

Why you should read this article:

- To learn about the decision-making practices and training needs of UK triage nurses
- To understand why national standards are required to enhance triage practice in emergency departments (EDs)
- To consider the need for safer staffing levels and greater support for nurses' welfare in EDs

Understanding the demographics, training experiences and decision-making practices of UK triage nurses

Hugh Gorick, Marie McGee and Toby Smith

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Correspondence

h.gorick@uea.ac.uk
[X@hughgorick](https://twitter.com/hughgorick)

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Abstract

Background: International research suggests that triage nurses' decision-making practices and training experiences vary significantly across emergency departments (EDs). However, there does not appear to be similar research published in the UK. Understanding factors, such as demographics, training and decision-making could provide a picture of triage nurses working in UK EDs, identify the interventions required to improve practice and inform further research.

Aim: To explore the demographics, training experiences and decision-making practices of registered nurses who assess patient acuity at triage in UK EDs.

Method: The study used an online, descriptive, cross-sectional survey design.

Results: A total of 51 triage nurses from across the UK responded to the survey. Most (61) had achieved a bachelor's degree as their highest qualification, while 3 had postgraduate qualifications. Respondents had a median of seven years since qualifying, six years working in their current ED and five years working in triage and used a range of titles to describe their role. Low staffing and busy ED environments increased respondents' stress levels, which affected confidence in triage decision-making abilities among less experienced nurses. More experienced respondents coped with their stress by relying on their knowledge and skills. Not all respondents had received triage training, and for those that had, the training varied in type and frequency across EDs. Overall, respondents had low satisfaction with the amount, quality and content of the training they had received.

Conclusion: There is a need for safer staffing levels in EDs and greater support for staff welfare. The development of national standards, incorporating defined knowledge and skills and set time periods for refresher training, is required to enhance triage practice in EDs.

Author details

Hugh Gorick, postgraduate researcher, School of Health Sciences, University of East Anglia, Norwich, England; Marie McGee, lecturer, University of East Anglia, Norwich, England; Toby Smith, professor, University of East Anglia, Norwich, England

Keywords

decision-making, education, emergency care, patients, patient assessment, professional, professional issues, training, triage

Background

In the UK, people who attend emergency departments (EDs) are initially streamed to relevant areas, whether to the main ED,

clinical decision unit, rapid assessment and triage area, or elsewhere within health services (Royal College of Emergency Medicine (RCEM) 2017). Patients who present to the ED

should be assessed, based on their presenting complaint and acuity, within 15 minutes of arrival by a registered healthcare professional who has received appropriate training (RCEM 2017, NHS England 2022).

The international literature suggests that nurses' application of triage, and triage training opportunities, vary significantly across different hospitals and that there is a lack of standardised triage training (Varndell et al 2019, Wireklint et al 2021). At the time of writing, there was no published research of the triage decision-making practices of UK ED nurses, and no data were available on the exact numbers of triage nurses working in the UK, their qualifications or training experiences. Understanding such factors could provide a picture of triage nurses working in UK EDs, identify the interventions required to improve patient triage times and triage accuracy and inform further research.

The first author (HG) and colleagues undertook a systematic review that explored triage assessment of patient acuity by emergency nurses (Gorick et al 2023). The review identified three themes related to how triage nurses assess adult patient acuity:

1. Holistic reasoning.
2. Situational awareness.
3. Informed decision-making.

This article reports the results of the subsequent study, which the first author undertook as part of their PhD, with the second and third authors (MM, TS) as supervisors.

Aim

To explore the demographics, training experiences and decision-making practices of registered nurses who assess patient acuity at triage in UK EDs.

Method

The study used an online descriptive cross-sectional survey design.

Recruitment

The study sample comprised registered nurses who undertake face-to-face triage of adults as part of their role in UK EDs. Recruitment involved a convenience sampling approach via advertising on social media platforms (X, formerly Twitter, FaceBook, ResearchGate), online nursing forums (Royal College of Nursing emergency care forums) and the first author's professional networks. As this was an exploratory study with few available statistics on numbers of UK triage nurses,

a target sample size of 20-150 was set based on Daniel's (2011) guidance on sampling choices. The only benchmark identified by the authors was in a survey of Australian triage nurses by Varndell et al (2019) with a sample size of 33.

