made interviews with patients. By this way, they learned alternative techniques of interviewing. As a result, the students grasped the flow of communication with team members. Similarly, Sharpnack et al. (2013) stated that SP application allowed the students to develop their leadership skills through discussions about patient care with the doctors for the first time. Fink et al. (2014) presented a study in which the students and SPs performed an ethical conflict/dispute between a mother who was at terminal stage, and her sons and daughters who

belong to three different religions. This gave the students a possibility to practice in difficult patient cases which they would not otherwise have the chance to meet. Some problems experienced in the clinical settings may not allow the students to improve their cognitive skills such as decision-making and problem-solving. Therefore, it is necessary to consult different approaches, not to jeopardize the patient safety and toensure a risk-free experience (Titzer et al., 2012; Kilgore et al., 2013).

It has been suggested that SP use in nursing education provided a realistic, positive and beneficial learning experience in term of teaching cognitive skills (Becker et al., 2006; Robinson-Smith et al., 2009; Zavertnik et al., 2010; Ryan et al., 2010; Barnett et al., 2011; Lin et al., 2013; Kim-Godwin et al., 2013; Sharpnack et al., 2013; Fink et al., 2014; Kameg et al., 2014; Webster, 2014; Ndiwane et al., 2014; Beischel et al., 2014; Karadag et al., 2016).

Evaluation of Psychomotor Skills,

Six of the studies (17.39 %) listed under the evaluation of psychomotor skills used SP method for teaching physical examination (general physical examination, respiratory examination and pelvic examination) (Theroux and Pearce, 2006; Kurz et al., 2009; Bornais et al., 2012; Luetkar- Flude et al., 2012; Schram and Mudd, 2015; Kowitlawakul et al., 2015). One study was recorded for teaching how to measure blood pressure and subcutaneous injection (Sarmasoglu, 2015), and one study was about the care in emergency unit (wound care, nasogastric tube feeding and monitoring vital findings) (Mackey et al., 2014).

The results of the studies in this group revealed that teaching with SP was efficient in reducing the preclinical anxiety of students (Theroux and Pearce, 2006), teaching physical examination (Theroux and Pearce, 2006; Bornais et al., 2012; Schram & Mudd, 2015), and care in emergency unit (Mackey et al., 2014). Kurz et al. (2009) indicated that although the mean application scores of the research group were higher than those of control group, there was not a statistically significant difference, but that working with SP had a positive influence on the learning outcomes. Luctkar-Flude et al. (2012) have analyzed the effect of three different teaching methods (community volunteer, high fidelity human simulators (HFS) and SP) on student respiratory examination performance and self-efficacy; and they determined that although the respiratory examination performance attitude was found significantly high in HFS group, the students were not much satisfied with this method. There was no difference between the three teaching methods with regard to students' self-efficacy. However, it can be

stated that SP method was perceived as realistic and efficient for boosting self-efficacy of students. According to the findings of Kowitlawakul et al. (2015), students evaluated working with SP as very beneficial and realistic in familiarizing with the patient's history and developing communication skills. However, SP was determined inadequate in making diagnosis regarding the case of critical patient, and defining specific symptoms and findings about the patient (heart murmur, pathological lung sounds, etc.). As Schram and Mudd (2015) stated that although SP use developed physical examination and communication skills, it was costly and taking time. Similarly, as Sarmasoglu et al. (2015) revealed, the performance score of blood pressure application was determined to be significantly high in the experimental group compared to the control group, however, their subcutaneous injection scores were found fairly close. Working with SP was found to positively affect the learning process, facilitate communication with patients, and boost the self-confidence by helping students overcome their anxiety.

