When Safety Becomes the Priority: Defensive Nursing Practice and its Associated Factors Among Nurses in Egypt: A Cross-Sectional Study (#103717)

First submission

Guidance from your Editor

Please submit by **30 Oct 2024** for the benefit of the authors (and your token reward) .

Structure and Criteria
Please read the 'Structure and Criteria' page for guidance.

Custom checks
Make sure you include the custom checks shown below, in your review.

Raw data check
Review the raw data.

Image check
Check that figures and images have not been inappropriately manipulated.

If this article is published your review will be made public. You can choose whether to sign your review. If uploading a PDF please remove any identifiable information (if you want to remain anonymous).

Files

Download and review all files from the materials page.

4 Table file(s)
2 Other file(s)

Custom checks

Human participant/human tissue checks

- Have you checked the authors ethical approval statement?
- Does the study meet our article requirements?
- Has identifiable info been removed from all files?
- Were the experiments necessary and ethical?

Structure and Criteria

Structure your review

The review form is divided into 5 sections. Please consider these when composing your review:

1. **BASIC REPORTING**
2. **EXPERIMENTAL DESIGN**
3. **VALIDITY OF THE FINDINGS**
4. General comments
5. Confidential notes to the editor

You can also annotate this PDF and upload it as part of your review

When ready submit online.

Editorial Criteria

Use these criteria points to structure your review. The full detailed editorial criteria is on your guidance page.

BASIC REPORTING

- Clear, unambiguous, professional English language used throughout.
- Intro & background to show context. Literature well referenced & relevant.
- Structure conforms to PeerJ standards, discipline norm, or improved for clarity.
- Figures are relevant, high quality, well labelled & described.
- Raw data supplied (see PeerJ policy).

EXPERIMENTAL DESIGN

- Original primary research within Scope of the journal.
- Research question well defined, relevant & meaningful. It is stated how the research fills an identified knowledge gap.
- Rigorous investigation performed to a high technical & ethical standard.
- Methods described with sufficient detail & information to replicate.

VALIDITY OF THE FINDINGS

- **Impact and novelty is not assessed.** Meaningful replication encouraged where rationale & benefit to literature is clearly stated.
- All underlying data have been provided; they are robust, statistically sound, & controlled.
- Conclusions are well stated, linked to original research question & limited to supporting results.

Standout reviewing tips

The best reviewers use these techniques

Tip	*Example*
Support criticisms with evidence from the text or from other sources	*Smith et al (J of Methodology, 2005, V3, pp 123) have shown that the analysis you use in Lines 241-250 is not the most appropriate for this situation. Please explain why you used this method.*
Give specific suggestions on how to improve the manuscript	*Your introduction needs more detail. I suggest that you improve the description at lines 57- 86 to provide more justification for your study (specifically, you should expand upon the knowledge gap being filled).*
Comment on language and grammar issues	*The English language should be improved to ensure that an international audience can clearly understand your text. Some examples where the language could be improved include lines 23, 77, 121, 128 – the current phrasing makes comprehension difficult. I suggest you have a colleague who is proficient in English and familiar with the subject matter review your manuscript, or contact a professional editing service.*
Organize by importance of the issues, and number your points	*1. Your most important issue* *2. The next most important item* *3. …* *4. The least important points*
Please provide constructive criticism, and avoid personal opinions	*I thank you for providing the raw data, however your supplemental files need more descriptive metadata identifiers to be useful to future readers. Although your results are compelling, the data analysis should be improved in the following ways: AA, BB, CC*
Comment on strengths (as well as weaknesses) of the manuscript	*I commend the authors for their extensive data set, compiled over many years of detailed fieldwork. In addition, the manuscript is clearly written in professional, unambiguous language. If there is a weakness, it is in the statistical analysis (as I have noted above) which should be improved upon before Acceptance.*

When Safety Becomes the Priority: Defensive Nursing Practice and its Associated Factors Among Nurses in Egypt: A Cross-Sectional Study

Ahmed Zaher [1], **Yasmine M. Osman** [2], **Salwa sayed** [3], **Sally Mohammed Farghaly Abdelaliem** [4], **Amany Anwar Saeed Alabdullah** [5], **Ahmed Hendy** [6, 7], **Zainab Attia Abdallah** [8], **Mohammed Musaed Ahmed Al-Jabri** [9], **Abdelaziz Hendy** [Corresp. 10]

[1] Psychiatric Mental Health Nursing, Faculty of Nursing, Ain Shams University, Cairo, Cairo, Egypt

[2] Department of Obstetrics and Gynecology Nursing, Faculty of Nursing, Zagazig University, Zagazig, Egypt, Cairo, Cairo, Egypt

[3] Clinical instructor in technical health institute at General Authority for Health Insurance, Master degree of pediatric Nursing, Cairo, Egypt, Cairo, Cairo, Egypt

[4] Associate professor, Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

[5] Assistant Professor, Department of Maternity and Child Health Nursing, College of Nursing, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

[6] Department of Computational Mathematics and Computer Science, Institute of Natural Sciences and Mathematics, Ural Federal University, Yekaterinburg, Russia

[7] Department of Mechanics and Mathematics, Western Caspian University, Baku, Azerbaijan, Baku, Azerbaijan

[8] Lecturer of Community Health Nursing – Faculty of Nursing – Modern University for Technology and Information (MTI), Egypt, Cairo, Cairo, Egypt

[9] Assistant professor Critical Care Nursing. prince Sattam bin Abdulaziz University, College of Applied Medical Sciences, Nursing Department, Wadi Aldawaser, Saudi Arabia

[10] Pediatric nursing department, Faculty nursing Ain Shams University, Egypt, Cairo, Cairo, Egypt

Corresponding Author: Abdelaziz Hendy
Email address: Abdelaziz.hendy@nursing.asu.edu.eg

