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Rehman, S.A. and Ali, P.A. (2016) A review of factors affecting patient satisfaction with nurse led triage in emergency departments. *International Emergency Nursing*, 29. pp. 38-44. ISSN 1755-599X

<https://doi.org/10.1016/j.ienj.2015.11.002>

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A Review of Factors Affecting Patient Satisfaction with Nurse Led Triage in Emergency Departments

Running Head: Patient Satisfaction with Nurse Led Triage

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Abstract

Background: Nurses' involvement in the triage services provided in the Emergency Department has been an integral part of practice for several decades in some countries. Although studies exploring patient satisfaction with nurse-led-triage ED triage exist, no systematic review of this evidence is available.

Aim: To determine factors that affect patient satisfaction with nurse-led-triage in EDs using a systematic review

Methods: MEDLINE, CINAHL, PsychInfo, EMBASE, the Cochrane Library, Joanna Briggs Library and Google Scholar were searched (January 1980- June 2013). Eighteen studies that met the inclusion criteria were reviewed.

Result: Factors that affect patient satisfaction with nurse-led-triage include nurses' abilities to provide patient centred care, communication skills, nurses' caring abilities, concern for the patient and competence in diagnosing and treating the health problem. Other factors include availability and visibility of nurses, provision of appropriate health related information in a jargon-free language, nurses' ability to answer questions, and an ability to provide patients with an opportunity to ask questions.

Conclusion: There is continued scope for nurse-led-triage services in the ED. Patients are generally satisfied with the service provided by nurses in EDs and report a willingness to see the same professional again in future if needed.

Keywords: systematic review; emergency; triage; triage nurse; patient satisfaction, nurse-led-triage,

INTRODUCTION

Emergency Departments (EDs) around the world, regardless of location, country, or continent provide care services to millions of people "...presenting with a wide range of problems, from life-threatening conditions to minor injury or illness" (Ganley, 2011, p. 49). Once in the ED, a clinician sees a patient with the aim of identifying the urgency of their health need and the type of care they require. This process is known as triage (Qureshi, 2010), a system for prioritizing patients according to their care needs (FitzGerald, 2010). Use of triage in EDs has many advantages, including rapid identification of patients requiring prompt interventions (Choi, 2006), ensuring that the right patient is in the right area for the right treatment at the right time (e.g. critical care area or non-critical care area), and ensuring appropriate waiting times for patients attending the ED (Ajani, 2012; Siddqui, 2012; Siddqui, 2012). Appropriate triage not only ensures appropriate management of patients in the ED, but also plays a role in improving patient satisfaction with the care they receive (Andersson, 2006). Whilst triage in ED, was previously undertaken by physicians, these services (for most conditions) can now be provided by experienced nurses such as Nurse Practitioners (NPs), Advanced Nurse Practitioner (ANP), and Emergency Nurse Practitioner (ENP). These specialist nurses are able to independently triage, treat and manage at least 30% of the patients presenting in EDs with a wide range of injuries and health problems (Byrne, 2000; Carter, 2007; Jennings, 2008). In this paper, the term ED nurse may be used to refer to all these different roles.

Patient satisfaction refers to the degree of congruence between a patient's expectations of ideal care he receives (Risser, 1975, p. 46). It can also be described as a patient's response to the setting, processes and experiences they had while receiving services in the health care setting (Chan, 2005). Patient satisfaction is identified as one of the most important goals in any ED for several reasons. It is an indicator of the quality of care a patient

received in the ED; 2) It has an effect on the reputation of the ED and the overall hospital, as the ED is often the first department a patient may visit; 3) Patients' perceptions of the services received in an ED help shape the future direction for the department. 4) Satisfied patients are less likely to complain about the ED or the hospital, resulting in reputation and economic consequences for the institution. 5) Satisfied patients are more likely to comply with the discharge and follow-up care instructions resulting in improved health outcomes and reduced burden of disease for the health care providers and services (Trout, 2000). In addition, enhanced patient satisfaction is related to improved job satisfaction for the health care professionals working in the ED (Trout, 2000).

Some research has been conducted to assess patient-satisfaction with general nursing care provided in the ED (Bursch, 1993; Raper, 1996, 1999; Byrne, 2000; Chan, 2005; Dinh, 2012; Thrasher, 2008; Sandhu, 2009). Evidence suggests that factors such as the overall environment of an ED, duration of waiting times (Lee & Jennings, 2006; Jennings et al., 2008; Taylor & Benger, 2004) and acuity of a patient's condition can affect the patient's or the accompanying person's satisfaction with the ED services. However, research exploring patient satisfaction with nurse-led-triage in the ED is still scarce and demonstrates inconsistent results, making it difficult to ascertain which factors contribute to better patient satisfaction as there is a lack of clarity about roles and scope of practice of nurses, who can perform triage, in various settings (Schellein, Ludwig-Pistor, Bremerich, 2008; Chan & Chau, 2005). A systematic search of various databases did not identify any previously conducted systematic reviews to explore factors affecting patient satisfaction with nurse-led-triage in EDs. This paper presents findings of a systematic review conducted to determine factors that affect patient satisfaction with nurse-led-triage services in EDs.