Author (year)	Country	Design	Education Method	Sample size	Class (Content)	Measurement	Outcome (Results)
1-Becker et al. (2006),	USA	RCT (pretest- post test)	Control group watched recorded video of the interview. Study group interviewed SP.	Total =147 Exp:58; Con:89	Senior therapeutic communication, knowledge and evaluation of depression,	Communication Knowledge Test Student Self-Evaluation of SP Encounter	According to research findings, there was no difference between the scores of two groups in terms of interpersonal skills, therapeutic communication skills, and knowledge of depression. Working with SP was perceived as a positive, creative and meaningful experience by the students.
2-Theroux & Pearce (2006)	UK	Comparative Descriptive	Pelvic examination was performed on volunteer peers by a group and on SP by another group. SP patient gave feedback to students.	Total =48	Graduate nursing programs / Advanced health assessment courses	1- Survey 1 focused on experiences related to the laboratory teaching strategy 2- Survey 2 focused on experiences during subsequent clinical examinations.	Both groups felt anxiety while learning pelvic examination. However, the SP group stated their anxiety decreased and their confidence level to do examination increased as they received feedback. SP group evaluated their learning experience more positive and better in comparison with peer group
3-Robinson-Smith et al. (2009)	USA	Descriptive Design	Students performed a mental status exam and suicidal risk assessment by interviewing SP.	Total =112	Junior Psychiatric nursing	1-Satisfaction With Learning Through Standardized Patients 2- Self-Confidence in Learning Through Standardized Patient Care Scenarios 3- Effect of Standardized	Students' interview with SP brought about an increase in self-efficacy, critical thinking and learning satisfaction. It is emphasized that working with SP gave teaching staff an opportunity to evaluate weak and strong sides of students' clinical skills.

						Patient Care Scenarios on Critical Thinking	
4-Kurz et al (2009)		Quasi-experimental two-group	Control group took traditional course and laboratory practice for the evaluation of health. Experimental group completed a 20 minute examination application with SP patient. All student completed traditional didactic and lab practice and then the experimental group had additional experience with SP.	Total:37 Con:11 Exp:26	Graduate nursing students /Health Assessment course	The checklist rated the students' performance in four categories: (a) history of present illness, (b) past medical history, (c) physical examination, and (d) communication skills	Although mean score of study group for health evaluation application was higher than that of control group, there was no statistically significant difference. However, working with SP was determined to have a positive influence on student outcomes.
5-Zavertnik et al (2010)	USA	Quasi-experimental two-group posttest design.	Control group took lesson on Therapeutic Communication in classroom. Experimental group took 30 minute laboratory training on communication methods following the class training and practiced communication skills with SP.	Total:41 Con: 21, Exp:20	Sophomore/ First Clinical Course (therapeutic communication)	Standardized grading tool evaluated students' skills and abilities evaluated communication skills in four teaching domains: how to introduce yourself, how to gather information, how to impart information, and how to clarify goals and expectations.	It was found that basic communication skills of experimental group was higher than those of control group, especially data collection skill score, and that the difference was statistically significant. Experimental group found SP interviews beneficial.

6-Ryan et al (2010)	Ireland	Descriptive Design	Standardized patient educators were used to evaluate communication and counseling skills. After the interview, SP patient gave students feedback on CCS.	Total =100 (Nursing:64 Medical: 46)	Nursing –Medical Student/ communication and consultation skills	Communication skills and attitudes holistic assessment too	It was determined as a result of the study that communication skills of majority of the students were good, and that a small part of the students (20-25 %) needed refreshing education.
7-Barnett et al (2011)	USA	Descriptive Design	Students from different disciplines interviewed SP for 10 minutes. They developed a care plan for patients as a team.	Total =338 (Medical student =100, Pharmacy =90, occupational, physical therapy, and audiology=8, Nursing student = 140)	General nursing care / Team work	1-Students rated their experience using a Likert-type scale 2-comment in writing about the experience.	At the end of the program, students understood the importance of team work for optimal patient care and they developed communication skills. Students stated they felt communication with members of other team was easy. The standardized patient interaction was valuable. The post standardized patient class discussion was useful.
8-Bornais et al. (2012).	Canada	Comparative Design	Control group: physical examination on peers. Experimental group: did physical examination on SP patient	Total =108 Con:54 Exp:54	Freshmen/ Health assessment (health history-taking skills, infection control measures, and physical examination techniques)	OSCE score (health history-taking skills, infection control measures, and physical examination techniques).	The results of the research indicated that laboratory practice and SP in the evaluation of health created a significant difference on OSCE performance in comparison with traditional methods.
9-Luctkar-Flude et al (2012),	Canada	RCT	A group did physical examination with community volunteers, another group did HFS and the other group did it with SP	Total =44 (Con:16; HFS:14; SP:14)	Junior/Health assessment (respiratory assessment)	1-Health Assessment Educational Modality Evaluation (assessment self-efficacy and learners	Although respiratory examination and performance behavior was found to be significantly high in HFS group, satisfaction is the lowest in this education method. There was no difference between

