

Redefining the Professional Identity of the Surgeon by Reflecting on Critical Incidents in London, United Kingdom

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Abstract

Introduction: Critical incidents are increasingly prevalent documented events in National Health Service (NHS) hospitals in the United Kingdom. Claims are made against the NHS in cases of medical negligence, with Obstetrics and Gynaecology accounting for 15% of the total claims, the second highest among all specialties.

Objective: To understand the impact of critical incidents on the developing surgical identity of Obstetric and Gynaecological trainees in London, United Kingdom.

Methods: A Qualitative study using semi-structured styled interviews. The interviews were audio-recorded and subsequently transcribed. The data was then analysed. Six trainees, of specialist trainee level three to seven were interviewed separately. This consisted of five female and one male doctors. This is within the current gender ratio difference in London.

Results: Undergoing a critical incident was felt to be a traumatic experience for all trainees involved. The incident itself and its management by the department, hospital or deanery had a significant impact on the psycho-social well-being of the doctor involved. Critical incidents can negatively affect the professional development of the surgeon. Surgical identity is an area that appears to be in the hidden curriculum, however many trainees struggled to define what their surgical identity was and how it may have been affected.

Conclusion: Critical incidents cause significant psycho-social distress for the developing surgeon. Surgical identity should be implicitly understood within medical education. This study highlights the urgent need for those writing medical curricula; both undergraduate and postgraduate to make the implicit explicit. Surgical identity discourse must be a priority for the new curriculum. Professionalism and an ability to endure the psychological stress caused by undergoing critical incidents is likely to be enhanced, by creating a strong sense of belonging within the surgical profession. The loss of the traditional apprenticeship model and its mentors must be considered within the new design.

Keywords: Critical incident, surgical identity, transformative learning, communities of practice, obstetric and gynaecological training

1. Introduction

Critical incidents, previously known as serious untoward incidents (SUI) or serious incidents (SI), are increasingly prevalent documented events in National Health Service hospitals. They exist in order to highlight key issues that can arise which could and should be avoided. Their overarching aim is to improve patient safety. Each specialty has a recommended list of events that ought to be considered as a critical incident. Examples of such events in obstetrics are an unexpected neonatal admission to special baby care, equipment failure, poor birth oxygen levels and maternal or neonatal death.

Around 1 in every 10 patients is harmed in health care and more than 3 million deaths occur annually due to unsafe care. In low-to-middle income countries, as many as 4 in 100 people die from unsafe care (Slawomirski et al, 2020). World Health Organization (WHO) estimate that, worldwide, 20–40% of all health care spending is wasted due to

poor quality care (Fetherston, 2015). and one in 10 patients are harmed whilst receiving hospital care (WHO, 2022). It is estimated that up to half of professionals in healthcare in China have been exposed to a critical incident at least once in their careers (Huang et al., 2022). Clinicians in the United Kingdom and the United States experience professional and personal disruption after an error (Harrison et al, 2015)

The NHS Litigation Authority (NHSLA) is a non-profit organization, which manages negligence and other claims against the NHS in England on behalf of hospital trusts, for whom are considered its members. The value of NHSLA is that it encourages trusts to set standardized protocols in order to improve overall patient care. The organization is pivotal when learning about risk, claims and complaints. Claims are made against the National Health Services (NHS) in cases of medical negligence. Obstetrics and Gynaecology forms 15% of total claims, the second highest number of claims, and they do form 45% of the total cost of claims which was a huge £2 billion (the highest of all medical and surgical specialties) in 2021 (Wright Hassall, 2023).

The Royal College of Obstetricians and Gynaecologists have set out a guideline to improve patient safety using effective risk management strategies. The purpose of this was to guide clinicians and senior managers about how to investigate in the event of a critical incident occurrence. They hoped that this would highlight key areas when the process did not go according to plan by using a root cause analysis approach. The following are the seven steps they suggest should be followed:

“1: Identify incident and take decision to investigate.

2: Select members of the investigation team.

3: Gather data (such as records, interviews, protocols) and relevant physical items.

4: Determine the chronology of the incident.

5: Identify care delivery problems (unsafe acts; for example, failure to act or incorrect decision).

6: Identify contributory factors (such as inadequate training, lack of supervision).

7: Devise an action plan”

The aviation industry suggests that 70% of commercial airplane hull-loss accidents are primarily due to human error (Piscopo, 2021). Therefore, since the 1960's, Boeing and its competitors have employed human factor engineers and psychologists in order to study why errors occur, and by introducing simulation, ultimately making it the safest industry that currently exists. The Aviation industry has insisted that all commercial airline pilots attend simulation training six monthly and for this to be a lifelong commitment. There is increasing evidence for human factor training to be implemented into the medical undergraduate curriculum. This has already been introduced into some postgraduate surgical specialties, although it has not been offered to all trainees. Helmreich (1998) suggests that human error can be reduced and patient safety improved by strong leadership, regular training and good communication, as well as the engagement of all team members (Helmreich & Merritt, 1988).

O'connor and Wu (2010) reviewed disclosure of patient safety incidents; from the perspectives of patients, doctors and allied health care individuals (O'Connor et al., 2010). They found that being open and honest when incidents occurred improves patient- healthcare relationships and leads to a greater ability to learn from the experience endured by colleagues. Kroll et al (2008), suggested that strengthening policy and encouraging reflective practice by junior doctors allows junior doctors to recognize the mistakes that they have made, especially as teams have become fragmented and a shorter shift pattern often means that there can be a lack of continuity of care for patients (Kroll et al., 2008). Kroll (2008) goes on to suggest that written or formal critical incident reporting only goes so far in enabling doctors to learn from their mistakes and thus the incidence of human error needs to be reduced by another way (Kroll et al., 2008).

The main aim of this study was to examine the impact that an individual's involvement and reaction to critical incidents has on one's developing surgical identity within the current training system. Critical incidents are often highly emotive and therefore challenging to analyze objectively. Qualitative analysis through semi-structured interview will be used to extract key elements relating to the interplay between professional and psychosocial development of a surgeon's identity. Specific Aims

- 1). To investigate how Obstetric & Gynaecology trainees perceive both their involvement in critical incidents and the support made available to them.
- 2). To explore the role of surgical identity in preparing psychologically and professionally for encountering critical incidents.
- 3). To analyse how professional identity and psychosocial function may be affected by critical incidents.

4). To determine the influence of professional experience on reactions to critical incidents.

Postgraduate surgical education as a domain has faced some of the most challenging and ambitious changes to its training in many years (Alzouebi, 2014). The Medical Training Application Scheme (MTAS) was part of the reforms introduced under Modernising Medical Careers (MMC), a UK initiative aimed at overhauling postgraduate medical education and training. MTAS was designed to centralize and streamline the application process for junior doctors applying for specialty training posts. The traditional apprenticeship model meant that doctors worked within a team structure, with the support of a group of staff all taking care of a ward of patients. This would mean that they were allocated a mentor, a paternalistic individual with whom doctors, throughout their careers, could form strong emotional support systems as well as the development of a community of practice (CoP) (Lave & Wenger, 1991).