Data collection

The authors developed an online survey comprising four sections:

1. Demographics.
2. An adapted version of the validated triage decision-making inventory (TDMI) (Smith and Cone 2010, Smith 2012).
3. Quantitative questions on levels of triage training, satisfaction rating with the training received and free text space to describe desired training.
4. A vignette which described a situation that represented the extremes of triage practice accompanied by open-ended qualitative questions.

The adapted version of the TDMI consisted of 20 statements organised under four subscales – cognitive characteristics, critical thinking, experience and intuition – with each subscale containing five statements. Respondents scored each statement on a five-point Likert-type scale, ranging from 'strongly agree' to 'strongly disagree'.

The quantitative questions on training, the vignette and its associated qualitative questions were developed by the authors based on findings from Gorick et al's (2023) systematic review. Respondents were asked to rate their satisfaction with the amount, quality and content of triage training provided in their department on a 5-point scale ranging from 'very satisfied' to 'very dissatisfied'. Face and content validity of the quantitative questions on training and the qualitative vignette questions was established via review by two senior researchers from the University of East Anglia and four senior medical staff from a large teaching hospital in the East of England; these questions were also pilot tested with ten nurses working in emergency areas at the teaching hospital, who were representative of the target population.

Data collection ran from 1 June 2023 to 31 July 2023. Respondents accessed the survey via a link embedded in the social media posts or in the online forums or in the email sent to the first author's professional networks.

Data analysis

Data from the demographics, TDMI and quantitative questions on training were

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Implications for practice

- In busy triage environments nurses take decisive actions to manage environmental risks and patient safety. However, it is vital that such actions do not involve delaying patient handover by ambulance crews when space is available or reliance on non-clinical staff for patient observation and/or assessment
- Respondents perceived the amount of training they receive as insufficient. Therefore, triage nurses should proactively identify and access training, for example through their organisations, local education facilities or credible online sources
- Triage nurses need to be aware of their own and their colleagues' stress levels and try to find ways of managing these. This should be supported by managers who should ensure staff have access to appropriate support systems
- Triage areas must be staffed appropriately with adequate and appropriate spaces for safe and effective patient assessment and observation. This may be supported by legislation on safe nurse-to-patient ratios
- A national standard for triage nurses, incorporating defined knowledge and skills, and set time periods for refresher training, should be established to enhance triage practice and processes
- Further investigation of triage nurses' use of clinical judgement compared with their use of triage algorithms is required

analysed using the Statistical Package for the Social Sciences v28.0.1.1, using both univariate and bivariate descriptive statistics to establish a quantitative perspective of respondents' decision-making practices. Distribution was assessed using the Shapiro-Wilks test.

Responses to the qualitative vignette questions were analysed using latent content analysis with inductive coding based on Bengtsson's (2016) framework. Codes were established by all three authors inductively coding independently, being blinded to each other's decisions, then comparing results, discussing potential themes and agreeing the final themes.

Ethics

Ethical approval was granted by the University of East Anglia Faculty of Medicine and Health Sciences ethics committee (ETH2223-1877, granted 24 May 2023). Informed consent was gained by participants digitally signing a form positioned at the start of the survey. To ensure participants' anonymity, no identifying information was captured. All data were securely stored on a university computer, with access only available to the authors. Respondent information sheets, consent forms, survey questions and the vignette are available from the first author.

Results

Demographics

The survey was completed by 51 respondents, with a median age of 32 years (interquartile range (IQR) 13). Respondents had a median of seven years since qualifying (IQR 14), a median of six years working in their current ED (IQR 6) and a median of five years working in triage (IQR 7). The respondents used various job titles to describe their role: 19 (37%) used 'registered nurse' or variations; 23 (45%) used variations of sister or charge nurse at deputy and senior level; two (4%) were in educator roles; two (4%) were in managerial roles (matron and head of nursing emergency care); and five (10%) were advanced care practitioners. Respondents' demographics are presented in Table 1.

Triage decision-making inventory

Most respondents strongly agreed or agreed with the statements under each subscale (Figure 1), which suggests they had a high self-reported level of triage proficiency.

All statements within each subscale were positively moderately to strongly correlated with each other, with $r(51)$ values of

.47-.82 ($P < 0.001$). However, there was an overall low to no correlation ($r = -.2-.26$) and no $P < 0.05$ between demographics related to experience and the TDMI subscales, and only a positive weak significant correlation ($r(50) = .29$, $P = 0.041$) between Agenda for Change banding and the experience TDMI subscale.