METHOD

The specific research question, which was developed using PICO (Population, Intervention, Comparison and Outcome) framework, for the review was (Table 1):

- What are the factors that affect patient satisfaction with the nurse-led-triage services in ED

Insert figure one here

Design

A systematic review was conducted using the Cochrane Collaboration systematic review methods (Higgins & Green, 2011). Due to the limited number of randomized controlled trials (RCTs) identified about the topic, we also included other type of studies to obtain a comprehensive picture of the issue of patient satisfaction with nurse-led-triage in EDs.

Search methods

A comprehensive literature search using the search engines MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychInfo, Excerpta Medica Database (EMBASE), the Cochrane Library and the Joanna Briggs Library was performed to identify studies published between January 1980 and June 2013. Keywords used in the search included ‘ triage’ ‘Nurse-led-triage’; ‘emergency department’; ‘ED’; ‘Accident and Emergency’; ‘A&E’; ‘Patient satisfaction’, ‘patient satisfaction’ AND ‘nurse’ AND ‘emergency’, ‘patient’ AND ‘satisfaction’ AND ‘triage’ AND ‘emergency’ were used. Various combinations of these search terms and Boolean operators were used to help specify the search. A search was also conducted using Google and Google Scholar to identify studies not published in indexed journals. In addition, the reference list of each article was scrutinized to identify studies that may not have been listed in the searched databases.

Inclusion and exclusion criteria

To be included in this review, studies had to be: (1) based on empirical data (primary study or literature/systematic review); (2) written in English; (3) published in a peer reviewed journal; (4) from the onset of the database to the current date of the review. All those studies that explored patient satisfaction with triage by an Advanced Nurse Practitioner (ANP), Emergency Nurse Practitioner (ENP), Nurse Practitioner (NP) or ED nurse in an ED and/or Minor Injuries Unit (MIU) were included. Studies that explored patient satisfaction with nurse-led-triage in the ED by any of the mentioned nursing roles as a primary or secondary outcome were included. Studies that explored effectiveness of the ANP, or NP, in any setting other than the ED were excluded. Papers such as reports, case series, scholarly or theoretical papers, editorials and commentaries were excluded.

Search Outcome

As shown in figure 1, the initial search resulted in the identification of 197 potentially relevant articles. A scan of the titles helped in narrowing this down to 101 relevant articles. A further detailed and careful review of the titles and abstracts of identified papers resulted in the selection of 45 potential papers. The full text was retrieved for all 45 articles. Following a careful and independent review of each study by both reviewers (SR, PA) 18 studies were selected. Remaining studies were excluded due to various reasons including a lack of relevance (22), literature reviews (4) and insufficient details (1).

Insert figure one here

Quality Review

The methodological quality of the studies included in the review was assessed using the critical appraisal tools of the Critical Appraisal Skills Programme (CASP). Both review

authors (SR, PA) independently reviewed studies. Any discrepancy in the assessment opinion was resolved through discussion.

Data Extraction

Information from selected studies were extracted by the first author (SR) using a pre-constructed data extraction template. Relevant information from each study such author names, year and country of publication, study purpose, research design, sampling method, sample characteristics, data collection method, data analysis method, results of the study, limitations and comments was included. The second author (PA) then checked extracted information data for appropriateness, accuracy and completeness. Any disagreements were resolved by consensus.

Data Synthesis

Heterogeneity and the limited number of selected studies meant that statistical pooling of review results was not possible. Therefore, appropriate tables, figures and narrative themes were developed to summarise the findings relating to patient satisfaction.

RESULTS

Study Characteristics

The selected studies were published in the previous 20 years (1992-2012). Studies originated from various parts of the world including, Australia (Chang et al., 1999; Davis & Duffy, 1999; Dinh, et al.2012a; Jennings et al.2009; Wilson & Shifaza, 2008), Canada (Moser et al.2004; Thrasher & Purc-Stephenson, 2008), Hong Kong (Chan & Chau, 2005), Sweden (Goransson & Rosen, 2010; Moller et al.2010), the UK (Barr et al.2000; Byrne et al., 2000; Cooper, Lindsay, Kinn, & Swann, 2002; George et al.1992; Mabrook & Dale, 1998) and USA (Bruce et al.1998; Elder et al.2004; Rhee & Dermeyer, 1995).

Patient satisfaction with nurse-led-triage was explored indirectly in some studies. The majority of studies (n=7) aimed to examine patient satisfaction in relation to the role of or services provided by NPs or ANPs in EDs (Barr et al., 2000; Mabrook & Dale, 1998; Moser et al., 2004; Rhee & Dermeyer, 1995; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008). Five studies examined patient satisfaction with the services provided by ENPs (Byrne et al., 2000; Chang et al., 1999; Cooper et al., 2002; Dinh et al., 2012a; Jennings et al., 2009). Six studies examined patient satisfaction in relation to services provided in the ED and explored patient satisfaction with nurse-led-triage as one aspect of the study (Bruce et al., 1998; Dinh et al., 2012a; George et al., 1992; Jennings et al., 2009; Topacoglu et al., 2004). Three studies examined patient satisfaction in relation to the triage encounter/experience (Chan & Chau, 2005; Goransson & Rosen, 2010; Moller et al., 2010). Two studies examined patient satisfaction in relation to patient characteristics (Davis & Duffy, 1999; Elder et al., 2004) and one explored patient satisfaction in relation to nurse characteristics (Elder et al., 2004).