Collins and Gough (2007) suggest that “the apprenticeship model of education, with trainees learning incidentally from their trainers while essentially delivering service is no longer sustainable “They suggest that there is a constant tension between service provision and training in hospitals which are increasingly busy due to sheer volume of patients in clinics and on the operating lists (Collins et al., 2007).

Surgical trainees of various specialties and sub-specialties appear to view apprenticeships as a progressive, positive, supportive and productive -effective method of learning. whereby it was felt that in Europe, apprenticeships were used to bully and control the vulnerable and the least powerful workers (Lave & Wenger, 1991). Dimitriadis (2014) suggests that identities in a surgical community of practice are not only dynamic, but often change depending on the common goal; which is optimal patient care (Dimitriadis et al., 2014). Bleakley, A (2011) suggests that Lave and Wenger’s (1999) model of identity formation within a community of practice is limited, as it does not address the ‘new complex, dynamic, unstable work contexts’ (Collins et al., 2007 & Bleakley, 2011). Bleakley, A (2011), also suggests that whilst a community of practice explains how identity is formed in the manner of rights of passage, it does not explain how learning and expertise are constructed in the use of artefacts or simulation within a surgical training programme (Alzouebi, 2014 & Bleakley, 2011).

Jarvis-Sellinger (2012) suggests that competency alone is not enough within the surgical curriculum (Jarvis-Sellinger et al., 2012). She believes that surgical identity formation must be integrated into the medical education discourse. The way a surgeon develops is through their social interaction. Vygotsky (1978) suggests that this occurs by a process called the zone of proximal development, whereby learning occurs when a more junior surgical trainee learns from their peers as well as from a more senior experienced individual (Vygotsky, 1978). This relates back to the concept of the apprenticeship model.

The introduction of the European Working Times Directive (EWTD 2004) caused much controversy within the surgical community. Fears with regards to a reduction in the number of operative opportunities over a shorter surgical training duration were palpable nationally. Blencowe (2011) highlighted these fears with special attention to how feasible it would be to achieve competencies within a shorter training journey (Blencowe et al., 2011). Temple (MEE, 2010) suggested that it was quite feasible to achieve the set competencies within a forty-eight-hour working week (Temple, 2010). However, Greenaway (2013) suggests the need to return to an apprenticeship model (Greenaway, 2013). Bandura’s (1986) social learning theory, whereby a surgeon learns from a community of surgeons, states that, the development of the surgeon occurs as a result of the social group (Bandura, 1986).

Mezirow (1978: 100) defined transformative learning in the late 70s as “a structural change in the way we see ourselves and our relationships” (Mezirow, 1978). Cranton (2006), also a leading thinker in adult education, developed her characterization of the term by stating that its simple definition revolved around the idea of people changing the way they interpret their experiences and their interactions with the world (Roberts, 2007). Mezirow (1997) stresses that transformative changes in the way one learns cannot be made if the new material simply fits comfortably in one’s existing frames of reference (Mezirow, 1997). Cahan (2011) suggests that encouraging a culture of teaching within surgery itself, may promote students and junior doctors to choose a career in surgery (Cahan, 2011). Moulton (2010) designed a study using “constructivist approach to qualitative grounded theory” methodology (Luu et al., 2012a). She interviewed 60 surgeons of different specialties, using semi-structured interviews. She asked surgeons to describe critical aspects of operative procedures that were “recognized and anticipated prior to commencing the operation” (Luu et al., 2012a).

2. Methodology

The primary purpose of this study was to explore the impact of critical incidents on the developing surgical identity of Obstetric and Gynaecological trainees. The study adopted a qualitative, interview-based design, which aligns with an interpretivist philosophical orientation. This approach emphasizes understanding participants' subjective

experiences and meanings related to critical incidents. This orientation allows for a nuanced exploration of the emotional and professional dimensions of critical incidents, providing a comprehensive understanding of the trainees' perspectives.

2.1 Material and methods

2.1.1 Study Design

This was a prospective interview based qualitative study. All Specialist trainees within the North West Thames Deanery were invited to participate via email. Semi-structured interviews lasting 30-40 minutes were conducted at Imperial College London facilities, audio recorded and transcribed. This method was chosen to facilitate open-ended responses and a rich exploration of the themes identified. Trustworthiness was addressed through several measures: participants provided written consent, had the opportunity to review and amend their transcripts, and were debriefed with information about confidential support services. Gatekeeping was managed by excluding trainees who had a direct mentoring relationship with the interviewer, thereby minimizing potential biases. The thematic analysis followed a rigorous six-step method, ensuring a systematic and transparent approach to data interpretation, enhancing the credibility of the study findings.

2.1.2 Inclusion Criteria

- 1). Registration on the National Specialist Trainees Register for North West Thames.
- 2). Obstetric and Gynaecology registrars; trainee level ST3 to ST7.

2.1.3 Exclusion Criteria

Previous mentoring history or current direct working relationship with the interviewer.

2.2 Cohort

A total of 38 specialist trainees were identified and contacted via North West Thames Deanery. 15 responded directly to the interviewer expressing an interest in participating. 4 were excluded as they had either been mentored by the interviewer or were currently working within the same NHS trust as the interviewer. 3 declined upon receiving further details. One was unable to attend at the offered interview time and one other did not attend. A total of six trainees therefore participated in the study.

2.3 Procedure

Participants were provided with a study information sheet prior to attending for the interview. Written consent was then obtained. Interviewees were made aware of the opportunity to withdraw from the study at any point including after the interviews had been completed and transcribed.

Semi-structured interviews were conducted in a private room at Imperial College London at a time when interviewees were not on shift and uninterrupted by pager. Participants were encouraged to reflect on a single critical incident that they had personal involvement in. This was ideally a recent event (defined as occurring within the last year) but in some cases took place in the more distant past.

I used a semi-structured open-ended interview approach for a variety of reasons. Firstly, it allowed the four themes to be comprehensively explored by all participants. As the number of participants was relatively small, this provided internal consistency between interviewees, therefore facilitating interpretation of the data. Second, the inherently focused nature of the semi-structured approach allows for a shorter interview duration in comparison to an unstructured interview. This was deemed important in our cohort of doctors due to their clinical commitments. Interviews were conducted individually, rather than in a group, in consideration of the potentially emotional content

of the subjects under discussion. Finally, an unstructured approach has the benefit of allowing interviewees to elaborate on areas that they perceive to be of particular relevance which is not possible using a completely structured approach.

