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ORIGINAL RESEARCH

Healthcare Workers' Pain Management-Correlated Barriers and Self-Efficacy at Teaching Hospitals in the City of Ismailia

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Aim: To determine healthcare workers' pain management-correlated barriers and self-efficacy at teaching hospitals in the city of Ismailia, Egypt.

Methods: A descriptive study was enrolled. 117 healthcare workers (nurses and physicians) were recruited through a purposive sampling technique. An online valid closed-ended online questionnaire was used to collect data between June and December 2023 to assess demographic data, pain management-correlated barriers, and self-efficacy.

Results: The findings indicated that medical staff, patients and families, and the healthcare system each perceived distinct barriers to care, with mean scores of 4.88 (SD = 0.56), 5.65 (SD = 1.74), and 3.11 (SD = 0.36), respectively. Furthermore, healthcare workers' self-efficacy was found to be moderate, with a mean score of 12.99 (SD = 4.02) A statistically significant difference ($p \leq 0.05$) was found in healthcare workers' self-efficacy based on their workplace and years of experience.

Conclusion: In the critical care setting, healthcare workers perceived correlated barriers as significant obstacles to successful pain management. High self-efficacy in pain management was reported among healthcare workers in the critical care unit. Effective pain management necessitates specialized training programs that incorporate diverse tools and consider patients' cultural backgrounds. Integrating cultural competence into academic curricula and hospital training programs is vital. Healthcare organizations and policy-makers should prioritize addressing the identified barriers to improve healthcare delivery and outcomes.

Study Implication: Firstly, enhancing pain management practices is crucial in improving patient care. Identifying and addressing the barriers that healthcare professionals face in pain management. Improving healthcare workers' self-efficacy in pain management for consistent and effective care, reducing unnecessary suffering and bridge the gaps to improve overall patient outcomes.

Keywords: barriers, healthcare workers, pain management, self-efficacy

Introduction

Pain is a complex and multifaceted experience that affects an individual's quality of life. Pain is a common symptom that most patients suffer from in various medical conditions, which makes its evaluation and management one of the most crucial elements of healthcare.[1] According to the World Health Organization (WHO), most of the patients with serious illnesses like cancer, or chronic pain conditions, are experiencing pain.[2] Ineffective pain management for critically ill patients at intensive care units (ICUs) is a serious public health concern that can result in extended mechanical ventilation, diminished physical functioning, and emotional well-being. Healthcare workers are responsible for diagnosing, assessing, and delivering appropriate pain treatment to patients admitted in ICUs, as well as identifying the challenges they confront, which is critical for designing effective pain treatment programs. Pain management is an important and effective component of healthcare.[1] It is addressing a common

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problem that affects both individuals and societies. Epidemiological studies show that pain influences around 20% of adults globally, with prevalence rates between 8% and 55% across various countries. In the United States, an estimated 50 million adults experienced chronic pain in 2016, leading to substantial healthcare costs and lost productivity.[3]

Economically, the burden of pain is profound; in the US, the total annual cost of pain, including healthcare expenses and lost productivity, ranges from $560 to $635 billion, surpassing the costs associated with heart disease or cancer.[2] Effective pain management not only alleviates individual suffering but also reduces these economic burdens by improving quality of life and enhancing functional abilities, thereby decreasing healthcare utilization and increasing productivity. However, there are many barriers that hinder the health workers in assessing and pain management that the patient suffers from. There are various sources of these barriers, the most important of which may arise from within the health system itself, as well as the convictions and beliefs of the health worker, in addition to external factors that may relate to patients.[4] Among the barriers that may prevent effective pain management are the lack of continuity in ongoing related education and the inefficiency of the courses provided to health care professionals, if any leading to insufficient treatment options and misconceptions about opioid use and addiction. Interdisciplinary communication challenges and fragmented care hinder collaboration among providers, resulting in inconsistent patient messaging.[2]