Background: Defensive nursing practices, which prioritize legal protection over patient care, are becoming increasingly common. This study aims to explore the prevalence and factors associated with defensive nursing practices among nurses in Egypt, considering the impact of workplace violence and legal threats. Methods: A descriptive cross-sectional study was conducted from February to April 2024 using a self-report online questionnaire. The target population included clinical nurses working in various hospitals in Egypt. A sample size of 1267 nurses was achieved through convenience sampling. The questionnaire assessed demographic data, experiences of workplace violence, legal consequences, and defensive nursing practices, categorized into positive and negative behaviors. Results: The sample consisted of 1267 nurses, predominantly female (75.9%), with a mean age of 28.57 years. Positive defensive practices, such as detailed documentation (79%) and thorough explanation of procedures (58.5%), were highly prevalent. Negative practices included avoiding high-risk procedures (15.9%) and patients more likely to file lawsuits (13.6%). Older nurses and those with higher educational qualifications were more likely to engage in positive defensive practices. Nurses who

experienced workplace violence or legal threats were significantly more likely to avoid high-complication procedures. Conclusion: The study identified a high engagement in both positive and negative defensive practices among nurses in Egypt. These practices are influenced by factors such as age, education level, and experiences of workplace violence and legal threats. The findings underscore the need for strategies to support nurses, reduce reliance on defensive practices, and ensure better patient outcomes.

When Safety Becomes the Priority: Defensive Nursing Practice and its Associated Factors Among Nurses in Egypt: A Cross-Sectional Study

Ahmed Zaher[1], Yasmine M.Osman[2] , Salwa sayed[3], Sally Mohammed Farghaly Abdelaliem[4], Amany Anwar Saeed Alabdullah[5], Ahmed Hendy[6, 7], Zainab Attia Abdallah[8], Mohammed Musaed Ahmed Al-Jabri[9], Abdelaziz Hendy[10]

1- Psychiatric Mental Health Nursing, Faculty of Nursing, Ain Shams University, Cairo, Egypt. dr.ahmed.zaher@nursing.asu.edu.eg

2-Department of Obstetrics and Gynecology Nursing, Faculty of Nursing, Zagazig University, Zagazig, Egypt.dry.shady12@gmail.com

3- Clinical instructor in technical health institute at General Authority for Health Insurance, Master degree of pediatric Nursing, Cairo, Egypt s.elsayed54542@fnur.bu.edu.eg

4-Associate professor, Department of Nursing Management and Education, College of Nursing, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh 11671, Saudi Arabia. S.M.A. (smfarghaly@pnu.edu.sa).

https://orcid.org/0000-0001-6497-0952

5-Assistant Professor, Department of Maternity and Child Health Nursing, College of Nursing, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh 11671, Saudi Arabia Riyadh; aaalabdullah@pnu.edu.sa

6-Department of Computational Mathematics and Computer Science, Institute of Natural Sciences and Mathematics, Ural Federal University, Yekaterinburg, 620002, Russian Federation. ahmed.hendy@fsc.bu.edu.eg

7-Department of Mechanics and Mathematics, Western Caspian University, Baku, Azerbaijan

8-Lecturer of Community Health Nursing – Faculty of Nursing – Modern University for Technology and Information (MTI), Egypt. *Z.attia30@gmail.com*

9-Assistant professor Critical Care Nursing. prince Sattam bin Abdulaziz University, College of Applied Medical Sciences, Nursing Department, Wadi Aldawaser, Saudi Arabia. m.aljabri@psau.edu.sa

10- Pediatric nursing department, Faculty nursing Ain Shams University, Egypt

Abdelaziz.hendy@nursing.asu.edu.eg

Corresponding author:

PhD, Pediatric nursing department, Faculty nursing Ain Shams University, Egypt

Abdelaziz.hendy@nursing.asu.edu.eg

https://orcid.org/0000-0003-2960-3465

Scopus Author ID: 57219356175

Abstract:

Background: Defensive nursing practices, which prioritize legal protection over patient care, are becoming increasingly common. This study aims to explore the prevalence and factors associated with defensive nursing practices among nurses in Egypt, considering the impact of workplace violence and legal threats. Methods: A descriptive cross-sectional study was conducted from February to April 2024 using a self-report online questionnaire. The target population included clinical nurses working in various hospitals in Egypt. A sample size of 1267 nurses was achieved through convenience sampling. The questionnaire assessed demographic data, experiences of workplace violence, legal consequences, and defensive nursing practices, categorized into positive and negative behaviors. Results: The sample consisted of 1267 nurses, predominantly female (75.9%), with a mean age of 28.57 years. Positive defensive practices, such as detailed documentation (79%) and thorough explanation of procedures (58.5%), were highly prevalent. Negative practices included avoiding high-risk procedures (15.9%) and patients more likely to file lawsuits (13.6%). Older nurses and those with higher educational qualifications were more likely to engage in positive defensive practices. Nurses who experienced workplace violence or legal threats were significantly more likely to avoid high-complication procedures. Conclusion: The study identified a high engagement in both positive and negative defensive practices among nurses in Egypt. These practices are influenced by factors such as age, education level, and experiences of workplace violence and legal threats. The findings underscore the need for strategies to support nurses, reduce reliance on defensive practices, and ensure better patient outcomes.

Keywords: Defensive nursing practices, workplace violence, legal consequences, patient safety, Egypt.

Introduction

Globally, millions of people require complex health and social care services [1]. In light of the current challenges and opportunities, such as limited financial resources, increased population density, comorbid chronic diseases, and technological advancements, alongside these changes, the provision of comprehensive and seamless care for these patients remains a central concern to nurses and considered as integral to professional practice and a fundamental value of healthcare. Therefore, nurses play a critical role in ensuring patient safety by mitigating risks and adverse events [2].