Whilst a fixed interview script was not followed, areas of enquiry were grouped according to four themes as laid out in Table 1. These themes were selected in order to relate to the stated study aims.

Table 1. Description of the four themes of analysis

Theme	Description
A	Perception and provision of support
B	Professional and psychological preparation for critical incidents
C	The impact of critical incidents on surgical identity and psychosocial function
D	Influence of level of training and professional experience

The theme areas were addressed in a set order and the interview schedule, including semi-structured question prompts, is outlined in Table 2.

Table 2. Interview domains and semi-structured questions

Theme	Domain	Questions
A	To understand how healthcare professionals perceive critical incidents and engage in available support services	Can you tell me about a recent critical incident (CI) that you have been involved in? What happened? Did you reach out to anyone? Did you feel supported? Why? Or why not? Was formal support offered to you?
B	To understand if the current surgical training curriculum prepares professionally and personally surgeons for involvement in critical incidents	What aspects of your training do you think, help to prepare you for CI and its effects? Professionally and psychologically? If yes, what aspects? If no, what aspects don't prepare you? What do you think a surgeon's identity has to do with it?
C	To gain a clearer understanding of the effect of critical incidents on the social, psychological and professional development of that surgeon	How did your involvement in the CI make you feel and why? Do you think the event affected you in any way? If no, why not If yes, in what way? Why? And how?
D	Perception of the role of training level on experience of critical incidents	What ST level are you now? What ST level where you when the incident occurred? What is your total number of years of experience? What aspects of professional surgical experience impact the effects and reactions to CI? Why do you think this is?

In recognition of the sensitive nature of the material under discussion and the potential for provoking emotional distress, all participants were fully debriefed at the end of the interview and provided with contact details for confidential medical support services.

Interviews were audio-recorded by dictaphone. Audio-recordings were then transcribed by an independent medical secretary. Individual's typed interview transcripts were forwarded securely to each participant who had the opportunity to review the content and request removal of any aspect that they did not agree with. All potentially identifying personal participant and hospital details were removed from the transcripts and patient information was

anonymized where appropriate. Thematic analysis was then performed on the transcribed data as described later.

2.4 Thematic Analysis

A conventional six-step method for interview analysis was modified (to reflect the context of this study (Sayrs, 1998). Four main domains were identified for qualitative analysis as outlined below (see Table 2).

- 1). Descriptive: interviewees were encouraged to describe their experience in their own words.
- 2). Self-discovery: interviewees identify new meanings and connections as part of the interview process.
- 3). Summarising and verification: relaying of information back to the interviewee.
- 4). Interpretation: review of the transcribed interview.

The transcriptions were reviewed separately on multiple occasions. Initial review ensured that transcripts were accurate and truthful. Participants then had the opportunity to review their statements and make clarification as necessary. The next review took place following completion of all participants' review of their original transcripts. At this stage, content that had been repeated or was tangential to the discussion was removed. Subsequent review involved identification of the four main themes. Each interview was reviewed in context of our predetermined domains. Under each domain, patterns and recurrent themes were identified. In some cases, a pattern or theme lent itself to more quantitative language analysis. This included emotional descriptors.

3. Results

In this section, I will present cohort characteristics before describing the results of each area of thematic analysis (Themes A to D, see table 1) in sequence.

3.1 Cohort

A total of six participants were interviewed. The median age was 30.5 years old (range 27 to 36 years old). Five out of the six participants were female. All participants underwent primary medical training in the UK. Ethnicity (categorized according to ONS recommendations (REF)) included two British, one Arab, two Chinese and one African. The mean interview duration was 38 minutes (range 25 to 60 minutes).

3.2 Thematic analysis

Theme A: Perception and provision of support

The first stage of thematic analysis of the perception and provision of support required consideration of the nature of critical incidents reported. All incidents reported were obstetric cases. One case resulted in a maternal death and two other cases resulted in neonatal death. Five of the six cases were surgical in nature, four involving instrumental delivery in theatre and one Caesarean section. Two of the six cases resulted in referral to the GMC. A summary of the incidents is provided in Table 3.

Table 3. Summary of nature of critical incidents reported at interview

Candidate	Description of incident
1	Sepsis and maternal death; GMC referral by hospital
2	Lower segment Caesarean section at full dilatation and PPH leading return to theatre; laparotomy and then hysterectomy
3	Instrumental delivery and episiotomy repair. Patient consent given at time of procedure, however later patient denied this. GMC referral by patient
4	Forceps delivery leading to neonatal death
5	Pathological CTG leading to instrumental delivery; baby required cooling
6	Forceps delivery with fractured skull; neonatal death

The average duration of the response to the first question asking "Can you tell me about a recent critical incident that you have been involved in?" was 16 minutes (range 11 to 27 minutes). This represents 42% of the average total interview duration.

The original question was deliberately 'open' to invite a descriptive response. The interviewer also noted the affect and behaviour of the interviewee as they re-lived the event as described in table x below. Most responses included

a purely chronological account of the incident that took place. We analysed the frequency with which positive or negative emotional descriptors were included in the first answer (These were very infrequent as shown in Table 4.

Table 4. Summary of nature of critical incidents reported at interview

Candidate	Positive emotional descriptor	Negative emotional descriptor	Affect or behaviour
1	0	0	Crying
2	0	0	Distressed
3	1	0	Angry, frustrated
4	0	0	Withdrawn
5	0	1	Angry
6	0	2	Resentful, angry

In the few cases where the interviewee did refer to their emotional response at the time of the incident and subsequent investigation, the emotional description tended to be understated: "... This was quite disconcerting...". The language used was in contrast to the affect and behavior displayed which was frequently angry, resentful, distressed and mistrustful.

In response to questioning regarding the perception and availability of support, only one of the six participants responded positively. In this case, the main source of support was the Medical Protection Society. All of the others replied that they had felt unsupported. When asked directly whether any kind of specialist or formal support was offered or made available, three participants replied that group debriefing had been provided. Two others commented that suggestions for sources of individual support were also made. However, whilst interviewees attended group debriefing, only one of these participants reported that they had taken up suggestions for individual support. This involved a recommendation by the local Deanery to engage in 'coaching' as reported by the interviewee. On more direct questioning, this 'coaching' involved structured cognitive therapy. The reasons for the lack of uptake of support related to perception of the sincerity of the suggestion. In addition, there were concerns regarding how engagement in therapy would be perceived professionally. This related to beliefs by individuals that requiring professional support may be an admission of personal failure.

One interviewee commented that whilst feeling supported, as the incident was taking place and immediately afterwards, there was a culture of blame as the enquiry progressed:

"... Because the Consultant reassured me that it was nothing that I did, she was really nice but afterwards. I faced this scrutiny where they kept on asking why.....and then after that I felt like, you know, when something happens you're always sure to blame somebody, isn't it...."