For the statement 'I feel comfortable making acuity decisions,' there was a strong positive correlation with number of years since qualifying ($r(51) = .57$, $P < 0.01$), number of years working in the ED ($r(51) = .48$, $P < 0.01$) and number of years working in triage ($r(51) = .52$, $P < 0.01$), suggesting that respondents' confidence in their triage is linked to experience.

Table 1. Respondents' demographics (n=51)

Variables	n (%)
Gender	
» Female	44 (86)
» Male	6 (12)
» Not reported	1 (2)
Location	
» London	6 (12)
» North East England	3 (6)
» North West England	3 (6)
» Yorkshire	5 (10)
» East Midlands	3 (6)
» West Midlands	1 (2)
» South East England	3 (6)
» East of England	14 (27)
» South West England	5 (10)
» Wales	3 (6)
» Northern Ireland	2 (4)
» Scotland	3 (6)
Highest qualification	
» Diploma	5 (10)
» Bachelor's	31 (61)
» Postgraduate	6 (12)
» Master's	9 (18)
Where was this qualification gained?	
» UK	48 (94)
» Abroad	3 (6)
NHS or agency?	
» NHS exclusively	49 (96)
» Agency exclusively	0 (0)
» Both	2 (4)
Agenda for Change banding	
» 5	19 (37)
» 6	19 (37)
» 7	7 (14)
» 8a	5 (10)
» Not reported	1 (2)

Training

Respondents' answers to the questions on triage training are shown in Table 2. Of the 39 (76%) respondents who had received training in the past, only ten (26%) had received this training within the last year; 13 (33%) did not feel that this training had prepared them for triage. A total of 31 (61%) respondents said their department delivered training, however the frequency varied and none of the departments provided weekly training.

Of the 14 East of England respondents, eight (57%) had never received triage training compared with four (11%) of the 37 respondents from other areas. Eight (57%) of the 14 respondents from the East of England reported that their department did not provide triage training, compared with ten (27%) of the 37 respondents from other areas.

Respondents' satisfaction with the training provided is shown in Figure 2. Thirty-six (71%) respondents commented in the desired training section; comments included 'specific presentations', 'assessment techniques', 'information about the systems supporting triage', 'just more training'. Seven (19%) of these 36 respondents stated they did not want more training.

Vignette

Four themes were generated through analysis of the respondents' answers to the questions that accompanied the vignette:

1. Triageing the situation.
2. Stress, control and assimilation.
3. Maintaining safety through decisive actions.
4. Prioritising the sickest.