In fact, technological advancements, enhanced understanding of diseases, and the demands of the clinical environment have indeed transformed the traditional patient-nurse relationship [3]. As a result, patients and their families have higher expectations of nurses, who provide comprehensive educational and support services as well as involvement in the care decision [4]. Furthermore, these issues may also lead patients to adopt restrictive practices and threaten their safety [5]. In parallel to the increase in healthcare services, there has also been an increase in legal aspects related to nursing, reflecting a similar pattern [6, 7]. In this context, nurses often practice defensively to avoid making mistakes and being reprimanded, therefore feeling under pressure to achieve organizational expectations and goals [8].

Over the past few decades, the culture of defensive practice has not just emerged but has grown exponentially worldwide. The ever-increasing number of medical claims has led to a particularly pronounced growth in high-risk medical areas [9]. Defensive practices in health care settings are performed not only by physicians but also by other health professionals, such as nurses and midwives [10, 11]. Defensive practice is a phenomenon in the health care system that occurs whenever a practitioner gives a higher priority to self-protection from blame than to the patient's best interests due to fear of liability claims and lawsuits [12]. Although defensive practices are intended to mitigate risks, they may sometimes result in suboptimal patient care and hinder the implementation of evidence-based practices [13]. Moreover, defensive practices can result in malpractice cases as well as infringing upon patients' rights [14].

Defensive practice can be categorized into positive and negative defensive practices. positive defensive practice includes additional interventions and practices that are implemented regardless of the potential benefit to the individual's health [15, 16]. Specifically, to mitigate the risk of medical malpractice litigation in accordance with legal service standards [17]. In contrast, negative defensive practices are employed by doctors and other healthcare professionals in high-risk

situations to evade accepting responsibility and protect themselves against legal risks [18]. These practices can include behaviors such as refusing to perform high-risk procedures and treatments, avoiding invasive procedures, and excluding high-risk patients from surgical schedules [19]. According to [20] the study, which reported that 12% of the midwives performing defensive practice stopped offering or attending vaginal birth after cesarean section because of the fear of liability and litigation.

Over the past five years, the Egyptian health care system has seen numerous reforms and regulations, many of which were positively received by the population as contributing to better health care, especially after the adoption of the landmark Egyptian Universal Health Insurance (UHI) law [21]. However, defensive practice has increased, and the data regarding the magnitude of the problems is not sufficient.

Nurses in Egypt face challenges related to legal liabilities in nursing malpractice cases, with varying perceptions among them [22]. Likewise, workplace violence (WPV) is a significant occupational hazard for healthcare professionals, including nurses, with patients and their relatives often being the perpetrators, with incidents ranging from verbal abuse to physical attacks [23]. Nurses are negatively affected by workplace violence (WPV), which impedes their ability to provide essential care and compromises their overall quality of care [24, 25]. Therefore, increasing nurses' awareness of defensive practices, addressing resourcing challenges, promoting the safety of staff members, and providing nurses with more autonomy in exercising their roles could help reduce defensive practices [26].

To the best of our knowledge, no studies have investigated defensive nursing practices, specifically among nurses in Egypt. By exploring individual, social, organizational, and ethical dimensions, we seek to identify the underlying factors that contribute to defensive practices and propose evidence-based strategies to bridge the gap between safety and defensive nursing practices. Therefore, we conducted this cross-sectional study to explore and analyze the prevalence and types of defensive nursing practices among nurses in Egypt. Also, identify the factors that contribute to the adoption of these practices.

Methods

Study design

A descriptive cross-sectional study using a self-report online questionnaire was conducted and reported in accordance with the guidelines for Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) [27]. The target population of this study consisted of all clinical nurses, including females and males, who were 20 years or older and currently working in affiliated universities and public or private hospitals, especially in the inpatient departments and willing to participate in the study. Internship nursing students who were undergoing training at the hospital were excluded from the study.

Sampling and sample size calculation

Convenient sampling was used to conduct this study. The sample size was calculated based on a study carried out by Turan and Kaya (2019), which estimated an effect size of 65.5% of nurses who reported that they always kept their records in a more detailed way to protect themselves against allegations of malpractice. The level of confidence (1-Alpha Error) was 95%, the margin of error was 5, the population proportion was 65.5, and the population size was 300,000 registered nurses in the nursing syndicate. Therefore, the minimum final sample size was determined to be 162. However, we more than quadrupled the least required sample size to allow for assessing different frequencies of defensive nursing practices.

Tools of Data Collection

The data were collected using a self-administered online questionnaire. The questionnaire was developed based on an extensive review of relevant studies and previously published questionnaire instruments. It is intended to assess the practices of defensive nursing among Egyptian nurses. The questionnaire was translated into Arabic for the purpose of this research; two bilingual translators independently translated the English version into Arabic to evaluate the applicability of the

defensive nursing practice tool for Arabic-speaking populations. To ensure the accuracy of the translation, two additional impartial translators back-translated the translation into English. It consisted of three parts: **Part I:** The first part of the questionnaire gathered the demographic data of nurses, including age, gender, marital status, qualifications, years of working experience, and specialty (department).

Part II: Factors associated with defensive nursing practice assessed through experience of nurses-related violence and legal consequences such as experiencing physical violence in the workplace, threats by patients or their companions that you might face legal consequences related to nursing practice and experiencing legal consequences due to circumstances related to nursing practice.

Part III: Defensive nursing practices were assessed with ten items divided into two domains: It was adopted from Turan & Kaya [28]. It included positive defensive practices such as “Do you carry out interventions or procedures that are probably not unnecessary to avoid possible legal consequences?” and “Do you order tests without a doctor’s prescription that are probably not clinically indicated to avoid possible legal consequences?” etc.; and negative defensive practices such as “Do you refuse to assign high-risk patients to avoid possible legal consequences in the case of complications?” and “Do you avoid high-risk procedures to avoid possible legal consequences in the case of complications?”. The study utilized a Likert scale scoring system in which each item was rated as always "2," sometimes "1," and never "0," and a high score indicates a high level of defensive nursing practices. The nurses' responses were categorized into negative defensive practices if the score was from 0-5, and positive defensive practices if the score was from 6-10.