Feelings of powerlessness, isolation, frustration and blame were common:

"...I felt damned if you do and damned if you don't..."

"...there wasn't really anyone I could talk to..."

"...it felt as if the whole department had made up their mind that me and my colleague were to blame for the poor outcome and because they were unified in that decision it was very difficult to find someone who was neutral and who you felt you could be honest with and together..."

"... I just accepted whatever they were providing because I didn't think that they could do anything better..."

"...I felt that I was up against a wall...I felt really undermined...lied to...it was really affecting me at work as a registrar and so destroying my confidence..."

Theme B: Professional and psychological preparation for critical incidents

In this theme, I wished to explore how prepared trainees felt they were, psychologically and professionally, for critical incidents. It was important to ascertain this as it gave me a background into a system which has been introduced into medicine in the last decade.

Respondents universally felt unprepared through training for the impact of a critical incident. None of the interviewees responded meaningfully to the question about the role of the surgeon's identity. Even when asked directly or given prompts, few seemed to have a sense of explicit identity. Some also expressed an opinion that

trainees as a body include many personality styles, and that involvement in critical incidents did have the effect of promoting reflection. This was felt to be a valuable and positive quality in a surgeon and suggests that this aspect forms part of an implicit understanding of surgical identity.

Respondents universally felt unprepared through training for the impact of a critical incident. Some responses to direct questioning are given below:

"...No, I don't think anything prepares us for critical incidents..."

"...No, I don't think there is anything in our curriculum that can actually protect the trainee..."

"...you can't substitute training [for experience] in these sorts of situations..."

"...there was nothing to fall back on in terms of resources or training..."

"...but I have to say the psychological aspect of things is usually a dark hole, you know something that people don't cover...certainly that is not something that is covered in our curriculum well..."

None of the interviewees responded meaningfully to the question about the role of the surgeon's identity. Even when asked directly or given prompts, few seemed to have a sense of explicit identity. Comments were made in reference to personality traits including:

"...perfectionist type A..."

"...some people are quite arrogant and think they are not at fault whereas other people think about things more deeply..." (this relates to internalizing blame)

Some also expressed an opinion that trainees as a body include many personality styles, and that involvement in critical incidents did have the effect of promoting reflection. This was felt to be a valuable and positive quality in a surgeon and suggests that this aspect forms part of an implicit understanding of surgical identity.

Theme C: Impact of critical incidents on surgical identity and psychosocial function

Involvement in critical incidents had significant impact in all areas of the individual's life. In terms of the psychosocial impact, all interviewees commented on what a generally difficult time the period of involvement was. Several felt that its effects were much longer lasting, even up to years.

"...it was a horrible period and not nice to remember..." (so the interviewee goes on to say she avoids thinking about it)

"...It's very difficult to go home and forget about it because it's always at the back of your mind..."

"...It has been a couple of years now since I got back to my normal self..." (she felt that the experience changed her as a person)

In one case, the overall stress led to several hospital admissions. Others commented that the stress extended beyond their own life and into their family life. There was a sense of pressure and entrapment psychologically that was pervasive as illustrated by the extracts below:

"...you try to protect yourself..."

"...you feel cornered..."

"...I felt frustrated...quite angry as an individual..."

"...a kind of heaviness of feeling..."

"...Your confidence does get knocked, and you start feeling worried and stop looking forward to going to work..." (the interviewee then goes on to say you have to put these feelings to one side in order to continue the job)

One doctor expressed a potential positive effect following her experience.

"...actually you learn from your mistakes... and use that experience..."

However when this doctor elaborated further on what had been learnt and how the experience was being used, it became clear that the main impact was on documentation, specifically spending time on documenting defensively in order to avoid repeat exposure to critical incidents.

The remaining interviewees commented on the negative impact that their experience of CIs had had on them professionally and on their behaviour at work. Loss of confidence and feelings of persecution were recurrent themes, which led to doctors performing less effectively.

"...you start to doubt your care... you just kneejerk everything..."

“... people do things just in case it goes to court...”

“...you start double guessing yourself... and hesitating...being more defensive rather than getting on with the job...You are more preoccupied with how it would look...”

Changes in behaviour tended to be defensive and reactive in response to feelings of persecution and attack.

“...people look at you as the culprit, as somebody who's caused this incident...”

“...so I don't face this scrutiny again...”

“...the atmosphere towards you had changed and that suddenly you were not 'safe' anymore.”

“...destroying my confidence...whatever you do you feel you are being judged.”

Overall, there were statements that seemed or made the interviewee very defensive. The flight and fight feeling was palpable throughout the interviews.

Theme D: Influence of level of training and professional experience

An area of interest was whether professional experience in number of years had an impact on how registrars reacted to critical incidents and whether this was viewed in a positive or negative light.

In the current training system, with the limitations on working hours (European Working Times Directive EWTD), doctors have less exposure at a junior level. Therefore, this may translate into sudden responsibility for an incident at a more senior or experienced level.

At the time of the critical incident, the majority of participants were at junior registrar level (i.e. between ST3 to ST5). One participant reported involvement in a critical incident in their first year of O&G training. As shown in Figure 1, four participants were recounting details of an event that had occurred within two years of their current post.

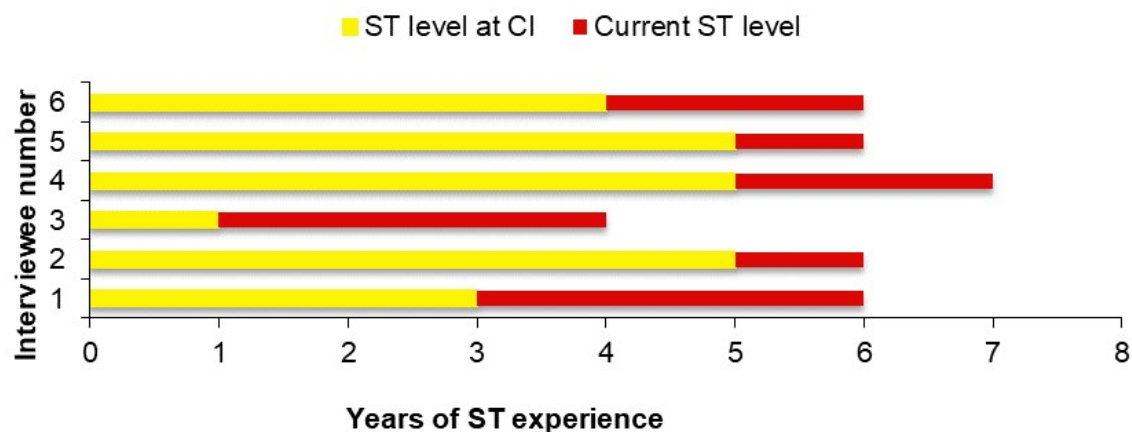


Figure 1. Years of participant's ST experience at time of critical incident and current

The total number of years of clinical exposure experienced by each doctor ranged from six to twelve years, as shown in Figure 2. Doctors had an average of 3.15 years of experience in addition to their level of ST training.