Table 2 summarises the characteristics of included studies. The sample size ranged from 28 (Bruce et al., 1998) to 707 participants (George et al., 1992) attending the ED. Five studies compared two groups. For instance, George et al (1992) compared patients' satisfaction between a nurse triaged and non-nurse triaged group. Chang et al (1999) and Dinh, et al., (2012a) compared satisfaction rates between patients who were triaged by ED nurses with those triaged by doctors. Similarly, Cooper et al (2002) compared satisfaction among patients triaged by a Senior House Officer (SHO) with those triaged by ED nurses. Only three studies used random sampling methods to select participants (Chan & Chau, 2005; Chang et al., 1999; Cooper et al., 2002), while in the rest of the included studies the sample was chosen conveniently (Bruce et al., 1998; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al., 2004; George et al., 1992; Goransson & Rosen, 2010; Jennings et al., 2009; Mabrook & Dale, 1998; Moser et al., 2004; Rhee & Dermeyer, 1995; Thrasher & Purc-Stephenson, 2008; Wilson &

Shifaza, 2008). The sample selection strategy was not mentioned in three studies (Barr et al., 2000; Byrne et al., 2000; Topacoglu et al., 2004). The samples consisted of patients or the person accompanying the patient (in the case of a child or a person who lacks capacity).

Data Collection in included Studies

The majority of included studies used self-reported questionnaires to collect data (Barr et al., 2000; Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Cooper et al., 2002; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al., 2004; George et al., 1992; Goransson & Rosen, 2010; Jennings et al., 2009; Mabrook & Dale, 1998; Moser et al., 2004; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008). In only two studies, data were collected through questionnaires using telephone interviews (Chang et al., 1999; Rhee & Dermeyer, 1995).

Data Collection Instruments

Six studies reported using questionnaires developed by the authors for the specific study (Chang et al., 1999; Moser et al., 2004; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004; Wilson & Shifaza, 2008). Three studies used questionnaires developed in previous studies. For instance, Rhee and Dermeyer (1995) used a tool developed by Ware and Hays (1988). Bruce et al., (1998) used the Emergency Department Patient Satisfaction Survey developed by Lewis and Woodside (1992). The Consumer Emergency Care Satisfaction Scale (CECS) was used in two studies in its original form (Davis & Duffy, 1999; Elder et al.2004) whereas Chan and Chau (2005) used a Chinese translated version of this scale. Some studies modified previously developed questionnaires for their own study and two studies (Barr et al., 2000; Mabrook & Dale, 1998) did not provide any information about the type of questionnaire.

Patient Satisfaction with Services provided by Nurses

Figure 2 provides an overview of factors identified in the included studies that affect patient satisfaction with nurse-led-triage in EDs. Patient satisfaction was reported to be consistently high for nurse-led-triage services (Barr et al., 2000; Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Cooper et al., 2002; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al. 2004; Goransson & Rosen, 2010; Mabrook & Dale, 1998; Rhee & Dermeyer, 1995; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004; Wilson & Shifaza, 2008). When satisfaction was compared between patients triaged by nurses and patients triaged by doctors, the satisfaction rate was similar or higher for nurses (Chang et al., 1999; Cooper et al., 2002; Rhee & Dermeyer, 1995). Patients who were seen by an NP previously reported higher satisfaction than those who had never seen an NP before (Thrasher & Purc-Stephenson, 2008). There was only one study that failed to demonstrate the benefits of nurse-led-triage (George et al., 1992).

Participants in the majority of included studies appeared to be satisfied with the nurses' ability to provide care (Bruce et al., 1998; Byrne et al., 2000; Davis & Duffy, 1999; Jennings et al., 2009; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008), and treatment (Byrne et al., 2000). Higher satisfaction was reported with nurses caring attitude, compassion, competence (Goransson & Rosen, 2010) and concern demonstrated by nurses' behaviour (Bruce et al., 1998; Chan & Chau, 2005; Davis & Duffy, 1999; Goransson & Rosen, 2010; Topacoglu et al., 2004; Wilson & Shifaza, 2008). A strong and positive relationship was reported between patient satisfaction and nurses' caring abilities (Elder et al., 2004). Patients reported higher satisfaction with the communication skills of nurses when compared to doctors (Byrne et al., 2000; Wilson & Shifaza, 2008). Participants in the included studies felt that the nurses were easier to talk to (Byrne et al., 2000) and that they felt less worried about their health condition after speaking to a nurse (Byrne et al., 2000; Jennings et al., 2009).

Studies also reported, that the nurses' ability to give advice to patients (Bruce et al., 1998; Byrne et al., 2000; Mabrook & Dale, 1998) and explain information-related to their health condition/ injury, treatment, discharge and follow up care in an understandable language (Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Davis & Duffy, 1999; Wilson & Shifaza, 2008) are important factors affecting patient satisfaction. Other reported factors include the nurses' listening skills (Chan & Chau, 2005; Davis & Duffy, 1999; Goransson & Rosen, 2010), the nurses' ability to provide patients with an opportunity to ask questions (Chan & Chau, 2005; Davis & Duffy, 1999) and taking time to meet the needs of the patients (Byrne et al., 2000; Chan & Chau, 2005; Davis & Duffy, 1999; Jennings et al., 2009; Thrasher & Purc-Stephenson, 2008). Patients triaged by nurses were more likely to receive written instructions about their home care and what to watch for to take home (Byrne et al., 2000).