Tools Validity: The researchers created the questionnaire after reviewing pertinent literature. A five-person jury of professionals from the education and psychiatric nursing departments assessed it. The jury found that the scales sufficiently evaluated the intended structures.

Pilot study: The pilot study, which involved 10% of the nurses from the context above, evaluated the practicality and clarity of the items, identified any potential difficulties or issues that might arise during data collection, and measured the time needed to complete the tools.

Procedures: We distributed the online questionnaire across several social media platforms and nurses' internet forums in Egypt and designed a three-section self-administered questionnaire. The first section explained the study objectives and eligibility criteria. The second section included demographic and workplace characteristics. The third section evaluated different defensive nursing practices. We created the online questionnaire using Google Forms (https://forms.office.com/r/0SA4hJEZX1). To collect responses, the link was distributed and shared to several social network groups hosting Egyptian nurses, such as Facebook and WhatsApp. The Egyptian Nursing Syndicate, the main governing body that grants nursing licenses to nurses in Egypt, has shared the survey within its social network. Other national professional nursing associations and societies shared the questionnaire with their members. Even nursing students were engaged in distributing the survey forms over WhatsApp Platforms because of their continuing attendance at the hospital for training and education, and they did so after distributing the questionnaire link and invitation to nurses.

Data was collected for one month, from February 2024 to April 2024. An online informed consent form was created, and participants had to agree to it by clicking an "I agree" button before moving on to the survey questions. Each question in the questionnaire was made mandatory, meaning that

partial responses could not be submitted. The researchers closed the question page once the responses reached the estimated sample size. Finally, all completed questionnaires were printed out and entered into the statistical package (SPSS) to avoid any mistakes that might occur.

Ethical Consideration

The research was approved by an ethical and research committee affiliated with the faculty of nursing at Modern University for Technology and Information (MTI) with the formal approval number (FAN/128/2023) on December 25, 2023. An online informed consent form was created, and participants had to agree to it by clicking an "I agree" button before moving on to the survey questions. If the participant answered "I agree" to the first question of the form, he/she was automatically forwarded to the study questions page. In addition, participants who agreed to participate in the study were assured that all information obtained would be kept confidential and only authorized team members had access to it. This is an anonymous online questionnaire. Nurses' participation in the study was voluntary; they could withdraw from this study at any time.

Statistical Analysis

The collected data were coded and entered into the statistical package for social sciences (SPSS) (SPSS Inc; version 24; IBM Corp., Armonk, NY, USA). After completing the entry, the data was explored to detect any errors. Then, it was analyzed by the same program for presenting frequency tables with percentages. Qualitative data was presented as a number and percent. Furthermore, quantitative data was described as mean or standard deviation, as appropriate. The chi-square test is a statistical hypothesis test used to determine if there is a significant association between two categorical variables. The results were considered statistically significant at $P \leq 0.05$ and highly significant at $P < 0.01$**. The developed tools were evaluated for their reliability by using

Cronbach's alpha coefficient test in the SPSS program version 24 by a statistician. Internal consistency reliability (Cronbach's α) appeared to be good for the predesigned questionnaire (Cronbach's α = 0.836).

Results:

The sample consisted of 1267 nurses (75.9% female) with a mean age of 28.57 years (SD = 5.8). Regarding marital status, half were single (50%) while 44.9% were married. Most had either a bachelor's degree in nursing (45.8%) or a nursing diploma/institute degree (17.8%), with 7.4% having a postgraduate degree. The mean years of working experience was 7.6 (SD = 6.3), with 69.5% having 1-10 years of experience. The nurses specialized in various departments, including ICU (33.3%), wards (33.1%), emergency (13.3%), operation theaters (14.2%), and psychiatry (8%). Also, nearly one-fifth (19.7%) reported experiencing physical violence at work. A sizeable proportion (32%) had been threatened by patients or their companions that they might face legal consequences related to their nursing practice. Furthermore, 15.9% of the nurses had actually experienced legal consequences due to circumstances related to their nursing duties. Also, the majority (57.9%) did not view their risk as particularly high at all. However, a sizable 31.8% considered their legal risk to be high, while 10.3% even rated their risk as profoundly high, see more in table 1.

Table 2 outlines the practices of defensive nursing reported by the 1267 nurses surveyed. Both positive and negative defensive practices were assessed. Positive practices like explaining nursing procedures in more detail (58.5% always did this) and keeping more detailed records (79% always) were highly prevalent, likely aimed at protecting against malpractice allegations. However, some negative defensive practices were also reported, though to a lesser extent - such as avoiding high-risk procedures (15.9% always did this) and avoiding patients more likely to file lawsuits (13.6% always).

Table 3 presents the relation between nurses' socio-demographic characteristics and the practice of explaining nursing procedures in more detail to protect against malpractice allegations. There

were significant differences based on age ($\chi2 = 18.124$, $p = .001$), educational qualifications ($\chi2 = 32.539$, $p < .001$), and clinical specialty ($\chi2 = 31.065$, $p < .001$). Also, revealed nurses aged 40-50 years old (74.7%) were more likely to always explain in detail compared to those 20-<30 years (6.6%) and 30-<40 years (9%). Similarly, higher proportions of nurses with bachelor's (60.5%) and postgraduate degrees (51%) always did this compared to those with diplomas/institutes (48.6%). Across departments, emergency (69.1%) and psychiatry nurses (50.9%) most frequently always explained in detail. However, years of experience was not significantly associated with this practice ($\chi2 = 3.826$, $p = .430$).