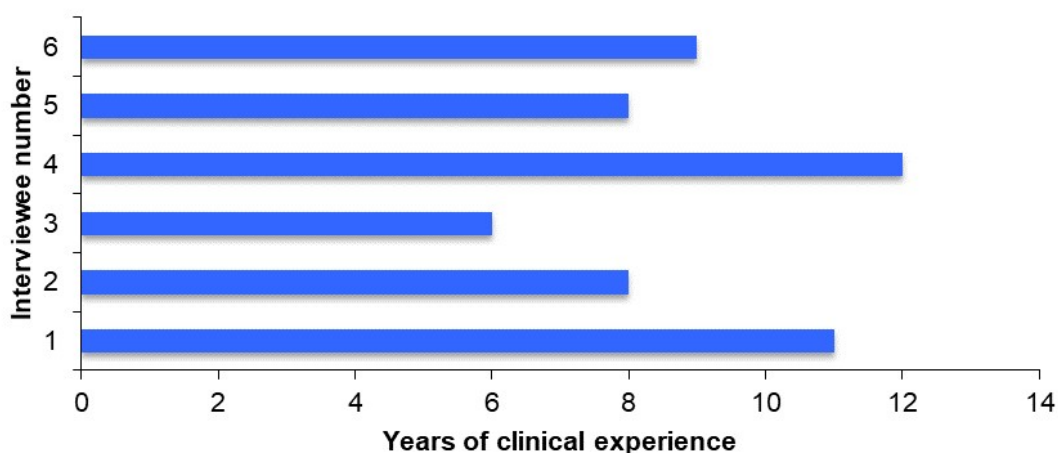


Figure 2. Number of years of participant's total clinical experience

There was a variety of differing opinions expressed regarding the relationship between the level of training and involvement of critical incidents. Several interviewees felt that the level of training was not directly relevant to the way in which critical incidents were experienced. These are illustrated by the quotes below:

"...nothing really prepares you for the worst..."

"... whatever your grade it's still going to be a big impact on your social wellbeing..."

"...ultimately you probably have to experience it..."

A contrasting view was that it was beneficial overall to be part of a critical incident at an earlier training stage. There appeared to be two components to this belief. The first being that at a junior level you gained more sympathy from colleagues with a lower level of clinical expectation, as well as more support. This helped individuals to cope.

"...if this had happened to me three years ago... people would have less expectation of me and then they will understand...at this stage the burden is greater and the support is much less. People have much less sympathy for you..."

"...as an STI you are meant to be really vulnerable and not know any better..."

An additional aspect relates to the way in which early exposure helps develop adaptive strategies to cope with future experiences. This therefore helps shape the surgeon's identity at a critical stage.

"... you can apply all the things you've learnt from it to all the future practice and all future incidents. It won't be brand new. You will learn a) to try and avoid one and b) how to deal with one quickly..."

At the other extreme, it was felt that exposure at a more advanced stage of training was positive. Multiple elements contributed to this perception. Firstly, personal and professional support networks are more developed. Second, the advantage of more years of clinical experience improves confidence and this strengthens surgical identity. Finally, involvement in a critical incident at a very junior level may lead to negative connotation associated with your surgical identity. This may exist both in terms of self-perception as well as your external professional reputation. Comments which outline these views are highlighted below:

"... probably got more of a support network [colleagues]...seen other individuals go through it with poorer outcomes..."

"... Being more experienced I'm aware of what my strengths and weaknesses are...I think your experience enables you to stick up for yourself..."

"...if I was someone who had just started in the specialty... you might be branded... it is a lot of weight to carry on a junior doctor's shoulders.... You might feel that it is not worth your life and your career surviving this environment and you might just give up..."

4. Discussion

The findings were rather interesting; primarily, I noted that Obstetrics and Gynaecology trainees did not take up the offer of support as they felt mistrustful of the given intentions. They felt under a significant amount of scrutiny, and compared their feelings to that of being under a microscope. In turn, they felt that seeking support would be regarded as an admission of wrong -doing or making a grave mistake.

Obstetrics requires quick acting decision making in extreme situations. Moreover, it often involves multi-tasking on many levels, focusing on many patients at each time and always balancing the wellbeing of the mother and baby. When critical incidents arise, the feelings of powerlessness, isolation and frustration rapidly become linked to depression. The psycho-social factor impacts on disease and mortality. The second- guessing that occurs when an incident arises can lead to hesitation, which can then lead to in-action, which in turn can lead to an increased incidence in maternal and neonatal morbidity and mortality.

Doctors find it easier to speak factually with emotions included but not about their feeling alone. There is real disconnect between language and affect. Doctors internalize the emotional impact, and sometimes this can lead to increased alcohol consumption as well as substance misuse. Joos (2013) suggests that the incidence of alcohol and substance misuse is as high as 18% amongst male doctors (Joos et al., 2013). He suggests that females are catching up to male consumption rates and are currently as high as 15% (Joos et al., 2013).

The data also highlights that a common surgical identity is one that fails to express emotions verbally by maintaining a controlled exterior, but lying beneath the surface is in fact a very angry, resentful and powerless individual who is drowning and needs help. It was incredibly surprising that surgeons did not know what a surgical identity was.

It must be borne in mind, however, that the sense of powerlessness and isolation may not be a true reflection of the department's or of the individual hospital's opinion. It may simply be a subjective view of the interviewee, themselves and therefore this may not be factually accurate. However, it is important to raise awareness of the fact that doctors will reflect on events and be very self-critical.

A successful department is one that chooses to be organized and one which responds to incidents by providing long-term professional and emotional support in order to develop the surgical identity within the context of professionalism and the duties of that surgeon. Doctors implied that they were happier with the term 'coaching' compared with 'psychological support' or 'psychological help'. The overwhelmingly evident reluctance to engage in overtly psychological or cognitive therapy only further highlighted the stigma that surrounds doctors who seek help, being labelled as having an inability to cope with what their job expects of them.

The lack of comments in response to the question about what the role of surgical identity in training is, reveals a considerable area to be explored. Whether the loss of the traditional apprenticeship model can be in part to blame for this, it is unclear. However, increasingly, postgraduate medical education is under pressure to make the implicit explicit. Is there a generational change and have our expectations changed?

The preparation for critical incidents has gained momentum in the last few years. The Royal College of Obstetricians and Gynaecologists appreciate the growing impact of critical incidents, and by making this an essential part of the core curriculum within postgraduate medical education, they aim to better themselves at preparing surgical trainees. This is an important area for future work.