Institutional policies may restrict access to pain relief resources, especially for vulnerable populations. On the part of the patient, misunderstandings and cultural factors can deter individuals from seeking help. These complex issues highlight the need for comprehensive strategies to improve pain management practices, enhancing patients' outcomes and ensuring effective pain relief.[5] Self-efficacy refers to an individual's sense of control over novel or inconvenient situations or challenges by anticipating their own competent behavior. Individuals with higher self-efficacy are more inclined to select ambitious goals, exert additional effort to achieve them, and feel more competent than those with lower self-efficacy. Self-efficacy beliefs, therefore, have a significant impact on people's feelings, thoughts, and actions. As a result, the construct of self-efficacy has become an essential part of research on health and health behaviors.[6] Bandura's self-efficacy theory plays a crucial role in health workers' pain management decisions, influencing their confidence in addressing patient pain. Barriers such as insufficient training and lack of resources prevent the self-efficacy of medical care providers, exacerbating pain challenges. Recent studies show that improving knowledge and attitudes can significantly improve nurses' self-efficacy in managing postoperative pain.[7] In addition, patients' self-efficacy is positively correlated with satisfaction in care, underlining the need for teaching hospitals to foster an environment of power. Empowering health workers through specific programs can improve pain control and self-efficacy, which leads to better patient care.[8]

Healthcare workers play a crucial role in pain management. They often face barriers in this regard, which makes pain management ineffective. On the other hand, these challenges reduce their self-efficacy, which reduces self-confidence regarding pain management. Continuing education and providing appropriate resources and a supportive environment to healthcare professionals will inevitably help them overcome these barriers and provide better pain management solutions to their patients.[9] Ultimately, concerning pain management in the prementioned settings, especially around critical care, there is a scarcity of studies that have assessed healthcare workers' pain management-correlated barriers and self-efficacy at teaching hospitals. So, the research question was what are healthcare workers' pain management-correlated barriers and self-efficacy at teaching hospitals?

Materials and Methods

Study Design and Participants

This study employed a descriptive study to determine healthcare workers' pain management-correlated barriers at a teaching hospital in Ismailia city, Egypt. It was conducted from June to December 2023 (Figure 1) in the critical care unit, oncology unit, cardiac care unit, and emergency unit of the hospital. The estimated sample size was calculated based on Fisher's formula among 162 healthcare workers, but overall, 117 questionnaires were returned due to different exclusion criteria, which was mostly busy time. The Fisher equation is expressed through the following formula: $(1 + i) = (1 + r)(1 + \pi)$. Where: i – the nominal interest rate, r – the real interest rate, and π – the inflation rate. Participants were recruited using a purposive sampling technique, with the following inclusion criteria: individuals who willingly consented to participate, had a minimum of six months of experience, and represented both genders. Participants who planned for vacation, refused or were busy were excluded from the study (Table 1).

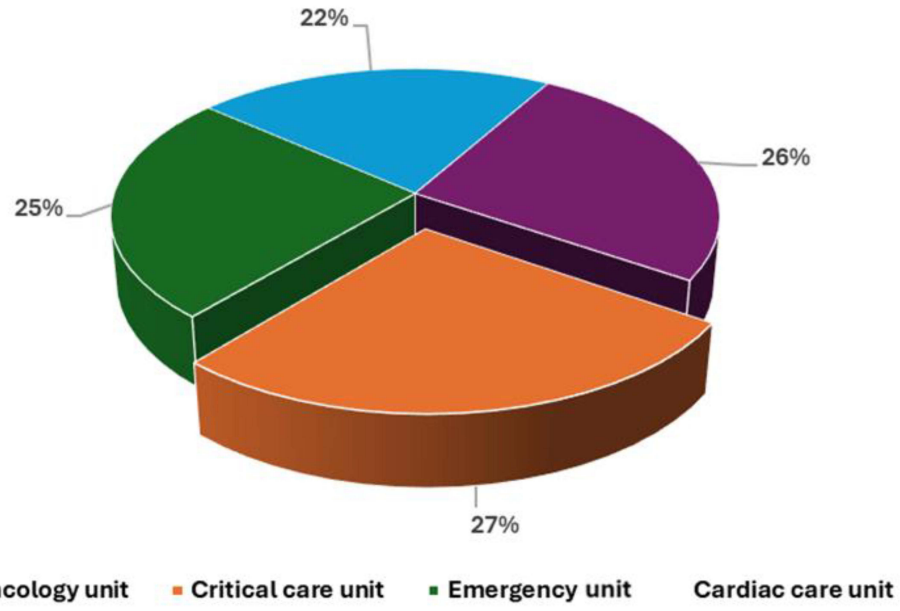

Figure 1 The studied healthcare workers' working place. (n=117).