Impact of Waiting Time on Patient Satisfaction

Waiting time appear to be another significant factor that affects patient satisfaction with overall care provided in ED and with nurse-led-triage services. Among the 18 included studies, five reported waiting time related to nurse-led-triage in ED (Barr et al., 2000; Chang et al., 1999; Cooper et al., 2002; Dinh, Walker et al., 2012; George et al., 1992). Among these, three studies reported lower waiting time for patients seen by ED nurses when compared to doctors. For instance, Barr (2000) reported a mean waiting time to be seen by an NP as 22 minutes, whereas mean waiting time to be seen by a doctor in the same study was 86 minutes. Similarly, Cooper (2002) reported that patients seen by ENP on average waited 22.5 minutes less than those seen by a doctor. Only one study reported no significant difference in waiting time between patients seen by NP and doctor (Chang et al., 1999). In another study waiting time for triage group patients was reported to be ten minutes longer than non-triage group.

Intent to be seen by the Same Practitioner again

Intent to be seen by the same professional again, as a proxy of patient satisfaction, was explored in eight studies (Barr et al., 2000; Byrne et al., 2000; Chang et al., 1999; Elder, et al., 2004; Mabrook & Dale, 1998; Moser et al., 2004; Thrasher & Purc-Stephenson, 2008). The majority of the participants shared a willingness to be seen by the same professional again. Patients who were satisfied with the nurse's caring behaviour were more likely to show an intent to see the same professional again (Elder et al., 2004).

Discussion

The findings of the review clearly highlight that the issue of nurse-led-triage has attracted researchers' attention in the past 20 years. Findings suggest that there is wide variation in the terms used to define the role of nurses involved in triage services, depending on the geographical location of the ED. For instance, in the UK (Byrne, 2000; Cooper, 2002; Dinh, 2012) and Australia (Jennings et al., 2009, Jennings et al., 2008) nurses involved in triage services include triage nurses and ENPs. Nurses providing the same service in USA and Canada are known as ANPs or NPs (Barr et al., 2000; Chang et al. 1999; Mabrook & Dale, 1998; Moser et al., 2004; Rhee & Dermeyer, 1995; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008). In some other countries, nurses performing the same role are identified as triage nurses (Chan & Chau, 2005). It is worth exploring variations in the role across institutions, systems and countries in an attempt to provide a practical and useful definition and description of the role and scope of practice. Such an attempt will not only make the concept of nurse-led-triage clear, but will also improve the ability of practitioners to work in the same or similar roles in other institutions and countries.

The findings of the present review also highlight that most of the studies conducted on this topic are quantitative. There was only one qualitative study (Moller, 2010) that we could

find after a thorough and careful search of the available literature. Although, using quantitative methods is useful in examining patient satisfaction, it is very important to develop appropriate questions and statements that actually examine issues most important for a patient from their perspective. Such an instrument can only be developed by exploring patients' subjective experiences and perspectives through qualitative methods. It is important, therefore, to explore the perceptions of patients and other stakeholders such as nurses themselves and other health care professionals' about the role and scope of practice through qualitative approaches. The majority of the studies used a cross sectional (Barr et al., 2000; George et al., 1992; Goransson & Rosen, 2010; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004) or descriptive (Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al.2004; Jennings et al., 2009; Mabrook & Dale, 1998) design. Though descriptive studies provide an important insight into phenomena of interest, such studies only provide a snapshot view of the issue and may not be very efficient in determining effectiveness of a service. It would be useful to conduct further robust studies using longitudinal and exploratory approaches. It may also be worth conducting multicentre studies. Findings also highlight that the number of studies that compare patient satisfaction with nurse-led-triage and doctor led triage services is minimal (Chang et al., 1999; Cooper et al., 2002; Dinh et al., 2012a). Comparing patient satisfaction in such groups through rigorous trials would be useful.

The review also identified other issues relating to the quality of the studies such as use of convenience sample (Bruce et al., 1998; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al.2004; George et al., 1992; Goransson & Rosen, 2010; Jennings et al., 2009; Mabrook & Dale, 1998; Moser et al., 2004; Rhee & Dermyer, 1995; Thrasher & Purc-Stephenson, 2008; Wilson & Shifaza, 2008) or no mention of a sampling strategy (Barr et al., 2000; Byrne et al., 2000; Topacoglu et al., 2004). Samples in the included studies consisted of patients or person accompanying the patient (in case of a child or someone with limited capacity to consent). It

is important to remember that the meaning of satisfaction for the patient or person accompanying the patient may be very different. The satisfaction of the person accompanying the patient may be more strongly associated with the perceived waiting time, communication with ED staff and access to the patient (Taylor & Bengner, 2004). It is, therefore, important to identify the status/ role of respondents (whether patient or person accompanying the patient) in order to understand the differences amongst the survey results (Trout, 2000). The fact that studies exploring the topic have been conducted in various countries clearly suggests that nurse-led-triage services are likely to have value in the future and in other countries where such practice does not exist or is in its infancy.