A lack of coherent surgical identity may limit opportunities for professional development as well as increasing psychological distress encountered following critical incidents.

The general consensus from this group of doctors was that the earlier a surgeon encounters a critical incident, the more prepared they feel. It appeared that the better informed they were about the process, the greater their understanding and the more protected they felt from their senior colleagues and mentors. The preparation for their future wellbeing professionally and emotionally was not insignificant. On the other hand, however, some felt that the earlier a critical incident is encountered, the greater the chance of trauma negatively impacting their confidence. It may then lead to paralysis of decision-making and a rush to an early exit of the specialty. When critical incidents occur at a later stage in training, one may be better able to maintain perspective about the clinical scenario as a result of the greater experience amassed.

The effects of a serious investigation can have on doctors are highly topical and significant. In 2014, the General Medical Council carried out an independent review of doctors who died whilst under investigation. This review was carried out in response to doctors feeling victimized and unsupported whilst undergoing a GMC review. It was of most interest that, between 2005 and 2013, one hundred and fourteen doctors died.

“The present arrangement discourages doctors from coming forward for treatment of mental health issues. The GMC health procedures put doctors under additional strain whilst unwell.”

The grief that doctors under investigation can often feel, leads one to question the support available in such critical situations. Nan (2014) suggests that emotional-resilience training is desperately needed within the medical curriculum (Nan, 2014). She highlights the fact that junior doctors work with a different consultant most weeks, and that this has led to the loss of camaraderie within the traditional team structure. As a direct result of this, there is little time for bonding and the establishment of trust in order to seek emotional support when necessary.

Engagement within the community of practice, by participating within its concept of thinking, feeling and ultimately belonging, guides one to forming each individual’s professional identity. Lyon et al (2013) highlight the way in which medical students can enhance their surgical education and experience in the theatre environment by negotiating their physical environment in order to control the emotional impact of surgery. Lyons (2013) also suggests the significance of the social interaction and therefore this particular aspect of the theatre environment can enhance the surgical educational experience. This, again, illustrates the importance of legitimate peripheral participation and, ultimately, integration into the apprenticeship process (Lyon et al., 2013).

In her exploration of the process of surgical judgment in the theatre room, Moulton (2010) described a phenomenon referred to as “slowing down when you should” to understand the transition from an automatic, predictable, routine way of practice to one that is more energetic and thoughtful (Luu et al., 2012b). She found that this occurred when surgeons were faced with an unexpected or critical situation that they may not have come across before, or which required greater concentration (Luu et al., 2012b). The phenomenon of “slowing down” was visible to outside observers as well as to the surgeon and his team members. The surgeon in question may ask for the noise level to be reduced or may simply withdraw from the conversation entirely. Moulton suggests that the surgeon’s ability to slow down when necessary, by “recruiting additional cognitive resources” to handle the individual scenarios, highlights expert ability in surgical proficiency and managing its high-stake complication (Luu et al., 2012b).

Reflecting on their operative ability and expertise, surgeons identified several social factors as having an influence on their ability and capacity to react during an unexpected and uncertain situation. Bell (2007), for example, suggests that laughter has a critical communicative place within social interaction. It is believed to be not only a behavioural response to humour, but also rhetorical in its nature. It is often used in order to communicate some form of meaning to others, as well as to aid the construction of identities and further, as Glenn (2003) asserts, “laughing contributes to the ongoing creation of meaning, self, relationship, society and culture” (Glenn, 2003).

Clandini (2008), on the other hand, attempted to create pedagogical spaces for developing doctors’ professional identity by using a narrative reflective practice (Clandinin & Cave, 2008). He compared parallel medical charts of medical residents and allowed bi-weekly meetings to discuss these charts. He found that this was not only a very positive experience for most doctors, but also a way of forming the doctors’ individual identities.

Schon (1987) posits that the ability to reflect on-action in order to participate in a continuum of post-graduate learning is part of the greater professionalism learning characteristic. Schon (1987) suggests that “Technical Rationality” is of little help or support in a professional environment where quick decision-making is required and an even more prompt action (Schon, 1987).

Schon (1987) argued that the ability to support teachings of reflecting in-action (whilst carrying out a procedure or decision) or on-action (post procedure, decision or even critical event) must be prioritized and made an essential feature of postgraduate training programs (Schon, 1987). Mentors and or educational supervisors are able to support this by providing a forum that is safe and confidential for trainees to reflect on what they envisage as being important. The mentor’s purpose is to guide the reflection process in order to make it a positive and productive experience. Nonetheless, what has not been explored is the depth of reflection necessary to make a difference or impact on future learning. Schon (1987) suggests that it is essential to avoid self-gratification, self-pity and transference whilst reflecting professionally (Schon, 1987).

Ullström (2013) suggests that the impact of being a participant in a critical incident can be sub-divided into three main areas: The first being the emotional reaction to the event; secondly, the self-confidence and professional performance associated, impacted or affected with the critical event; thirdly and lastly, the duration that the critical incident has had an effect on the individual or individuals concerned (Ullström et al., 2013).

Ullström (2013), claimed that doctors reported feelings of sadness, frustration, guilt, shame, depression and anxiety (Ullström 2013). Mulling over the event, reliving the scenario and suffering from flashbacks were common. He also highlighted that many had psychosomatic disturbances such as sleepless nights, reduced concentration

affecting professional ability and expertise. This then in turn affected their confidence in their professional ability. As for the duration of impact, many reported this continued to affect them, not only for many months but for some leading to years. Luu (2012) suggested that surgeons were not only hypercritical of themselves, but also felt a greater sense of isolation and loneliness (Luu et al., 2012b). They often felt and sensed that their colleagues avoided them due to feelings of discomfort. This reaffirms Wu's concept of the "second victim" when a critical incident occurs (Pratt et al., 2012; Wu, 2000).

Scott (2009) published a study and analysis of 31 second victims. Nurses, medical and surgical doctors were interviewed using a semi-structured style of interview. The second victim view was said to be "a life-altering experience that left a permanent imprint on the individual" (Scott et al., 2009). Scott (2009) recalls how the minutia of detail of the given event were recollected by the doctors and nurses, often despite the lengthy duration that had passed since the critical incident had occurred (Scott et al., 2009). The second victims reported not only physical symptoms, but many more also expressed psycho-social symptoms (Scott et al., 2009). Scott (2009) suggested there are six phases that doctors and nurses endure when a critical incident occurs:

1). **Chaos and accident response:** Feeling dazed and confused, in a chaotic, panic mode of thinking. May have some ability to complete tasks, but unable to concentrate on more complicated surgeries or complex medical problems.

2). **Intrusive reflections:** Mulling over and over the events that have occurred. Thinking and re-thinking the entire scenario with different reasons and rationality.