Data Collection Tools

A valid and reliable self-administrated online survey in the form of multiple-choices and tru of false questions to facilitate data collection and time consuming. It consisted of three sections: (1) information about the demographic healthcare characteristics, such as age, gender, profession, working place, and years of experience. (2) The National Institutes of Health barriers to pain management tool adapted to determine pain management-related barriers among critically ill patients.[1] The tool underwent pilot

Table 1 The Studied Healthcare Workers' Demographic Characteristics. (n = 117)

Demographic Characteristics	No (%)
Gender	
Male Female	49(42%) 68(58%)
Age (Years)	
≤25 years 26–30 years ≥31 years	59(50%) 36(31%) 22(19%)
Mean±SD (28.18±3.20)	
Profession	
Nurse Physician	67(57%) 50(43%)
Years of experience	
≤3 years 4–6 years ≥7 years	37(32%) 53(45%) 27(23%)
Mean±SD (4.8±3.95)	

(*Continued*)

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Table 1 (Continued).

Demographic Characteristics	No (%)
Receiving related training courses	
Never	71(60%)
Sometimes	29(25%)
Usually	17(15%)

testing and was reviewed by a panel of pain management experts comprising nine healthcare workers. The tool demonstrated high reliability, with a Cronbach's alpha coefficient exceeding 0.70. It consisted of two sections: one assessing medical staff, patient, and family-related barriers (9 items), and another evaluating healthcare system-related barriers (5 items). Statistically, the tool utilized a 4-point Likert scale, where: scale 1 specified "never', 2 specified "sometimes', 3 specified "often", and 4 specified "always". For analysis purposes, the scale was dichotomized, where: scales 1 and 2 were categorized as "no barrier", while scales 3 and 4 were categorized as "presence of a barrier". (3) General Self-Efficacy Scale (GSES): This scale is a viable and reliable measure for assessing the general sense of perceived self-efficacy, with the goal of predicting coping with daily challenges as well as the capacity to adjust after encountering a variety of stressful daily situations.[10] The scale consists of ten items, with response grades ranging from 1 (not at all true) to 4 (exactly true) on a four-point Likert scale. The overall score runs from 10 to 40, with higher values indicating greater self-efficacy and scores below 30 indicating low self-efficacy.

Data Collection Process

Following informed consent, participants acknowledged understanding the study's objectives. The data collection tool was validated, and subsequent to obtaining hospital approval, the data collection procedure was initiated. The lead author distributed the online questionnaires to participants who gave their informed consent as a mandatory condition term to continue the survey and agreed to participate in the study within 3–5 minutes. A simplified Arabic and English closed-ended questionnaire were shared among the healthcare workers, and the authors provided a detailed explanation of the project's goal and its effects on the community and hospital. Completed questionnaires were returned to Microsoft Forms.

Statistical Analysis

The data was statistically analyzed using IBM's statistical package for social studies (SPSS) version 25, which was established in Chicago, Illinois, USA. Categorical variables were shown as quantities and percentages. The numerical variables were provided as mean ± SD. The Kruskal–Wallis's test was fit to the variables, if the p-value is <0.05 at the 95% confidence of interval, this variable is statistically significant.