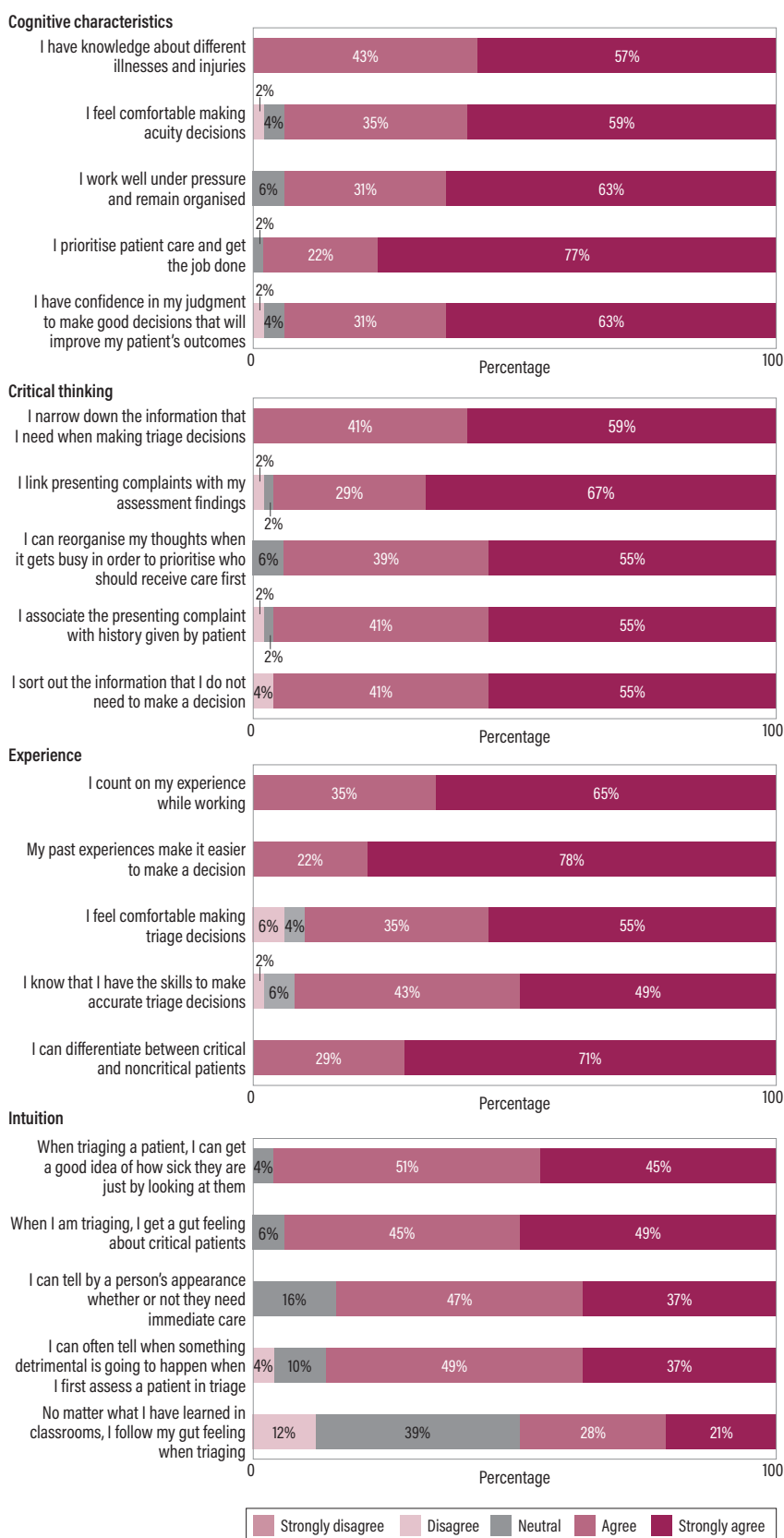
This section provides a commentary on respondents' answers and includes quotes to illustrate the themes.

Triageing the situation

Respondents, particularly those with advanced qualifications and triage training, gained a comprehensive overview of the triage area by assessing the department's overall patient acuity, identifying potential risks and initiating triage promptly. The respondents engaged in a dual triage process, using rapid visual assessment to categorise patients as urgent and non-urgent quickly followed by a more in-depth assessment:

'Do a quick assessment of all the patients to see who the most sick are and then start to properly triage them.' (Respondent 34, 30 years' experience)

Figure 1. Respondents' scoring for triage decision-making inventory subscales (n=51)



The ability to identify high-risk patients during a rapid visual assessment highlights the risk assessment aspect of triage nurses' roles. By providing quick yet insightful 'snapshots' of patient acuity, nurses can ensure efficient functioning of the department, align resources with the immediate needs of patients and ensure that critically unwell patients receive prompt attention. Respondents' awareness of potential risks was apparent in their ability to anticipate and prepare for unforeseen challenges within the triage environment, while their heightened awareness of the dynamic, unpredictable and volatile nature of the ED

was a central factor in their approach to risk assessment:

'Always make sure that the arrest trolley is fully prepared for an emergency as we never know how patients arrive at the front door.' (Respondent 5, 29 years' experience)

By identifying potential risks, nurses not only display preparedness, but also contribute to controlled and secure environments within EDs, which is essential to facilitate effective triage.

Stress, control and assimilation

Respondents' responses to the vignette revealed a pervasive sense of anxiety. Their anxiety regarding their decision-making was associated with the overwhelming number of patients who required triage, combined with concerns about patient safety and their own assessment capabilities. Some respondents concealed a sense of unease beneath a facade of control, with one illustrating the contrast as 'like a swan – calm on the surface but inside I'm feeling a little stressed' (Respondent 9, 18 years' experience).