3). **Restoring personal integrity:** Most doctors do not talk to their families, peers or friends. They fear that no one will understand what happened, why it happened and why they responded the way that they did. Some will eventually seek a loved one to talk to, but will fear how they are perceived.

4). **Enduring the inquisition:** Critical incident reviews, or independent panel reviews, are crucial where improving patient safety and reducing harm is concerned. The root- cause- analysis methodology can yield important information about a ward, department, staff or an entire hospital. It also lends itself to learning from errors and creates greater transparency. Nonetheless, it can trigger severe emotional responses from those who are involved in the case. It can raise feelings of guilt (maybe entirely subjective and not accurate at all) and self-doubt. The legal implications of cases in Obstetrics and Gynaecology that proceed with litigation can be raised up to twenty-five years later. As a result of this extended time-frame, the same emotional responses may later be triggered (Scott et al., 2009).

5). **Obtaining emotional first aid:** By speaking to colleagues or friends without judgment, the second victim starts the healing journey. This may be done many months after the critical incident has occurred.

6). **Moving on:** Scott (2009) suggested that doctors moved on in one of three ways. The first is by dropping out of medicine or that particular specialty, seeking an entirely new career, or simply quitting their job and feeling completely lost and uncertain of what to do next. The second is thriving, whereby there is an ability to continue to function and do the job at hand, however with a sense of deep and heavy emotional burden. The third is surviving. This is when the individual involved has the ability to participate in making a difference, implementing a change that will provide better care or generating a process that will ensure no other doctor can make the same mistake and endure the suffering that they encountered (Scott et al., 2009).

Bourne (2015), Wu 2020, and Cottell (2020) suggest that doctors with recent or current complaints have significant risks of moderate to severe depression, anxiety and even suicidal ideation. Morbidity was greatest in cases involving the General Medical Council. Most doctors, post complaint, reported practicing defensively, including avoidance of procedures and high-risk patients (Bourne et al., 2015; Wu et al., 2017; Cottell et al., 2020). Bourne, suggested that in order to improve the complaints processes, one must include and prioritize transparency and managerial competence. He arrived at this conclusion by developing a cross-sectional anonymous survey study. He allocated participants (doctors in training) into the following groups; recent, current, past and no complaints at all. Each group completed a tailored version of the survey. 95,636 doctors were invited to take part in the study. A total of 10,930 (11.4%) responded, however only 7,926 (8.3%) completed the survey in its entirety, and therefore could be included in the all-inclusive analysis (Bourne et al., 2015). The predominance of female doctors in the study reflects the current gender distribution among Obstetric and Gynaecology trainees in London, but it also introduces potential limitations regarding gender-related insights. The gender imbalance among participants may influence the findings and limit the study's ability to comprehensively address how surgical identities develop across different genders

5. Conclusion

Monrouxe (2010) underscores the importance of understanding how professional identities are formed within medical education. Developing a robust educational framework that includes identity formation as a core component can enhance the handling of challenging experiences, such as critical incidents. Identity, defined as "who we are," is crucial; questioning this aspect during difficult times can lead to increased distress and potentially more medical errors. A strong foundation in surgical identity formation can foster greater discourse about critical incident occurrences and promote a more open and honest approach to their management.

While the proposal to integrate surgical identity formation into medical education is constructive, its feasibility requires further verification. Restoring the positive elements of the traditional mentorship model must consider the changes in the modern medical environment and the realities of ongoing medical education reform. Future studies should empirically evaluate the feasibility and effectiveness of these recommendations. This will ensure they can be successfully implemented in current educational contexts and truly benefit the professional and personal development of medical trainees.

Moreover, the adaptation of traditional mentorship practices needs to align with contemporary educational technologies and pedagogical approaches. Incorporating elements like virtual mentorship and peer support networks could bridge the gap between traditional and modern methods, ensuring that trainees receive comprehensive support. Evaluating these approaches through pilot programs and longitudinal studies will be crucial in validating their effectiveness and sustainability in enhancing surgical identity formation and managing critical incidents within the evolving landscape of medical education

Ethical Approval

All participants provided written informed consent to partake in the study. Ethical approval for the study entitled "*How do Obstetric & Gynaecology registrar's thoughts and feelings of critical incidents impact their developing surgical Identity?*" was granted by Imperial College London Educational Ethics Review Process (EERP) study number 1415-010b.

Author Contributions

All authors contributed to the article; and have agreed on choice of the journal to which the article has been submitted; and all have also agreed to be accountable for all aspects of the article and address any feedback from the editorial board.

Disclosure

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The authors declare that there are no competing or potential conflicts of interest.

References

- Alzouebi, A. (2014). *Theory and learning of teaching and practice*. Masters in Surgical Education, Imperial College London.
- Bandura, A., & National Inst of Mental Health. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall, Inc.
- Bell, N. D. (2007). Book review: Michael Billig, *Laughter and ridicule: Towards a social critique of humour*. *Discourse & Society*, 18(4), 508-510. <https://doi.org/10.1177/09579265070180040602>
- Blencowe, H., Cousens, S., Mullany, L. C., Lee, A. C., Kerber, K., Wall, S., ... & Lawn, J. E. (2011). Clean birth