Findings Related to Data Collection and Data Collection Instruments

The review revealed that the data in the majority of the studies were collected through self-reported questionnaire and there could be a risk of recall bias depending on when the questionnaire is administered. It is also important to note variations in the design of Likert-based statements and the content of the questionnaires. The questionnaires used in the included studies contained three- to five-point Likert-based statements (Bruce et al., 1998; Chan & Chau, 2005; Chang et al.1999; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al., 2004; Jennings et al., 2009; Rhee & Dermeyer, 1995; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004; Wilson & Shifaza, 2008). Some studies used instruments containing questions requiring short answers. Some authors developed study-specific questionnaires and others used previously developed questionnaires. Only a few studies, however, provided information about the reliability and validity of the questionnaires (Chan, 2005; Elder, 2004; Byrne, 2000; Davis, 1999). It may be more appropriate to develop a standard, reliable and valid questionnaire that can be translated into other languages to determine patient satisfaction with nurse-led-triage services in various settings and countries. It is also important that the questionnaires contain a limited number of questions to ensure participants do suffer from respondent fatigue while completing questionnaires.

The findings of the review suggest that various factors affect patient satisfaction with nurse-led-triage. These include the nurse's caring abilities, ability to show a concern for the patient and accompanied person, competence in diagnosing the problem and dealing with it effectively, communication skills, listening skills, attentiveness, and availability/ visibility (Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Davis & Duffy, 1999; Goransson & Rosen, 2010; Jennings et al., 2009; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004; Wilson & Shifaza, 2008). Other factors affecting include provision of condition/ injury and other health related information in jargon free language, ability to answer patients' questions, ability to provide patients and accompanied persons with an opportunity to ask questions; provision of information related to discharge and follow up care, timely response and pleasant and friendly attitude (Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Davis & Duffy, 1999; Goransson & Rosen, 2010; Jennings et al., 2009; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004; Wilson & Shifaza, 2008). These findings are consistent with previous research on the same issue (Carter, 2007). Reviews suggested that patient satisfaction with the services provided by ED nurses was high (Barr et al., 2000; Bruce et al., 1998; Byrne et al., 2000; Chan & Chau, 2005; Cooper et al., 2002; Davis & Duffy, 1999; Dinh et al., 2012a; Elder et al. 2004; Goransson & Rosen, 2010; Mabrook & Dale, 1998; Rhee & Dermyer, 1995; Thrasher & Purc-Stephenson, 2008; Topacoglu et al., 2004; Wilson & Shifaza, 2008). When satisfaction was compared between patients triaged by nurses and those triaged by doctors, the satisfaction rate was similar or higher for nurses (Chang et al. 1999; Cooper et al., 2002; Rhee & Dermyer, 1995). Participants in the included studies felt that the nurses were easier to talk to (Byrne et al., 2000) and that patients felt less worried about their health condition after speaking to a nurse (Byrne et al., 2000; Jennings et al., 2009). These are important findings and it is essential that nurses understand the importance of these qualities and continue to demonstrate these in their practice.

The review suggest that waiting time was relatively and consistently lower for nurse-led-triage than doctor led triage (Barr et al., 2000; Cooper et al., 2002; Trout et al., 2000). Consistent with previous studies (Taylor & Bengner, 2004; Lee & Jennings, 2006; Jennings et al., 20008) waiting time is considered to be an important determinant of patient satisfaction (Carter & Chochinow, 2007; Trout et al., 2000) and therefore, it is important the nurses providing triage services in ED should continue to provide their service in a timely and efficient manner. The patients in various studies shared a willingness to be seen by the same professional in future (Barr et al., 2000; Byrne et al., 2000; Change et al., 1999; Elder, Neal, Davis et al., 2004; Mabrook & Dale, 1998; Moser et al., 2004; Thrasher & Purc-Stephenson, 2008). This finding reflects an acceptance of nurse-led –triage.

Conclusion

Nurses involved in nurse-led-triage play an important role in the provision of care to the patients with urgent and non-urgent health problems. Patient satisfaction with the services provided by the practitioners plays an important role in the development of services. In relation to nurse-led-triage services, many factors such as patients' perceptions of nurses' communication, caring, skills, abilities to demonstrate concern for patients, ability to assess, diagnose and treat the patients in a timely, effective and friendly manner and ability to provide relevant discharge, follow-up, health education and preventive information to their patients affect patient satisfaction. The findings of the current review highlight that there is a scope for the further development of nurse-led-triage services. As demographic and cultural factors may affect patients' perceptions and expectations of the triage service by nurses, it may be appropriate to explore such factors in different health care systems in different countries. Further studies to explore the economic effectiveness of such services need to be conducted before considering further development and implementation of the role.