Table 4 shows that nurses who had experienced physical workplace violence were more likely to always (35.7%) or sometimes (49.8%) avoid high-complication procedures compared to those without such experiences (always 25.2%, sometimes 40.4%), $\chi2 = 38.349$, $p < .001$. Similarly, those threatened with legal consequences by patients/families more frequently always (32.3%) or sometimes (45.2%) avoided these procedures versus those not threatened (always 25%, sometimes 40.8%), $\chi2 = 19.260$, $p < .001$. Nurses who had faced legal consequences related to nursing practice were also more prone to always (33.1%) or sometimes (52%) avoid high-complication procedures compared to those without legal issues (always 26.2%, sometimes 40.4%), $\chi2 = 27.668$, $p < .001$. Across departments, emergency nurses most commonly always (32%) avoided these procedures, $\chi2 = 15.843$, $p = .045$. These results suggest prior violence/legal experiences significantly increase defensive tendency to avoid high-risk nursing procedures, potentially compromising care quality. According to the the relationship between nurses' perceived risk of malpractice lawsuits at work, clinical specialty, and the practice of keeping records in a more detailed way to protect against allegations. Chi-square analyses found a significant association with perceived legal risk ($\chi2 = 9.679$, $p = .046$) and specialty department ($\chi2 = 50.599$, $p < .001$). Nurses who rated their malpractice risk as profoundly high were most likely to always keep ultra-detailed records (81.7%) compared to those rating risk as high (80.4%) or not at all high (77.8%). Across specialties, all emergency nurses (100%) and nearly all operation room nurses (88.1%) reported always

maintaining extremely thorough documentation. In contrast, lower proportions of psychiatry (74.2%) and ward nurses (77.3%) always did so.

Discussion:

This study delves into the explore and analyze the prevalence and types of defensive nursing practices among nurses in Egypt. Also, identify the factors that contribute to the adoption of these practices. By exploring that, valuable insights can be gained to improve nursing practices and optimize patient safety in healthcare settings in Egypt. The current study examined the prevalence of workplace violence and the legal consequences encountered by 1267 nurses. The results revealed that a significant proportion of the nurses reported experiencing physical violence in their workplace. Additionally, a considerable number of respondents reported being threatened by patients or their companions with potential legal consequences as a result of circumstances linked to their nursing duties.

The findings of this study are consistent with existing literature, highlighting the pervasive nature of workplace violence in healthcare settings. Previous studies have shown that nurses are particularly vulnerable to various forms of violence, including physical, verbal, and psychological abuse [29]. This study adds to the body of evidence by quantifying the extent of physical violence and legal threats faced by nurses. The high incidence of physical violence reported by nurses is alarming and indicates a critical need for improved safety measures in healthcare facilities [30]. Physical violence can lead to severe physical injuries, psychological trauma, and long-term health issues for the victims [31]. The threat of legal consequences as reported by the nurses is a significant concern [32].These threats can stem from misunderstandings, dissatisfaction with care, or attempts to intimidate healthcare professionals. The fear of legal repercussions can lead to defensive medicine practices, increased stress, and burnout among nurses, further exacerbating the challenges they face [33].

Our study indicates that more than one third of nurses consider their risk of facing a malpractice lawsuit to be high. This perception can significantly impact their work behavior and mental well-being. This finding aligns with other studies showing that many healthcare professionals feel particularly vulnerable to legal action in their daily work [34, 35]. Perceived risk of malpractice lawsuits can influence how nurses conduct their duties. Studies have shown that higher perceived legal risks can lead to defensive nursing practices, where nurses might over-document or avoid high-risk procedures to protect themselves from potential litigation [14]. This can result in increased workload and stress, potentially affecting the quality of patient care [36].

Our results about defensive nursing practices are prevalent among the 1267 surveyed nurses, reflecting their strategies to mitigate the risk of malpractice allegations. These practices can be broadly categorized into positive and negative defensive behaviors. The survey highlights that positive defensive practices are common. A significant 58.5% of nurses always explain nursing procedures in more detail to patients, and 79% keep more detailed records. These practices are intended to ensure transparency, improve patient understanding, and provide thorough documentation that can be crucial in defending against malpractice claims. Such meticulousness in communication and record-keeping can enhance patient care and build trust, ultimately serving both the nurses' and patients' interests [37]. Also, Bizimana & Bimerew [38] reported that nurses had positive attitudes on benefits of the quality of patient record-keeping. Furthermore, Turan & Kaya [28]stated that 48.7% of nurses sometimes explained nursing practices in more detail to protect themselves from the allegations of malpractice. Regular record-keeping is one of the methods of the fight against malpractice [39]. Also, Robertson & Thomson [40]stated that studied midwives Increased the amount of documentation as a defensive practice.

Despite the emphasis on positive practices, a subset of nurses engage in negative defensive behaviors. The survey indicates that 15.9% of nurses always avoid high-risk procedures, and 13.6% avoid patients they perceive as more likely to file lawsuits. These practices, while aimed at self-protection, can have adverse effects on patient care and access to necessary medical procedures. Avoiding high-risk patients or procedures can lead to disparities in care and negatively impact patient outcomes [41]. At same line, Turan & Kaya [28] stated that 44.1% of them never avoided practices with high complications to guard themselves against malpractice lawsuits. Midwives and nursing personnel practiced both active and passive defensive practices, such as over-investigation, over-treatment, and avoidance of high-risk patients[11]. Also, Guidera et al. [20]. Decreased number of high-risk patients cared for 23%. Hood et al. [42] reported that midwives increased the number of consults with collaborating physicians as a defensive practice.

The prevalence of both positive and negative defensive practices underscores the need for a balanced approach to nursing practice. Training programs that emphasize effective communication, thorough documentation, and ethical decision-making can help nurses navigate the complexities of patient care without resorting to avoidance strategies. Additionally, institutional support systems that provide legal and emotional support to nurses can reduce the perceived need for negative defensive behaviors.