The normalisation of high-pressure situations emerged in many respondents' answers. Some perceived intense demand as an integral component of their routine workload. One emphasised triage nurses' capacity to assimilate stressors into their daily practice by stating that the vignette sounded 'like a regular shift. I would feel okay about this situation' (Respondent 10, three years' experience). This normalisation extends beyond mere coping mechanisms and represents the adaptability and fortitude ingrained in ED culture. It suggests a collective mindset that reframes high-stress situations as routine challenges to be met with resilience and proficiency. However, there were differences in responses linked to respondents' length of experience. Those with more years' experience of working in EDs and who had undertaken advanced training drew on their coping mechanisms and their confidence in their clinical skills and ability to navigate challenging environments and situations:

'Overwhelmed but confident in my assessment and prioritising ability.' (Respondent 41, 21 years' experience)

In contrast, less experienced nurses, particularly those who had not received triage training, were apprehensive about their knowledge gaps:

'It makes me so nervous. I hate triage because I don't feel like I have the knowledge yet.' (Respondent 50, one years' experience)

Table 2. Respondents' answers to questions on triage training (n=51)*

Variable (number of responses to question)	n (%)
Have you received triage training in the past? (n=51)	39 (76)
» Yes	12 (24)
» No	
What level was this training at? (n=39)	
» Beginner	32 (82)
» Advanced	13 (33)
» Refresher	5 (13)
» Other	2 (5)
How long ago was this training? (n=39)	
» Within last week	0 (0)
» Within last month	2 (5)
» Within last year	8 (21)
» Longer	28 (72)
Do you feel this training prepared you for triage? (n=39)	
» Yes	26 (67)
» No	13 (33)
Is training provided in your department? (n=51)	31 (61)
» Yes	20 (39)
» No	
What level is this training? (n=31)	
» Beginner	29 (94)
» Advanced	5 (16)
» Refresher	4 (13)
» Other	2 (6)
How often is this training? (n=31)	
» Weekly	0 (0)
» Monthly	5 (16)
» Yearly	4 (13)
» When starting triage	11 (35)
» Once	7 (23)
» Ad-hoc	4 (13)

* Not all respondents answered every question

The quotes above highlight the importance of triage nurses' experience and confidence in their own knowledge in shaping their responses to high-pressure situations.

Maintaining safety through decisive actions

Following the situational overview, the respondents engaged in decisive actions to ensure patient safety. For example, they recognised the vital role of space and flow in triage environments and processes, describing lack of space as a major risk factor and emphasising the need to quickly create suitable areas for patient assessments. This sometimes resulted in unconventional solutions, which demonstrated the triage nurses' resourcefulness:

'Are there any available rooms or can I curtain off a section to use? Are there any trolleys I can wheel-in to use?' (Respondent 33, six years' experience)

To increase available resources, respondents engaged in 'space management':

'I review the patients in the treatment rooms to see who I can move out to assess the most unwell patient.' (Respondent 36, 11 years' experience)

This dynamic process involved continually reassessing and altering the hierarchy of patient acuity based on new information and the arrival of new patients, moving patients as needed to create space. The focus on creating physical space emphasises the perceived effect of spatial consideration on the overall effectiveness of triage processes.

Having physical space to assess patients was not enough for many respondents, who requested additional staff to help manage heavy workloads. The following quote reflects the recognition that effective and safe triage depends on the availability of staff with the required expertise:

'Grab assistance from other staff members including doctors to get patients reviewed and start appropriate treatment.' (Respondent 17, five years' experience)

Respondents also drew on resources in the form of healthcare staff who may be present but not assigned to work in the ED, such as ambulance crews. One respondent commented:

'I'd want the ambulance crew to stay as it means I don't have to worry about that patient and could concentrate on the others. They might even spot if there is another problem in the waiting room.' (Respondent 35, two years' experience)

Some respondents also relied on the tacit knowledge of non-clinical staff to

notice acutely unwell patients and alert clinical colleagues:

'So, I'm making the assumption that our excellent reception staff would alert us if they were concerned about any of them.' (Respondent 18, 25 years' experience)