						'satisfaction) 2-Respiratory assessment checklist	the three education methods in terms of students' self- efficacy. SP method was perceived to be realistic and efficient in increasing self-efficacy by the students
10-Sharpnack, et al. (2013)	USA	RCT (post test)	A virtual hospital was established with SP who had 8 different diagnoses. Students in this unit were required to fulfill responsibilities related to leadership positions such as supervisor, charge nurse, and team leader. Control group was evaluated before they took simulation scenario. Experimental group evaluated after simulation experience.	Total =66	Senior leadership course.	1-Nursing Leadership Content Mastery Assessment,	Leadership evaluation scores were found higher in students working with SP. As a result of student evaluation, simulation application was determined to increase success reaching learning goals. The students in this application had a chance to develop collaboration, patient centered care, evidence based application, knowledge, skills and attitudes related to quality and safety. Students stated that they had realistic patient care experience with complicated patient scenario and they had the chance to apply leadership skills. In this study, student evaluations suggest that complex scenarios involving standardized patients provided opportunities for application of leadership principles to realistic patient care experiences and that this method may facilitate student transition to practice.
11-Lin, et al. (2013),	Taiwan	RCT (pretest- post test	Con: They only interviewed SP Exp: Following SP interview, SP gave students feedback. Later students had group discussion.	Total =26 Exp:14, Con.12	Good interpersonal and communication skills	1-Interpersonal skills (IPS) assessment tool. 2-Student learning satisfaction (SLS)	Students' satisfaction of all participants found 94 %. There was a difference between pre-test and post-test scores in terms of interpersonal skills scale. However, there was no statistical

						scale.	difference between groups.
12-Kim-Godwin, et al. (2013)	UK	Descriptive Study	Virtual home environment was created. A 30 minute home visit was simulatedwith SP .	Total =76	Senior/community health nursing course (home visit)	1-Educational Practice in Simulation Scale 2-Student Satisfaction in Learning Scale, 3-Self-Confidence in Learning Scale 4- open-ended questions about experiences	The students participating in the study stated that simulated home visit provided effective learning, increased their self-confidence, and they found it similar to real life situations. They assessed SP experience as meaningful and positive.
13-Kameg et al (2014).	USA	Quasi-experimental design pretest-posttest	Each student had 3-5 minute interviews with SP.	Total =69	Senior/Psychiatric mental health nursing course	1- the State-Trait Anxiety Inventory 2- anxiety visual analog scale 3-Simulation Evaluation Survey	According to study results, SP interaction reduced students' anxiety. Students evaluated SP experience positively and they supported its use in nursing education.
14-Fink et al. (2014)	USA	Quasi-experimental study (control grup) pretest-posttest	SPs belonging to three religions (Catholicism, Judaism, and Islam) with cancer diagnosis, old, sick and their religions were dramatized. Ethical conflict / dispute about SPs' state among sons and daughters was	Total =54 Exp: 30 Cont:24	Junior/Medical – surgical and psychiatric course	1-The Spiritual Care at the End-of-Life Questionnaire 2- Student satisfaction survey	It was determined in the study that the spiritual care at the end-of-life questionnaire scores, confidence and satisfaction scores of simulated groups were higher than those of control group.