References

- Ajani, K. (2012). Triage; A literature review of key concepts. *Journal of Pakistan Medical Association*, 62, 487-489.
- Andersson, A.-K., Omberg, M., & Svedlund, M. (2006). Triage in the emergency department – a qualitative study of the factors which nurses consider when making decisions. *Nursing in Critical Care*, 11, 136-145.
- Barr, M., Johnston, D., & McConnell, D. (2000). Patient satisfaction with a new nurse practitioner service. *Accident & Emergency Nursing*, 8, 144-147.
- Bruce, T. A., Bowman, J. M., & Brown, S. T. (1998). Factors that Influence Patient Satisfaction in the Emergency Department. *Journal of Nursing Care Quality*, 13(2), 31-37.
- Bursch, B., Beezy, J., & Shaw, R. (1993). Emergency department satisfaction: What matters most? *Annals of Emergency Medicine*, 22, 586-591.
- Byrne, G., Richardson, M., Brunson, J., & Patel, A. (2000). Patient satisfaction with emergency nurse practitioners in A & E. *Journal of Clinical Nursing*, 9, 83-93.
- Carter, A. J. E., & Chochinow, A. H. (2007). A systematic review of the impact of nurse practitioners on cost, quality of care, satisfaction and wait times in the emergency department. *Canadian Journal of Emergency Medicine*, 9, 286-295.
- Chan, J. N. H., & Chau, J. (2005). Patient satisfaction with triage nursing care in Hong Kong. *Journal of Advanced Nursing*, 50, 498-507.
- Chang, E., Daly, J., Hawkins, A., McGirr, J., Fielding, K., Hemmings, L., Dennis, M. (1999). An evaluation of the nurse practitioner role in a major rural emergency department. *Journal of Advanced Nursing*, 30, 260-268.
- Choi, Y. F., Wong, T. W., & Lau, C. C. (2006). Triage rapid initial assessment by doctor (TRIAD) improves waiting time and processing time of the emergency department. *Emergency Medicine Journal*, 23, 262-265. doi: 10.1136/emj.2005.025254
- Cooper, M. A., Lindsay, G. M., Kinn, S., & Swann, I. J. (2002). Evaluating Emergency Nurse Practitioner services: A randomized controlled trial. *Journal of Advanced Nursing*, 40, 721-730.
- Davis, B. A., & Duffy, E. (1999). Patient Satisfaction With Nursing Care In a Rural And An Urban Emergency Department. *Australian Journal of Rural Health*, 7, 97-103.
- Dinh, M., Walker, A., Parameswaran, A., & Enright, N. (2012a). Evaluating the quality of care delivered by an emergency department fast track unit with both nurse practitioners and doctors. *Australian Emergency Nursing Journal*, 15, 188-194.
- Dinh, M. M., Enright, N., Walker, A., Parameswaran, A., & Chu, M. (2012b). Determinants of patient satisfaction in an Australian emergency department fast-track setting. *Emergency Medicine Journal*. doi: 10.1136/emered-2012-201711

- Elder, R., Neal, C., Davis, B. A., Almes, E., & Littlepage, N. (2004). Patient Satisfaction Triage Nursing In a Rural Hospital Emergency Department. *Journal of Nursing Care Quality*, 19, 263-268.
- FitzGerald, G., Jelinek, G. A., Scott, D., & Gerdtz, M. F. (2010). Emergency department triage revisited. *Emergency Medicine Journal*, 27,, 86-92. doi: 10.1136/emj.2009.077081
- Ganley, L., & Gloster, A. S. (2011). An overview of triage in the emergency department. *Nursing Standard*, 26(12), 49-56.
- George, S., Read, S., Westlake, L., Williams, B., Fraser-Moodie, A., & Pritty, P. (1992). Evaluation of nurse triage in a British accident and emergency department. *BMJ*, 34, 876-878.
- Goransson, K. E., & Rosen, A. V. (2010). Patient Experience Of The Triage Encounter In a Swedish Emergency Department. *International Emergency Nursing*, 18, 36-40.
- Higgins, J. P. T., & Green, S. (2011). *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0*. Retrieved July 2015, from The Cochrane Collaboration www.cochrane-handbook.org.
- Jennings, N., Lee, G., Chao, K., & Keating, S. (2009). A survey of patient satisfaction in a metropolitan Emergency department: Comparing nurse practitioners and emergency physician. *International Journal of Nursing Studies*, 15, 213-218
- Jennings, N., O'Reilly, G., Lee, G., Cameron, P., Free, B. and Bailey, M. (2008), Evaluating outcomes of the emergency nurse practitioner role in a major urban emergency department, Melbourne, Australia. *Journal of Clinical Nursing*, 17: 1044–1050. doi: 10.1111/j.1365-2702.2007.02038.x
- Lee, G. A., & Jennings, N. (2006). A comparative study of patients who did not wait for treatment and those treated by Emergency Nurse Practitioners. *Australasian Emergency Nursing Journal*, 9(4), 179-185.
- Lewis, K. E., & Woodside, R. E. (1992). Patients satisfaction with care in the emergency department. *Journal of Advanced Nursing*, 17, 959-964.
- Mabrook, A. F., & Dale, B. (1998). Can nurse practitioners offer a quality service? An evaluation of a year's work of a nurse led minor injury unit. *Journal of Accident & Emergency Medicine*, 15, 266-268.
- Moller, M., Fridlund, B., & Goransson, K. (2010). Patients' conceptions of the triage encounter at the Emergency Department. *Scandinavian Journal of Caring Sciences*, 24, 746-754.
- Moser, M. S., Abu-Laban, R., & Beek, C. A. V. (2004). Attitude Of Emergency Department Patients With Minor Problems to Being Treated by a Nurse Practitioner. *CJEM-JCMU*, 6(4), 246-252.