Prioritising the sickest

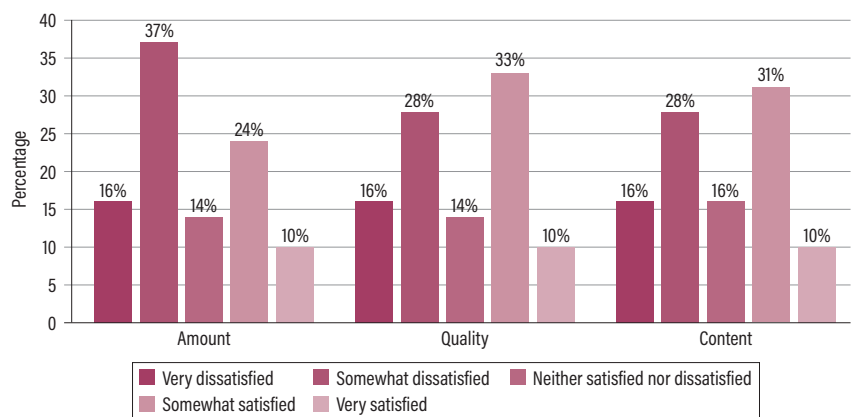
This theme related to the processes used by respondents when prioritising patients. The use of visual cues was a central component in assessing patient acuity for many respondents: *'...grab the sickest looking and go from there'* (Respondent 48, six years' experience). This visual assessment served as an initial filter, enabling swift prioritisation of patients and resource allocation, which was further refined through subsequent assessment and tests. Respondents described comprehensive approaches to this assessment which involved, for example, gaining verbal descriptions of the patient's presenting condition and history and taking objective measures such as vital signs. While respondents considered some tests such as vital signs to be important, they considered others, such as electrocardiographs (ECGs) or bloods, as valuable but not mandatory:

'I would take a brief history from each patient, a set of obs' and ECG if able, ideally a VBG [venous blood gas] to aid clinical decision making.' (Respondent 41, 23 years' experience)

Only one respondent mentioned using a triage algorithm in their patient assessments but regarded visual assessment as more important. This suggests there was a preference for their own assessment over the use of a triage algorithm among the respondents.

Clinical judgment and visual cues were cited as key components of prioritising patients, particularly those who presented with red-flag symptoms. This was evident in all of the

Figure 2. Respondents' satisfaction with their department's training (n=51)



respondents' responses when focusing on the patient detailed in the vignette, who was described as 'grey and clammy':

'We know the grey and clammy male shows signs of clinical shock, so I'd take him straight into resus...' (Respondent 18, 25 years' experience)

The quote above illustrates respondents' recognition of the urgency of a situation and the need for prompt action to ensure patient safety.

The vignette also described how the ambulance crew relayed information to the ED nurses about a patient, which elicited diverse reactions from the respondents. Some, particularly those with longer triage experience, displayed trust in their ambulance colleagues and recognised their expertise in patient assessments. One stated that the actions of the ambulance crew showed the 'clinical judgement of another healthcare professional alerting you that the patient is fine, and they can leave him' (Respondent 23, three years' experience). However, others were sceptical:

'The paramedics can wait until I've had a proper look at their patient, they often under-score patients so they can be away quicker.' (Respondent 48, six years' experience)

These contrasting responses reveal a complex relationship between triage nurses and external healthcare providers such as ambulance crews and a delicate balance between collaboration and autonomy.

Discussion

The results of this study provide information on the demographics, training experiences and decision-making practices of UK triage nurses.

Experience, stress and training

Some respondents were highly experienced, while others were relatively newly registered and may not have gained the in-depth knowledge and experience required to support safe and effective triage, as identified in Gorick et al's (2023) systematic review. However, the respondents scored highly across all four subscales of the TDMI, which is consistent with findings from previous surveys of triage nurses (Aktaş and Alemdar 2017, Ghazali et al 2020), suggesting a high self-reported level of triage proficiency.

In the TDMI, respondents had slightly lower levels of intuition compared with the other three TDMI subscales. This contrasts with findings in Aktaş and Alemdar (2017) and Soola et al (2022) where intuition was the highest scoring subscale; however, higher levels of intuition in the triage nurse

participants in these studies were associated with completion of enhanced training, which most respondents in the present study had not completed.

The vignette element of the study revealed how respondents experience and react to stress. Previous international research has identified high levels of secondary traumatic stress in ED nurses, which affected their ability to work effectively (Yuwanich et al 2015, Wolf et al 2020). This is echoed in the present study, where some respondents felt anxious due to the large numbers of patients who required triage and their concerns about patient safety, which led them to question their triage abilities. Respondents' levels of experience influenced their stress levels, coping mechanisms, risk management and assessment practices. More experienced respondents tended to 'normalise' stressful situations, while less experienced respondents did not appear to use this as a coping strategy.