Results

The Studied Healthcare Workers' Demographic Characteristics

This table exhibits more than half (58%) of the participants were female, and half their age $\leq$ 25 years. Moreover, less than two-quarters (57%) were nurses and most (45%) had 4–6 years of experience, less than or equal to 22 years, followed by more than three-quarters (85.3%) being female. More than half (70%) never received related training courses. (Table 1)

The Studied Healthcare Workers' Pain Management-Correlated Barriers

Healthcare workers perception of pain management-correlated barriers by gender: the female group scored the highest mean (SD) of 4.01 (1.90); 4.01 (1.05); and 3.30 (0.76) compared to the male group, who scored the lowest mean (SD) of 4.01 (1.90); 3.09 (1.03); and 3.01 (0.90), respectively. Kruskal–Wallis's test exhibits not a statistically significant difference between healthcare workers' perceived barriers by gender (p-value $\leq$0.05). Concerning healthcare workers' perceived barriers by profession, the physician group stated the highest mean (SD) than nurses. There was not a statistically significant difference between healthcare workers' perceived barriers by age, profession, and experience

(p-value ≤0.05). Nurses who usually received related training courses had the highest mean (SD) compared to those who did not receive the training courses. There was not a statistically significant difference between healthcare workers' perceived barriers to receiving related training courses. (Table 2)

About healthcare workers perception of pain management self-efficacy by gender, the male group counted the highest mean (SD) of 12.46 (3.02), compared to the male group, who scored the lowest mean (SD) of 12.03 (3.20). A Kruskal–Wallis's test displays a statistically significant difference between healthcare workers' self-efficacy by gender (p-value ≤0.05). Regarding healthcare workers' self-efficacy by working place, the critical care unit group declared the highest mean (SD) of 15.06 (1.88) compared to other working places mean (SD). There was a statistically significant difference between healthcare workers' self-efficacy by working places (p-value ≤0.05). While their self-efficacy by years of experience in the ≥7-year group confirmed the highest mean (SD) of 4.99 (1.01) than other years of experience mean (SD). There was a statistically significant difference between healthcare workers' self-efficacy by years of experience (p-value ≤0.05). (Table 2)

Table 2 The Studied Healthcare Workers' Pain Management Correlated Barriers and Self-Efficacy Mean, Standard Deviation and Kruskal-Walli's Test Through Their Demographic Characteristics. (n = 117)

Characteristics	Correlated barriers						Self-efficacy	
	Medical Staff		Patients and Family		Healthcare System			
	Mean(SD)	H; P	Mean(SD)	H; P	Mean(SD)	H; P	Mean(SD)	H; P
Gender								
Male	3.18(2.01)	2.21;	3.09(1.03)	0.41;0.50	3.01(0.90)	0.52;	12.46(3.02)	3.43;
Female	4.01(1.90)	0.20	4.01(1.05)		3.30(0.76)	0.56	12.03(3.20)	0.05*
Age (Years)								
≤25 years	4.23(1.90)	5.01;0.39	3.02(2.00)	2.50;	2.56(0.88)	4.03;	12.02(2.19)	0.93;
26–30 years	4.02(1.23)		3.87(2.01)	0.69	2.10(0.89)	0.40	11.99(2.88)	0.69
≥31 years	4.99(1.99)		3.93(1.36)		2.15(0.18)		10.65(2.36)	
Profession								
Nurse	4.01(1.63)	4.23;	3.99(1.09)	9.1;0.19	2.93(0.98)	2.62;	11.11(1.56)	6.80;
Physician	4.55(1.89)	1.29	4.36(1.86)		2.99(0.41)	0.06	12.90(1.99)	0.11
Working place								
Oncology unit	4.99(2.15)	6.19;	401(0.96)	5.77;	3.23(0.25)	2.00;	13.36(2.02)	12.3;
Critical care unit	4.09(2.00)	0.90	4.08(0.14)	0.51	3.04(0.88)	0.63	15.06(1.88)	0.05*
Emergency Unit	4.88(1.99)		4.63(0.55)		2.08(0.63)		12.88(1.22)	
Cardiac care unit	4.68(1.01)		4.58(2.01)		3.15(1.02)		11.02(2.09)	
Years of experience								
≤3 years	4.88(1.00)	8.17;	3.02(1.36)	1.11;	2.01(0.26)	5.09;	12.63(2.00)	2.32;
4–6 years	4.26(0.32)	0.03	3.65(1.00)	0.82	2.00(0.21)	0.08	13.01(1.09)	0.01*
≥7 years	4.99(1.01)		3.99(1.99)		3.01(0.42)		11.89(2.92)	
Receiving related training courses								
Never	3.09(2.09)	5.24;	2.02(2.21)	0.55;	2.66(1.76)	4.08;	10.99(3.94)	4.14;
Sometimes	3.26(0.26)	0.59	4.01(3.12)	0.82	3.09(6.81)	0.06	12.00(1.90)	0.19
Usually	4.19(2.00)		5.08(1.01)		4.02(0.99)		12.02(1.82)	
Total	4.88(0.56)		5.65(1.74)		3.11(0.36)		12.99(4.02)	