			performed. The control group had received end-of-life care content in the previous semester but not through a simulation experience				
15-Beischel et al (2014)	Not Specified	RCT mixed methods (quantitative phase pretest-post test)	The experimental group had 10 minute interview with SP to evaluate risk of falling in addition to theoretical lesson. Control group took only theoretical lessons.	Total =133 Exp:67, Con:66	Freshmen/ beginning-level nursing courses	1- Cognitive outcomes, 2-Student Safety Attitudes Survey, 3- Simulation Design Scale 4-Journal Reflections provided qualitative data	Although there was a significant difference between the cognitive and attitude pretest and posttest scores of both groups, there was not a statistically significant difference between control and experimental group. However, 10 minute SP patient interview increased experimental group's competences in monitoring patients and taking necessary measures in terms of falling risk.
16-Ndiwane et al (2014)	USA	Pretest-posttest study design	Students first participated in a didactic presentation about cultural evaluation and Latino-African-American culture. Then each student had a 15 minute interview with SP. SP student interview was video recorded. At the end, students were given feedback by the educator.	Total =29	Freshmen/ Cultural assessment process	1-Cultural Assessment Survey 2-Student Satisfaction Survey	Students evaluated interview experience with SP as increasing their self-confidence for cultural evaluation, entertaining, realistic, and a positive learning experience. Recording SP interviews and providing feedback was found positive by the students as it gave them a chance to evaluate themselves. This experience was evaluated as experience permitting to increase cross cultural skills and self-confidence before the student goes to clinical application.

17-Webster (2014)	USA	Quasi-experimental (pretest-posttest).	The student randomly selected a psychiatric case. SP performed the selectedcase. The student and SP had a 15-20 minute interview and the interview was video recorded. Groups of 6-8 students and the teacher had a discussion on the video clips.	Total =89	Senior/Psychiatric nursing (therapeutic communication skills)	Effectiveness of Standardized Patient Experiences Evaluation Criteria	The findings of the study supports SP patient use for undergraduate nursing students in teaching and evaluating therapeutic communication skills.
18-Mackey et al (2014)	Singapore	Qualitative research design	A SP patient needing care, in a virtual emergency unit. Students were required to give care to this SP. SP patient role was performed by senior students.	Total =15	Junior and senior /Emergency nursing (wound dressing, naso-gastric feeding, vital signs monitoring)	focus group interview (two groups of 7 or 8 students)	It was determined that working with SP was beneficial in teaching emergency care. At the end of the study, students stated that this helped them understand what the patient was feeling, and the effect of verbal and non-verbal communication. In addition it helped them gain a different point of view.
19-Kowitlawakul et al (2015)	Singapore	An explorative, qualitative approach	The student got the patient's history, did the physical examination and planned the care appropriate for clinical case.	Total =7	Advanced practice nurse /Acute Care Track	Semi-structured interview guideline, with open-ended question	Students evaluated working with SP patient as beneficial and realistic in getting the patient's history and developing communication skills. However, they did not find it beneficial in determining a diagnosis related with the critical patient and planning the care because SP patient did not have particular symptoms and findings (heart murmur).
20-Schram & Mudd (2015)	USA	Descriptive study	A 30 minute one to one interview and physical examination was performed with the SP patient.	Total =13	Advanced practice nurse /Primary care Nurse practitioner	Debriefing Assessment for Simulation in	Working with SP provided students with realistic ambulatory care medium, and helped them develop skills such as getting