The relationship between nurses' socio-demographic characteristics and their practice of explaining nursing procedures in detail to mitigate malpractice allegations reveals several significant trends. Age was significantly associated with the likelihood of explaining procedures in detail ($\chi 2 = 18.124$, $p = .001$). Nurses aged 40-50 years old were the most likely to always provide detailed explanations (74.7%), compared to their younger. This trend suggests that older nurses may have more experience and awareness of the importance of detailed communication in protecting against legal issues [43]. Also, Educational qualifications also showed a significant correlation with this practice. Nurses holding bachelor's (60.5%) and postgraduate degrees (51%)

were more likely to always explain procedures in detail. This indicates that higher education levels may equip nurses with better communication skills and a deeper understanding of legal implications in nursing practice [44]. Furthermore, Clinical specialty significantly influenced the practice of detailed explanations ($\chi 2 = 31.065$, $p < .001$). Nurses in emergency (69.1%) and psychiatry departments (50.9%) most frequently reported always explaining procedures in detail. These specialties often involve high-stress environments and complex patient interactions, possibly necessitating more thorough communication to prevent misunderstandings and legal complications [45].

According to the relationship between nurses' experiences of violence or legal consequences and their practice of avoiding high-complication procedures to protect against malpractice allegations. Nurses who had experienced physical workplace violence were significantly more likely to avoid high-complication procedures. This suggests that the trauma and fear resulting from physical violence lead to increased caution and defensive behavior among affected nurses [46]. Similarly, nurses who had been threatened with legal consequences by patients or their families more frequently avoiding high-complication procedures. The fear of litigation appears to drive nurses towards more conservative practices to minimize the risk of legal action [47]**.**

Conclusion:

The study identified a significant engagement in positive defensive practices among nurses, such as detailed documentation and thorough explanation of procedures to patients, primarily aimed at legal protection. Despite the prevalence of these positive practices, negative defensive behaviors, such as avoiding high-risk patients and procedures, were also observed, albeit less frequently. The analysis revealed that older nurses and those with higher educational qualifications were more

likely to engage in positive defensive practices. Additionally, nurses working in emergency and psychiatry departments reported higher incidences of these practices. Importantly, the study found that nurses who experienced workplace violence or legal threats were more likely to avoid high-complication procedures, indicating a direct link between these adverse experiences and the adoption of defensive practices. These findings highlight the critical need for strategies to support nurses, reduce the reliance on defensive practices, and ultimately ensure better patient outcomes.

Limitations

Sample Representation: The study relied on self-reported data from a convenience sample of nurses, which may not be representative of all nurses in Egypt. Response Bias: There is a possibility of response bias, where nurses might have reported practices in a socially desirable manner. Cross-Sectional Design: The study's cross-sectional nature limits the ability to establish causality between defensive practices and their influencing factors.

Implications of Practices

Policy Development: The findings can inform policy development aimed at reducing legal threats and improving workplace safety for nurses. Training Programs: Implementing training programs focused on effective communication, legal knowledge, and emotional resilience can help nurses manage their fears and reduce negative defensive practices. Support Systems: Establishing robust support systems, including legal and psychological support, can help mitigate the factors driving defensive practices and promote a safer and more effective nursing environment.

Funding: Princess Nourah bint Abdulrahman University, Project number (PNURSP2024R444), Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia.

Conflict of interest: None.

Reference

1. Nyashanu, M., F. Pfende, and M.J.J.o.i.c. Ekpenyong, *Exploring the challenges faced by frontline workers in health and social care amid the COVID-19 pandemic: experiences of frontline workers in the English Midlands region, UK.* 2020. **34**(5): p. 655-661.
2. Organization, W.H., *Strategizing national health in the 21st century: a handbook.* 2016.
3. Boyne, J.J., et al., *The changing role of patients, and nursing and medical professionals as a result of digitalization of health and heart failure care.* 2022. **30**(8): p. 3847-3852.
4. Hannawa, A.F., et al., *The aspects of healthcare quality that are important to health professionals and patients: A qualitative study.* 2022. **105**(6): p. 1561-1570.
5. Berzins, K., et al., *A qualitative exploration of mental health service user and carer perspectives on safety issues in UK mental health services.* 2020. **23**(3): p. 549-561.
6. Parker, J.M.J.N.I., *Evidence-based nursing: a defence*. 2002, Wiley Online Library. p. 139-140.
7. Pazvantoğlu, O., et al., *Perception of patient aggression among nurses working in a university hospital in Turkey.* 2011. **17**(5): p. 495-501.
8. Manuel, J. and M.J.I.j.o.m.h.n. Crowe, *Clinical responsibility, accountability, and risk aversion in mental health nursing: A descriptive, qualitative study.* 2014. **23**(4): p. 336-343.
9. Tuers, D.M.J.N.a.q., *Defensive medicine in the emergency department: increasing health care costs without increasing quality?* 2013. **37**(2): p. 160-164.
10. Mullen, R., A. Admiraal, and J.J.C.C. Trevena, *Defensive practice in mental health.* 2008.
11. Rinaldi, C., et al., *Defensive practices among non-medical health professionals: an overview of the scientific literature.* 2019. **34**(2): p. 97-108.
12. Baungaard, N., et al., *How defensive medicine is defined and understood in European medical literature: protocol for a systematic review.* 2020. **10**(2): p. e034300.
13. Rothberg, M.B., et al., *The cost of defensive medicine on 3 hospital medicine services.* 2014. **174**(11): p. 1867-1868.
14. Renkema, E., M. Broekhuis, and K.J.B.h.s.r. Ahaus, *Conditions that influence the impact of malpractice litigation risk on physicians' behavior regarding patient safety.* 2014. **14**: p. 1-6.
15. Moosazadeh, M., et al., *Determining the frequency of defensive medicine among general practitioners in Southeast Iran.* 2014. **2**(3): p. 119.
16. Ortashi, O., et al., *The practice of defensive medicine among hospital doctors in the United Kingdom.* 2013. **14**: p. 1-6.
17. Miziara, I.D. and C.S.M.G.J.C. Miziara, *Medical errors, medical negligence and defensive medicine: A narrative review.* 2022. **77**: p. 100053.
18. Arafa, A., et al., *Defensive medicine practices as a result of malpractice claims and workplace physical violence: a cross-sectional study from Egypt.* 2023. **13**(1): p. 22371.
19. O'Connell, J.J.I.J.o.C.P., *Defensive pharmacy practice: a gap in our understanding.* 2021. **43**(6): p. 1718-1721.
20. Guidera, M., et al., *Midwives and liability: results from the 2009 nationwide survey of certified nurse-midwives and certified midwives in the United States.* 2012. **57**(4): p. 345-352.