- Qureshi, N. (2010). Triage Systems: A Review of the Literature with Reference to Saudi Arabia. *Eastern Mediterranean Health Journal*, 16, , 690-698.
- Raper, J., Davis, B. A., & Scott, L. (1999). Patient Satisfaction with Emergency Department Triage Nursing Care: A Multicentre Study. *Journal of Nursing Care Quality*, 13(6), 11-24.
- Raper, J. L. (1996). A cognitive approach to patient satisfaction with emergency department nursing care. *Journal of Nursing Care Quality*, 10(4), 48-58.
- Rhee, K. J., & Dermeyer, A. L. (1995). Patient satisfaction with nurse practitioner in a University Emergency Service. *Annals of Emergency Medicine*, 26(2), 130-132.
- Risser, N. L. (1975). Development of an instrument to measure patient satisfaction with nurses and nursing care in primary care settings. *Nursing research*, 24, 45-52.
- Sandhu, H., Dale, J., Stallard, N., Crouch, R., & Glucksman, E. (2009). Emergency nurse practitioners and doctors consulting with patients in an emergency department: a comparison of communication skills and satisfaction. *Emergency Medicine Journal*, 26, 400-404. doi: 10.1136/emj.2008.058917
- Siddqui, E. (2012). Emergency Triage: Extend of our knowledge. *Journal of Pakistan Medical Association*, 62, 839-842.
- Taylor, C., Bengner, J.R. (2004). Patient satisfaction in emergency medicine. *Emerg Med J*, 21:528-532. doi: 10.1136/emj.2002.003723
- Thrasher, C., & Purc-Stephenson, R. (2008). Patient satisfaction with nurse practitioner care in emergency departments in Canada. *Journal of the American Academy of Nurse Practitioners*, 20(5), 231-237.
- Topacoglu, H., Karcioglu, O., Ozsarac, N., Degerli, V., Sarikaya, S., H.Cimrin, A., & Soysal, S. (2004). Analysis Of Factors Affecting Satisfaction In The Emergency Department A Survey Of 1019 Patient Advances In Therapy, 21, 380-388.
- Trout, A., Magnusson, A. R., & Hedges, J. R. (2000). Patients satisfaction investigation and the Emergency Department: What does the literature say? *Academic Emergency Medicine*, 7, 695-709.
- Ware, J., & Hays, R. (1988). Methods for measuring patient satisfaction with specific medical encounters. *Med Care*, 26, 393-402.
- Wilson, A., & Shifaza, F. (2008). An Evaluation of Effectiveness and Acceptability of Nurse Practitioner In an Adult Emergency Department. *International Journal of Nursing Practice*, 14, 149-156.