					program.	Healthcare (DASH)_ student version	the patient's history, therapeutic communication and doing physical examination. However, there were cost and time handicaps.
21- Sarıoğlu et al (2015)	Turkey	Quasi-experimental (pretest-posttest).	Students were given theoretical lessons on taking arterial blood pressure and doing subcutaneous injection. Control group completed assessments utilizing a model. Experimental group utilized a SP to complete the assessments. In order not to give harm to SP in subcutaneous injections, a virtual injection pad was placed on SP.	Total =87 Exp:44 Cont:43	Freshmen/ Fundamentals of Nursing Course	1- The Arterial Blood Pressure Measurement Performance Observation 2- Subcutaneous Injection Administration Performance Observation Form 3-The Standardized Patient-Student Interaction Assessment Form 4- The First Real-Life Practice Evaluation Form	Blood pressure application performance score in experimental group was significantly higher than that of control group. Their subcutaneous scores were quite close. Working with SP was found to affect the students positively, facilitate communication with patients and boosted self-confidence by helping overcome excitement.
23-Karadag et al (2016)	Turkey	RCT (pretest-posttest).	After the students were given spinal cord trauma training, control group was given the patient case written. They were asked to develop a care plan according to the written case data. Experimental group watched the SP patient and nurse interview as groups of 7-8 students, then they developed a care plan.	Total =70 Exp:35 Cont 35	Junior/Surgical Nursing Courses (spinal cord trauma case)	1- Questionnaire form 2-evaluation of the nursing care plans prepared by the students.	Students' mean score for perceiving the contribution of education methods to learning and nursing care and intervention to planning was 89.7 out of 100 in SP group and 80.57 out of 100 in control group, and the difference between the two was determined to be statistically significant. It was also determined that standardized patient use contributed students ability to evaluate realistic medical cases and clinical problems and plan nursing care.

Discussion

Nursing education is a process which has been structured to provide students with a professional nursing identity and prepare them for professional life, and during which theoretical and practical training is offered to students as a complete teaching guide. To achieve this goal, nursing students should master their cognitive, effective, and psychomotor skills. In nursing education, the theoretical knowledge taught in the classroom is reinforced with practical studies carried out in the laboratory, and it is put into practice in clinical setting.

Although the number of studies evaluating the outcomes and efficiency of SP use in nursing education is steadily increasing, only two studies, a review (May et al., 2009) and a meta analysis (Oh, Jeon & Koh, 2015) have been found in the literature review. Although these studies report the efficiency of SP use in nursing and medical education, the research conducted in the field and their efficiency is insufficient. For this reason, this study analyzes the previous studies carried out in the last decade which investigated the SP use in nursing education and present the actual data to the researchers.

Although there are a significant number of studies about the SP use in nursing education in the literature, we found only 22 research articles documenting the use of SP in nursing education in the last decade. The results obtained from the current review study cannot be generalized, however; it was designed to give an idea to the educators about SP use in nursing education. For this reason, it was aimed to answer two questions in this study:

-What are the situations where SP is used in nursing education?

-How does the use of SP affect the knowledge and skills of students?.

As a result, it was determined that SP is a learning method which contributes to the increase of students' satisfaction levels, self-efficacy and self-confidence and particularly to the development of students' physical examination, communication and counseling skills, and helps overcome their anxiety. The institutions, which provide health care, need nurses who can manage complex clinical settings, deliver high quality nursing care, have critical thinking skills, and sophisticated problem-solving, decision making and communicative skills. For this reason, undergraduate nursing students have to acquire professional knowledge and skills before they graduate, which should be followed by a clinical practice. The findings of the current study supported the idea that the use of SP method was efficient in acquiring cognitive skills, which is a crucial part of learning process for the utilization of knowledge in clinical

setting, as well as for gaining knowledge and improving certain skills. Students do not know what they are expected to do before their first interaction with a mentally unhealthy individual (Stuart, 2009). Furthermore, there may not always be a chance to encounter severe cases such as paranoid schizophrenia and bipolar mania in clinical practice; or the interaction of a student who does not have enough experience in communication and counseling with a patient can cause aggression or some unpredicted complications in patient (Webster, 2014). The experience of meeting with SP prior to clinical practice helps students overcome anxiety and increase self-confidence by ensuring both the safety of patient and a realistic experience. Therefore, SP applications provide learners with an opportunity to experience the case and assess their own performance before they encounter actual patients.