Notes: *Kruskal–Wallis test (H). Significancy of p-value ≤0.05.

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The Studied Healthcare Workers' Working Place

It shows that about more than one-quarter (27%; 26%; 25%) of the participants worked at the critical care unit, oncology unit, and emergency unit consecutively, while less than one-quarter (22%) worked in the cardiac care unit. (Figure 1)

Discussion

This study assessed healthcare workers' pain management-correlated barriers and self-efficacy at teaching hospitals in Egypt. A closer examination of the data (Table 2) revealed that, female healthcare workers reported higher mean scores for barriers related to medical staff (4.01 ± 1.90), patient and family (4.01 ± 1.05), and health system (3.30 ± 0.76) compared to male healthcare workers, who reported lower mean scores for these barriers (3.09 ± 1.03, 3.01 ± 0.90, respectively). This corroborates with findings from Recent studies with underlining significant gender perceptions surrounding pain management barriers among health workers. For example, a study highlights how social stigma affects access to medical care for marginalized people, revealing gender disparities in pain recognition.[11] Another study Emphasize that conflict configuration exacerbates the challenges facing health workers related to gender biases in medical decision-making.[12] Furthermore, the issue of structural violence against women in certain countries, which exemplifies the systemic obstacles that hinder effective pain management for this demographic.[13] Collectively, these findings suggest the need for specific interventions to address specific gender pain management within health systems.

Regarding healthcare workers' perceived barriers to pain management varied by profession, physicians (Table 2) reporting higher mean scores for barriers related to medical staff (4.55 ± 1.89), patient and family (4.36 ± 1.86), and health system (2.99 ± 0.41) compared to nurses, who reported lower mean scores for these barriers (4.01 ± 1.63, 3.99 ± 1.09, and 2.93 ± 0.98, respectively). Nurses who usually received related training courses had the highest mean score compared to those who did not receive the training courses. These differences in barriers perceived in pain management among the health professions, between doctors and nurses, highlight critical information on the challenges encountered in clinical areas. A study indicated that nurses have declared substantial barriers to effective pain management, especially in intensive care environments, emphasizing inadequate training and organizational support.[3] Conversely, doctors have often cited time constraints and structural problems as the main obstacles to the implementation of pain management strategies.[14] In addition, non-pharmacological approaches have been underused due to perceived limitations of efficiency, reflecting a shared concern between the two groups concerning complete pain management.[15] Understanding these differences is crucial to fighting pain management gaps in health care.

This study's findings further suggested that gender differences in healthcare workers' self-efficacy for pain management can significantly impact patient care. Notably, male healthcare workers reported higher self-efficacy levels in pain management, scoring a mean of 12.46, compared to female healthcare workers, who scored 12.03 (p-value ≤ 0.05). This finding aligns with previous research indicating that women may experience greater disability due to lower self-efficacy.[16] Furthermore, gender differences in self-efficacy can affect social support, coping strategies, and medical care practices,[17] highlighting the need for tailored approaches to address these disparities.[18]