- and postnatal care practices to reduce neonatal deaths from sepsis and tetanus: a systematic review and Delphi estimation of mortality effect. *BMC Public Health*, 11(Suppl 3), S11. <https://doi.org/10.1186/1471-2458-11-s3-s11>
- Bourne, T., Wynants, L., Peters, M., Van Audenhove, C., Timmerman, D., Van Calster, B., & Jalbrant, M. (2015). The impact of complaints procedures on the welfare, health and clinical practise of 7926 doctors in the UK: a cross-sectional survey. *BMJ Open*, 5(1), e006687-e006687. <https://doi.org/10.1136/bmjopen-2014-006687>
- Bleakley, A. (2011). Learning and identity construction in the professional world of the surgeon. In H. Fry & R. Kneebone (Eds.), *Surgical education: Theorizing an emerging domain* (pp. 183-197). Springer. https://doi.org/10.1007/978-94-007-1682-7_11
- Cahan, M. A. (2011). Transforming the culture of surgical education. *Archives of Surgery*, 146(7), 830. <https://doi.org/10.1001/archsurg.2011.157>
- Clandinin, D. J., & Cave, M. T. (2008). Creating pedagogical spaces for developing doctor professional identity. *Medical Education*, 42(8), 765-770. <https://doi.org/10.1111/j.1365-2923.2008.03098.x>
- Collins, J. P., Gough, I. R., Civil, I. D., & Stitz, R. W. (2007). A new surgical education and training programme. *ANZ Journal of Surgery*, 77(7), 497-501. <https://doi.org/10.1111/j.1445-2197.2007.04171.x>
- Cottell, M., Wätterbjörk, I., & Hälleberg Nyman, M. (2020). Medication-related incidents at 19 hospitals: A retrospective register study using incident reports. *Nursing Open*, 7(5). <https://doi.org/10.1002/nop2.534>
- Dimitriadis, P. A., Iyer, S., & Evgeniou, E. (2014). Learning in the surgical community of practice. *Medical Science Educator*, 24(2), 211-214. <https://doi.org/10.1007/s40670-014-0042-1>
- Fetherston, T. (2015). The importance of critical incident reporting - and how to do it. *Community Eye Health*, 28(90), 26-27. <https://doi.org/10.5935/1355-7858.20150009>
- Glenn, P. (2003). *Laughter in interaction*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511519888>
- Greenaway, D. (2013). Securing the future of excellent patient care. *London: shape of Training*.
- Harrison, R., Lawton, R., Perlo, J., Gardner, P., Armitage, G., & Shapiro, J. (2015). Emotion and coping in the aftermath of medical error: A cross-country exploration. *Journal of Patient Safety*, 11(1), 28-35. <https://doi.org/10.1097/PTS.0b013e3182979b6f>
- Helmreich, R., & Merritt, A. (1988). *Culture at work in aviation and medicine: National, organizational and professional influences*. Aldershot, Ashgate.
- Huang, R., Sun, H., Chen, G., Li, Y., & Wang, J. (2022). Second-victim experience and support among nurses in mainland China. *Journal of Nursing Management*, 30(1), 260-267. <https://doi.org/10.1111/jonm.13490>
- Jarvis-Selinger, S., Pratt, D. D., & Regehr, G. (2012). Competency is not enough. *Academic Medicine*, 87(9), 1185-1190. <https://doi.org/10.1097/acm.0b013e3182604968>
- Joos, L., Glazemakers, I., & Dom, G. (2013). Alcohol use and hazardous drinking among medical specialists. *European Addiction Research*, 19(2), 89-97. <https://doi.org/10.1159/000341993>
- Kroll, L., Singleton, A., Collier, J., & Rees Jones, I. (2008). Learning not to take it seriously: Junior doctors' accounts of error. *Medical Education*, 42(10), 982-990. <https://doi.org/10.1111/j.1365-2923.2008.03151.x>
- Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. *Man*, 29(2), 487. <https://doi.org/10.2307/2804509>
- Luu, S., Leung, S. O. A., & Moulton, C. (2012a). When bad things happen to good surgeons: Reactions to adverse events. *Surgical Clinics of North America*, 92(1), 153-161. <https://doi.org/10.1016/j.suc.2011.12.002>
- Luu, S., Patel, P., St-Martin, L., Leung, A. S., Regehr, G., Murnaghan, M. L., ... & Moulton, C. A. (2012b). Waking up the next morning: surgeons' emotional reactions to adverse events. *Medical education*, 46(12), 1179-1188. <https://doi.org/10.1111/medu.12058>
- Lyon, P., Letschka, P., Ainsworth, T., & Haq, I. (2013). An exploratory study of the potential learning benefits for medical students in collaborative drawing: Creativity, reflection and "critical looking." *BMC Medical Education*, 13(1). <https://doi.org/10.1186/1472-6920-13-86>
- Mezirow, J. (1978). Perspective transformation. *Adult Education*, 28(2), 100-110.

- <https://doi.org/10.1177/074171367802800202>
- Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 1997(74), 5-12. <https://doi.org/10.1002/ace.7401>
- Monrouxe, L. V. (2010). Identity, identification and medical education: Why should we care? *Medical Education*, 44(1), 40-49. <https://doi.org/10.1111/j.1365-2923.2009.03440.x>
- Nan, H. (2014). *Havens of resilience: President of resiliency in action*.
- O'Connor, E., Coates, H. M., Yardley, I. E., & Wu, A. W. (2010). Disclosure of patient safety incidents: A comprehensive review. *International Journal for Quality in Health Care*, 22(5), 371-379. <https://doi.org/10.1093/intqhc/mzq042>
- Piscopo, V. C. (2021, February 15). What are the dirty dozen human factors? DMD Solutions. Retrieved from <https://dmd.solutions/blog/2021/02/15/what-are-the-dirty-dozen-factors-that-may-lead-to-catastrophic-consequences-in-aviation/>
- Pratt, S., Kenney, L., Scott, S. D., & Wu, A. W. (2012). How to develop a second victim support program: A toolkit for healthcare organizations. *The Joint Commission Journal on Quality and Patient Safety*, 38(5), 235-240. [https://doi.org/10.1016/s1553-7250\(12\)38030-6](https://doi.org/10.1016/s1553-7250(12)38030-6)
- Roberts, N. A. (2007). Book review: Understanding and promoting transformative learning (2nd ed.), by Patricia Cranton. *Journal of Transformative Education*, 5(4), 395-399. <https://doi.org/10.1177/1541344607312553>
- Sayrs, L. (1998). InterViews: An introduction to qualitative research interviewing Steinar Kvale. *The American Journal of Evaluation*, 19(2), 267-270. [https://doi.org/10.1016/s1098-2140\(99\)80208-2](https://doi.org/10.1016/s1098-2140(99)80208-2)
- Slawomirski, L., & Klazinga, N. (2020). The economics of patient safety: From analysis to action. *Organisation for Economic Co-operation and Development*. Retrieved from <http://www.oecd.org/health/health-systems/Economics-of-Patient-Safety-October-2020.pdf>
- Schon, D. (1983). *The reflective practitioner: How professionals think in action*. Temple Smith.
- Scott, S. D., Hirschinger, L. E., Cox, K. R., McCoig, M., Brandt, J., & Hall, L. W. (2009). The natural history of recovery for the healthcare provider "second victim" after adverse patient events. *Quality and Safety in Health Care*, 18(5), 325-330. <https://doi.org/10.1136/qshc.2009.032870>
- Temple, J. (2010). Time for training: A review of the impact of the European Working Time Directive on the quality of training.
- Ullström, S., Andreen Sachs, M., Hansson, J., Øvretveit, J., & Brommels, M. (2013). Suffering in silence: A qualitative study of second victims of adverse events. *BMJ Quality & Safety*, 23(4), 325-331. <https://doi.org/10.1136/bmjqs-2013-002035>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- World Health Organisation [WHO]. (2022). 10 facts on patient safety. Retrieved from <https://www.who.int/news-room/photo-story/photo-story-detail/10-facts-on-patient-safety>
- Wu, A. W. (2000). Medical error: The second victim. *BMJ*, 320(7237), 726-727. <https://doi.org/10.1136/bmj.320.7237.726>
- Wu, J., Shapiro, J., Harrison, R., Scott, S. D., Connors, C., Kenney, L., & Vanhaecht, K. (2017). The impact of adverse events on clinicians. *Journal of Patient Safety*. <https://doi.org/10.1097/pts.0000000000000256>

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