According to the findings of the review, although there was not a statistically significant difference between experimental and control group in terms of students' cognitive skills and attitudes in some studies, working with SP was found to be a positive, creative and meaningful experience. SP management increases students' self-confidence, develops communicative skills, facilitates transformation of theoretical knowledge into practical skills, and provides experience with difficult patient cases. The use of SPs in nursing education provides a planned and standard learning experience. In addition, the application of SP creates the opportunity to objectively assess the technical and professional skills of learners such as interpersonal and communicative expertise (Buxton et al., 2015).

The findings of the review revealed that SP method gave students a chance to gain clinical experience for complicated cases which they had difficulty with handling (Barnett et al., 2011; Sharpnack et al., 2013; Fink et al., 2014). However, although this review revealed the contribution of SP management to the development of students' communicative skills, the effect of SP application on such cognitive skills as problem-solving and decision-making has not been discovered yet.

According to the findings of the research, it was determined that randomized controlled trial studies evaluating SP and other similar training methods (case study, volunteer peer group, etc.) comparatively were limited in number (n=7, 30.43 %). Future studies on this subject are expected to close this gap. Although the results of the study indicated that SP application allowed students to have a unique experience by creating a controlled learning environment, it was recommended

that the way the theory is transferred into the practice should be analyzed in detail (Robinson-Smith et al., 2009; Ndiwane et al., 2014). Schram & Mudd (2015) revealed that SP application had time and cost handicaps. The preparation of case scenario by the teaching staff for SP application, training the individual to play the SP role, allocating time for application outside the classroom, difficulties in finding proper time with nurses to participate in the application, and meeting the cost of specific expenses such as transportation of individuals are all handicaps which increase the work load, cost and required time. According to Webster (2014), the teaching staff and drama actors watched the films of psychiatric cases and worked on them so that the psychiatric patient role could be played well. Sharpnack et al. (2013) and Karadag et al. (2016) solved the problem of scenario writing by using the scenarios prepared in Elsevier Simulation Learning System source (Lewis, Dirksen Heitkember &Bucker, 2011) and utilizing the graduate students' care plans, respectively. In the literature, it is recommended to coordinate the personnel, teaching staff, and nurses in the nursing schools in order to reduce the costs of SP application. However, there is very little proof about SP use. The main drawback of this application is that if the time allocated for SP training is not sufficient, students may be provided with unnecessary information about learning scenario, which can prevent students from asking detailed questions. Theatres, drama clubs, community volunteers and trained SPs are recommended to be used during the application (Schram & Mudd, 2015). SP patient video records can both reduce the cost and allow the students to gain extra learning experience (Rutherford– Hemming & Jennrich, 2013).

Conclusion

The aim of this study was to conduct a literature review on the SP use in nursing education that was published in the last decade and to offer the results for the benefit of researchers. The results of this review cannot be generalized, however; it is considered to be valuable for presenting ideas on SP use in nursing education to educators. The findings suggest that use of SP in nursing education may have a positive impact on self-efficacy and develop communicative skills of students, facilitate the transformation of theoretical knowledge into practical skills, and provide opportunities to encounter difficult patient cases. The current findings supported the idea that the use of SP method was helpful in acquiring cognitive skills, which is an essential part of teaching process for the utilization of knowledge in clinical setting, as well as the development of knowledge

and certain skills. Therefore, these findings indicate that the educational value of SP use in nursing programs, if integrated appropriately, can be appraised in academic settings as an active learning methodology. However, it is recommended that the way theory is put into practice and the influence of SP application on students' behavioral patterns should be investigated in a detailed manner, which points out the need to conduct more qualitative and quantitative studies, mainly randomized controlled trials on this field.

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