21. (WHO), W.H.O. *Universal Health Coverage and Health insurance by EGYPT* 2020 20 may 2024]; Available from: https://www.who.int/about/accountability/results/who-results-report-2020-mtr/country-story/2020/egypt.
22. Mahmoud Farhat, A.A., S. Ghandour, and H.A.J.P.S.S.J.o.N. Mohamed, *Nurses' Perception Regarding Legal Aspects Liabilities at Port Said General Hospitals.* 2023. **10**(2): p. 114-137.
23. Abozaid, D.A., et al., *Patient and visitor aggression de-escalation training for nurses in a teaching hospital in Cairo, Egypt.* 2022. **21**(1): p. 63.
24. Cheung, T. and P.S.J.B.p.h. Yip, *Workplace violence towards nurses in Hong Kong: prevalence and correlates.* 2017. **17**: p. 1-10.
25. Kafle, S., et al., *Workplace violence against nurses: a narrative review.* 2022. **8**(5): p. 421.
26. Bowers, L., et al., *Reducing conflict and containment rates on acute psychiatric wards: The Safewards cluster randomised controlled trial.* 2015. **52**(9): p. 1412-1422.
27. Von Elm, E., et al., *The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies.* 2014. **12**(12): p. 1495-1499.
28. Turan, N. and N.J.J.o.H.S. Kaya, *The Defensive Practices of Nurses.* 2019. **9**(2): p. 75-85.
29. Öztaş, İ., A. Yava, and A.J.J.o.e.n. Koyuncu, *Exposure of emergency nurses to workplace violence and their coping strategies: a cross-sectional design.* 2023. **49**(3): p. 441-449.
30. Yenealem, D.G. and A.M.J.H. Mengistu, *Fear of violence and working department influences physical aggression level among nurses in northwest Ethiopia government health facilities.* 2024. **10**(6).
31. Powell, N., et al., *The lived experience of workplace violence among emergency nurses.* 2023. **49**(3): p. 425-430.
32. Salehi, T., et al., *Nurses' knowledge, attitudes, and practice in relation to pharmacovigilance and adverse drug reaction reporting: a systematic review.* 2021. **2021**(1): p. 6630404.
33. Ries, N.M., B. Johnston, and J.J.B.m.e. Jansen, *A qualitative interview study of Australian physicians on defensive practice and low value care:"it's easier to talk about our fear of lawyers than to talk about our fear of looking bad in front of each other".* 2022. **23**(1): p. 16.
34. Maquibar Landa, A., et al., *Primary healthcare nurses' experiences of addressing intimate partner violence in supportive legal and health system contexts.* 2023.
35. Patynowska, K.A., et al., *'That just doesn't feel right at times'–lone working practices, support and educational needs of newly employed Healthcare Assistants providing 24/7 palliative care in the community: A qualitative interview study.* 2023. **37**(8): p. 1183-1192.
36. Savcı, A., et al., *Determining Individual Workload Perceptions and Malpractice Tendencıes Among Operating Room Nurses.* 2020. **10**(4): p. 348-354.
37. Flaubert, J.L., et al., *Supporting the Health and Professional Well-Being of Nurses*, in *The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity*. 2021, National Academies Press (US).
38. Bizimana, E. and M.J.I.J.o.A.N.S. Bimerew, *Knowledge, attitudes and barriers of nurses on benefits of the quality of patient record-keeping at selected public district hospitals in Burundi.* 2021. **14**: p. 100266.
39. Yılmaz, K., O. Polat, and B.J.T.A.A.D. Kocamaz, *The legal analysis of defensive medicine acts.* 2014. **5**: p. 19-51.

40. Robertson, J.H. and A.M.J.M. Thomson, *An exploration of the effects of clinical negligence litigation on the practice of midwives in England: A phenomenological study.* 2016. **33**: p. 55-63.
41. Wade, C., et al., *Action on patient safety can reduce health inequalities.* 2022. **376**.
42. Hood, L., J. Fenwick, and J.J.M. Butt, *A story of scrutiny and fear: Australian midwives' experiences of an external review of obstetric services, being involved with litigation and the impact on clinical practice.* 2010. **26**(3): p. 268-285.
43. Hanganu, B., et al., *Socio-demographic, professional and institutional characteristics that make Romanian doctors more prone to malpractice complaints.* 2022. **58**(2): p. 287.
44. Alandajani, A., et al., *Knowledge and attitudes regarding medication errors among nurses: A cross-sectional study in major Jeddah hospitals.* 2022. **12**(4): p. 1023-1039.
45. Al-Hasnawi, A.A. and M.K.A.J.J.P.S.R. Aljebory, *Relationship between nurses' performance and their demographic characteristics.* 2023. **6**(1): p. 11-15.
46. Kim, S., C. Mayer, and C.B.J.J.o.r.i.n. Jones, *Relationships between nurses' experiences of workplace violence, emotional exhaustion and patient safety.* 2021. **26**(1-2): p. 35-46.
47. Chapman, R., et al., *Consequences of workplace violence directed at nurses.* 2008. **17**(20): p. 1256-1261.