Figure 1: Literature Search Flow chart

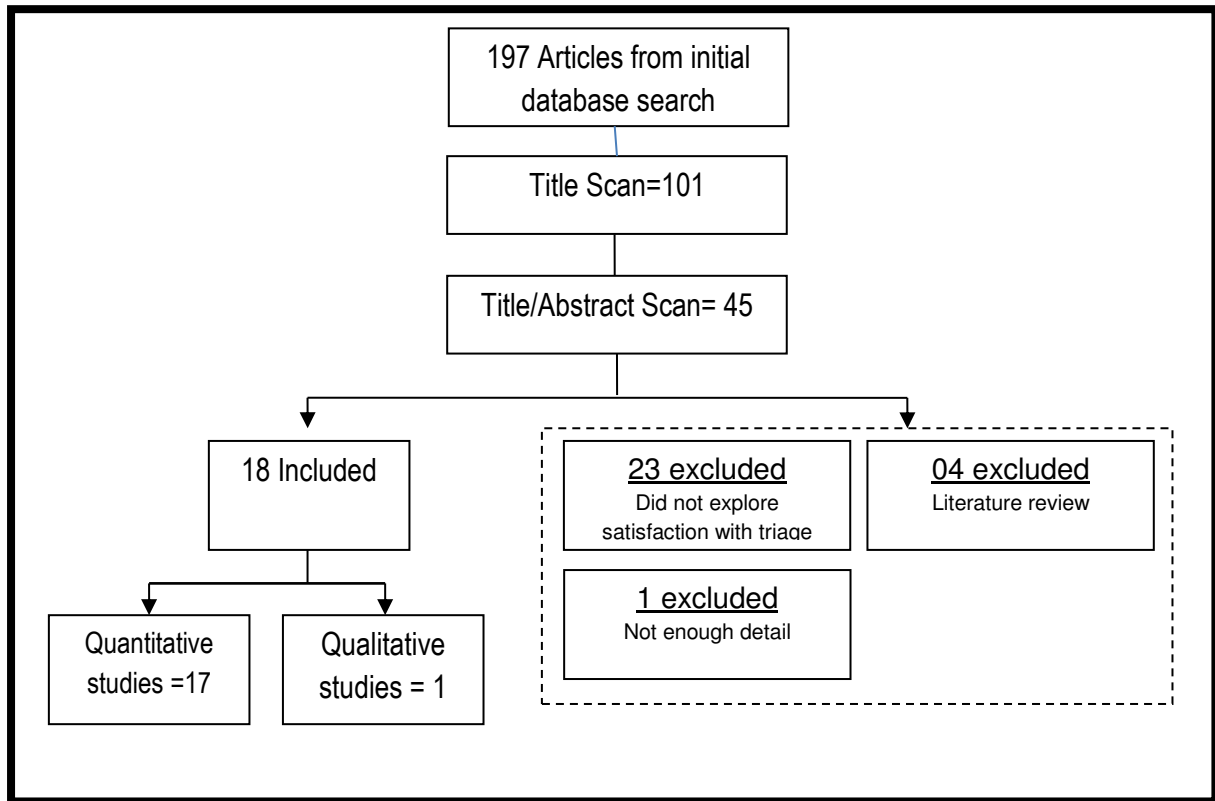


Figure 2: Summary of the factors affecting patient satisfaction with nurse-led-triage services in ED

<ul style="list-style-type: none"> • Caring abilities • Concern for the patient / person accompanying the patient • Competence in diagnosing the problem and dealing with it effectively • Communication skills <ul style="list-style-type: none"> ○ Listening skills ○ Attentiveness • Timely response • Pleasant and friendly attitude • Availability/ visibility • Provision of condition/ injury/ health related information in simple language <ul style="list-style-type: none"> ○ Ability to answer questions ○ Providing patient/ accompanying person an opportunity to ask questions ○ Provision of information related to discharge and follow up care

Table 1: Table 1: PICO Question Development Framework

PICO	Definitions
Population	A Patient or person accompanying the patient- (in case of a minor or a person with compromised ability) attending ED
Intervention	Triage services provided by nurses in ED. The nurse may be a NP, ANP, ENP. We will call any of these nurse roles ED nurses
Comparison	Triage by a doctor OR no comparison group
Outcome	Patient or accompanied person's Satisfaction with the nurse-led-triage

Table 2. Characteristics of included studies

No	Author	Country	Design	Population	Sample	Sampling	Age	Gender	
								Male	Female
1	George et al (1992)	UK	Retrospective Survey	Patients attending ED between 8am and 9 pm over 6 weeks	707 (324-triage group; 365- non triage group)	Convenience	Not enough information	Not enough information	
2	Rhee & Dermeyer (1995)	USA	Case control	Patient/ or accompanied person (for children/ incompetent adult)	60 (30 cases; 30 controls)	Convenience	-	-	
3	Bruce et al., (1998)	USA	Descriptive Correlational	Every third patient registered during eight predetermined day ,evening & night shifts	28	Convenience	19- 78yrs Mean= 43.6 yrs	11	16
4	Mabrrok & Dale (1998)	UK	Descriptive	Patient assessed by ENP	269	Random	-	-	
5	Chang et al., (1999)	Australia	RCT	Patients presenting with blunt limb trauma, or open wound to scalp, lower leg or forearm to the nurse practitioner in ED	132 (71 treated by doctor; 61 treated by NP)	Convenience	10-77 yrs Mean= 28 yrs	105	64
6	Davis & Duffy (1999)	Australia	Descriptive	Rural and urban emergency patients	103	-	18 – 91 yrs Mean = 47.8 yrs	54	46
7	Barr et al., (2000)	UK	Survey	Patients seen by NP	241	-	-	-	
8	Byrne, et al., (2000)	UK	Descriptive-Correlational	Patients triaged by ENPs or Doctors	181	Random	-	-	
9	Cooper et al., (2002)	UK	RCT	Patients randomized to ENP led care vs House officer led care	204 (102-SHO led care; 102 ENP led care)	Convenience	Mean = 36.3 yrs	115	89
10	Elder et al., (2004)	USA	Descriptive Correlational	Nurses; Patients	76 (11-NPs; 65-Patients)	-	Not enough information	Not enough information	

11	Topacoglu et al., (2004)	Turkey	Cross-sectional	Patients	1019	Convenience	18-91 yrs Mean = 43.1 yrs	419	600
12	Moser et al., (2004)	Canada	Prospective Descriptive	Patients	246	Convenience	16-91 yrs Mean= 34.5 yrs	119	88
13	Chan & Chau (2005)	Hong Kong	Descriptive-Correlational	Patients	56	Random	18- >69 yrs	26	30
14	Wilson & Shifaza (2008)	Australia	Exploratory	Patients with minor injuries who were seen by the NPs	57	Convenience	16-101 yrs Mean= 38 yrs	54	46
15	Thrasher & Purc-Stephenson (2008)	Canada	Cross Sectional	Patient who received care from NPs	113	Convenience	13- 84 yrs (n=83) Mean = 43.23 yrs 3 months- 12 yrs (n= 30) Mean = 5.25 yrs	54	60
16	Jennings et al., (2009)	Australia	Descriptive	Patients seen by ENP or ED Doctors	103	Convenience	Mean = 35.3 yrs	-	
17	Goransson et al., (2010)	Sweden	Descriptive, observational cross-sectional	Patients	146	Convenience	19- 97 yrs Median = 49.5 years	63	83
18	Dinh, Walker et al., (2012)	Australia	Observational/descriptive	Patients seen by ENP or ED Doctors	320 (155-triaged by Doctor; 165-triaged by ENP)	Convenience	16 – 70 yrs Median = 33	146	90