Experience, effective triage practice and coping with stressful situations have been found to be linked to training. For example, Gorick et al (2023) found that triage nurses' knowledge, experience and coping skills strengthen their abilities to make accurate triage decisions and that these elements are gained through formal education and training as well as clinical practice. In addition, Tam et al (2018), in a literature review of triage accuracy, stated that training was necessary to improve nurses' decision-making and maintain triage accuracy. In the present study, training delivered in respondents' departments was variable, which reflects the international literature. For example, in Australia, Varndell et al (2019) reported a geographical variation in relation to education requirements of triage nurses, while Wireklint et al (2021), in Sweden, reported variation in type and frequency of triage training for nurses.

In the present study, most respondents had received triage training in the past, however for a large proportion this was at beginner level and only ten (20%) had received this training within the last year. Most respondents were not satisfied with the amount, quality and content of training provided in their department (Figure 2), which supports US (Wolf et al 2018) and Korean (Moon et al 2021) qualitative research that found triage nurses were dissatisfied with training they had received.

Overall, these results, supported by the first author's previous work (Gorick and Rai 2023, Gorick et al 2023), suggest there is a need

for greater investment in triage training for nurses, including further research into what constitutes effective training, to enhance nurses' confidence, coping strategies and triage practice.

Decision-making practices

The responses to the vignette show that respondents favoured the use of visual assessment supplemented by objective measures, particularly for patients with red-flag symptoms, over the use of triage algorithms. This supports previous research that has reported that nurses prefer using clinical judgement than triage assessment tools (Roscoe et al 2016, Gorick et al 2023).

Respondents also used visual observation to assess the triage environment, then focused on creating space in which to safely assess patients. These elements of practice align with Gorick et al's (2023) assertion that triage nurses use situational awareness to inform their decisions and take actions based on this awareness to balance patient acuity against situational pressure. Respondents in the present study were resourceful when creating space in which to safely assess patients, for example by 'curtaining off' a section of a room or using a spare trolley. This is reflected in a Canadian study of triage nurses' decision-making (Reay et al 2016), which reported that participants' need for space resulted in them 'pushing boundaries' by using non-clinical areas to ensure patient safety.

In the present study, respondents also pushed boundaries by relying on non-departmental clinical colleagues and non-clinical departmental colleagues. One respondent discussed how they would retain ambulance crews to observe a patient and/or to identify emerging issues in the waiting room, enabling the respondent to focus on other patients. However, delaying ambulance crews when space is available can result in a poor experience and outcomes for the patient transported by the crew to the ED and for those waiting for ambulances in the community (Association of Ambulance Chief Executives 2021). Triage nurses must therefore release ambulance crews quickly, when appropriate, to reduce the risk of patient harm.

NHS England (2022) states that only clinically trained staff should assess patient acuity in the ED, however some respondents described relying on reception staff to alert them if a patient was acutely unwell. The risks of such an approach can be seen in the case of *Darnley v Croydon Health Services NHS Trust*

(2018), where the seriousness of the patient's condition was missed by an ED receptionist resulting in significant harm to the patient. The supreme court found that the receptionist gave 'incomplete and misleading information' which was ruled as negligent (Okninski 2019). It is vital, therefore, that nurses do not rely on non-clinical colleagues to observe patients.

Strengths and limitations

To the best of the authors' knowledge, this is the first national survey of UK triage nurses and the results are supported by a rigorous methodology.

The recruitment process limited the study sample to those who use specific social media platforms and online forums, which risked self-selection bias. Data were self-reported and may therefore have been subject to observer bias.

Although the numbers of UK triage nurses are unknown, the number of respondents was within the target range for the study sample, with good geographic spread. A significant number of respondents were from the East of England, which may have influenced results, however all data were compared between samples including and excluding the East of England. Only two areas of significant difference were identified: whether respondents had received triage training and whether respondents' departments provided triage training, but these did not inform further analyses and were not therefore discussed.

Finally, the study did not explore the duration of training or preference of clinical judgement over the use of triage tools in depth, which may have provided greater context for analysis and discussion.

Conclusion

This study represents the first survey of UK triage nurses, and explored demographics, training experiences and decision-making practices. The results suggest that stress caused by low staffing levels and busy ED environments affect triage nurses' confidence in their decision-making abilities, particularly in less experienced staff. ED triage areas must be safely staffed and managers should ensure triage nurses have access to appropriate support. Triage training is non standardised and irregular across the UK, and nurses are dissatisfied with the amount, quality and content of the training they receive in their departments. Therefore, national standards should be established, incorporating defined knowledge and skills and set time periods for refresher training, to enhance triage practice and processes.

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