Table 1(on next page)

Characteristics of studied nurses (n=1267)

Table (1) Characteristics of studied nurses (n=1267)

Items	N	%
Age:		
20 - <30	784	61.8
30 - <40	408	32.2
40 - 50	75	6
Mean ± SD 28.57 (5.8)		
Gender:		
Female	962	75.9
Male	305	24.1
Marital Status:		
Single	633	50
Married	569	44.9
Divorced	52	4.1
Widowed	13	1
Qualifications:		
Nursing Diploma	94	7.4
Nursing institute	499	39.4
Bachelor's degree	580	45.8
Postgraduate	94	7.4
Years of working experience:		
1 - <10	881	69.5
10 - <20	299	23.6
20 – 30	87	6.9
Mean ± SD 7.6 (6.3)		
Specialty (Department):		
ICU	422	33.3
Ward	396	31.3
Emergency	181	14.2
Operation	101	8
Psychiatry	167	13.2
Experienced physical violence in the workplace:	249	19.7
Yes	1018	80.3
No		
Threatened by patients or their companions that you might face legal consequences:		
Yes	405	32
No	862	68
Experienced legal consequences due to circumstances related to nursing practice:		
Yes	202	15.9
No	1065	84.1
Risk of malpractice lawsuit at work:		
Profoundly high	131	10.3
High	403	31.8
Not at all	733	57.9

Table 2(on next page)

Practices of defensive nursing among studied nurses (n=1267)

Table (2) Practices of defensive nursing among studied nurses (n=1267)

The practices of defensive nursing	Never		Sometimes		Always	
	N	%	N	%	N	%
Positive defensive practices						
Carry out interventions or procedures that are probably not unnecessary to avoid possible legal consequences	659	52	513	40.5	95	7.5
Order tests that are probably not clinically indicated without a doctor's prescription to avoid possible legal consequences	882	69.6	620	25.3	65	5.1
Having severe concerns about making mistakes in nursing care	181	14.3	700	55.2	386	30.5
Explain nursing practices in more detail to protect yourself from malpractice allegations	92	7.3	434	34.3	741	58.5
Keep the records in a more detailed way to protect yourself from malpractice allegations	55	4.3	211	16.7	1001	79
Negative defensive practices						
Refuse to assign high-risk patients to avoid possible legal consequences in the case of complications	804	63.5	362	28.5	101	8
Avoid high-risk procedures to avoid possible legal consequences in the case of complications	522	41.2	544	42.9	201	15.9
Administer drugs that you think to be unnecessary to protect yourself from malpractice allegations	875	69.1	255	20.1	137	10.8
Avoid patients who are more likely to file a lawsuit to protect yourself from malpractice allegations	632	49.9	462	36.5	173	13.6
Avoid practices with high complications to protect yourself from malpractice allegations	386	30.5	535	42.2	346	27.3

Table 3(on next page)

Relation between nurses' characteristics and explaining nursing practice in more details

Table (3) Relation between nurses' characteristics and explaining nursing practice in more details

Socio- demographic data		Explain nursing practices in more detail to protect yourself from malpractice allegations						X^2	P-Value
		Always (n=92)		Sometimes (n=434)		Never (n=741)			
		No.	%	No.	%	No.	%		
Age (years)	20 - <30	475	60.6	257	32.8	52	6.6	18.124	.001
	30 - <40	210	51.5	161	39.5	37	9		
	40 - 50	56	74.7	16	21.3	3	4		
Qualifications	Nursing Diploma	40	42.6	48	51	6	6.4	32.539	<.001
	Nursing institute	310	62.1	161	32.3	28	5.6		
	Bachelor's degree	351	60.5	177	30.5	52	9		
	Postgraduate	40	42.6	48	51	6	6.4		
Years of working experience	1 - <10	510	58.1	307	35	61	6.9	3.826	.430
	10 - <20	172	57.5	102	34.1	25	8.4		
	20 – 30	56	66.7	25	29.8	3	3.5		
Specialty (Department)	Emergency	125	69.1	43	23.8	13	7.2	31.065	<.001
	ICU	256	60.7	152	36	14	3.3		
	Operation	57	56.4	38	37.6	6	5.9		
	Psychiatry	85	50.9	63	37.7	19	11.4		
	Ward	218	55.1	138	34.8	40	10.1		

13

14

Table 4(on next page)

Relation between Nurses' Experience of Violence, Legal Consequences, Avoidance of High-Complication Practices, and Detailed Record Keeping

Table (4): Relation between Nurses' Experience of Violence, Legal Consequences, Avoidance of High-Complication Practices, and Detailed Record Keeping

Experience of nurses-related violence and legal consequences		Avoid practices with high complications to protect yourself from malpractice allegations						X^2	P-Value
		Always (n=346)		Sometimes (n=535)		Never (n=386)			
		No.	%	No.	%	No.	%		
Experienced physical violence in the workplace	No	257	25.2	411	40.4	350	34.4	38.349	<.001
	Yes	89	35.7	124	49.8	36	14.5		
Threatened by patients or their companions that you might face legal consequences	No	215	25	352	40.8	295	34.2	19.260	<.001
	Yes	131	32.3	183	45.2	91	22.5		
Experienced legal consequences due to circumstances related to nursing practice	No	279	26.2	430	40.4	356	33.4	27.668	<.001
	Yes	67	33.1	105	52	30	14.9		
Specialty (Department)	Emergency	58	32	87	48.1	36	19.9	15.843	.045
	ICU	111	26.3	178	42.2	133	31.5		
	Operation	28	27.7	34	33.7	39	38.6		
	Psychiatry	41	24.6	67	40.1	59	35.3		
	Ward	108	27.3	169	42.7	119	30		
Variables		**Keep the records in a more detailed way to protect yourself from malpractice allegations**						**X^2**	**P-Value**
		Always (n=1001)		**Sometimes (n=211)**		**Never (n=55)**			
		No.	**%**	**No.**	**No.**	**%**	**No.**		
Risk of malpractice lawsuit at work	Not at all high	570	77.8	122	16.6	41	5.6	9.679	.046
	High	324	80.4	65	16.1	14	3.5		
	Profoundly high	107	81.7	24	18.3	0	0		
Specialty (Department)	Emergency	152	84	29	16	0	0	50.599	<.001
	ICU	330	78.2	87	20.6	5	1.2		
	Operation	89	88.1	9	8.9	3	3		
	Psychiatry	124	74.2	30	18	13	7.8		
	Ward	306	77.3	56	14.1	34	8.6		