The study also found a significant relationship between healthcare workers' self-efficacy in pain management and their workplace (Table 2). Specifically, healthcare workers in critical care units reported higher self-efficacy levels in pain management, with a mean score of 15.06, compared to those in other units (p-value ≤ 0.05). The connection between healthcare professionals' self-efficacy in pain management and their work environment has garnered increasing attention, particularly in intensive care units. Healthcare professionals in these high-stress environments often face unique challenges that can impact their confidence in pain management. Previous research has shown that educational interventions targeting palliative care can significantly improve intensive care nurses perceived self-efficacy in pain management.[19] Additionally, studies have identified work environment as a significant barrier to effective pain management, highlighting the need to address knowledge and attitude gaps among nurses in intensive care units.[20] Furthermore, In the validation of this study, a recent scale that measures self -efficacy for the management of delirium patients in intensive care indicates that self -efficacy is crucial for quality patients care.[21] Collectively, these findings emphasize the importance of enhancing support systems in intensive care environments to foster improvement in self-efficacy and pain management strategies.

This study underscores the significant relationship between healthcare workers' experience and their self-efficacy in pain management, highlighting its implications for clinical practice (Table 2). Notably, healthcare workers with seven or more years of experience reported higher levels of self-efficacy in pain management, with a mean score of 4.99, compared to less experienced workers (p-value ≤0.05). The experience of healthcare workers influences their self-efficacy in pain management, as supported by different studies. Research has shown that training in pain management enhances healthcare professionals' knowledge, attitude, and self-efficacy, emphasizing the importance of education in clinical settings.[22] Additionally, studies have demonstrated that targeted interventions, such as implementing pain management, can improve patient outcomes and healthcare professionals' self-efficacy.[23] Furthermore, innovative tele-education interventions in chronic pain management have shown to improve skills between basic doctors in underserved clinical areas.[24] These results highlight the need for continuous education and support to strengthen self-efficacy between healthcare professionals, which eventually improves patient care.[25] The study limitations are included; questionnaires could induce bias in their interactions, the current results are restricted to the specific units and subjects; they cannot generalize it.

Implication of the finding: The study's results highlight significant perceived barriers to effective healthcare delivery among medical staff, patients, families, and the healthcare system. Here are the implications of these findings:

Barriers to Healthcare Delivery: The study identified total correlated barriers across medical staff, patients, families, and the healthcare system, with varying levels of severity. This suggests that addressing these barriers is crucial to improving healthcare outcomes.

Healthcare system barriers: The relatively low mean score (3.11 ± 0.36) for healthcare system barriers indicates that systemic issues, such as resource allocation, policies, and infrastructure, may hinder effective healthcare delivery.

Healthcare Workers' Self-Efficacy: The overall mean score (12.99 ± 4.02) for healthcare workers' self-efficacy indicates a moderate level of confidence in their abilities to provide effective care. Variation by working place and experience: The statistically significant difference in self-efficacy levels among healthcare workers based on their working place and years of experience suggests that these factors can influence confidence and competence.

Implications for Healthcare Practice and Policy: Addressing perceived barriers: Healthcare organizations and policymakers should prioritize addressing the identified barriers to improve healthcare delivery and outcomes. Enhancing healthcare worker self-efficacy: Investing in training programs, mentorship, and supportive work environments can help boost healthcare workers' self-efficacy and confidence. Tailoring interventions to the working place and experience: Healthcare organizations should consider the specific needs and challenges of healthcare workers based on their working place and years of experience when designing interventions to enhance self-efficacy and address perceived barriers. Promoting a patient-centered approach: Encouraging patient-centered care and involving patients and families in decision-making processes can help alleviate perceived barriers and improve healthcare outcomes. By addressing these implications, healthcare organizations and policymakers can work towards creating a more effective, efficient, and patient-centered healthcare system.

Conclusions

This study assessed the healthcare workers perceived pain management-correlated barriers in the teaching hospitals. Healthcare workers perceived correlated barriers as significant obstacles to successful pain management in the prementioned settings. Healthcare workers' self-efficacy was stated highly among the participants at the critical care unit. Critically related training courses on pain assessment and management utilizing various tools are necessary for successful outcomes. Moreover, successful pain management requires incorporating individuals' cultural origins into assessments. Highlight the significance of incorporating this issue into college curricula and hospital service training programs. Closely, healthcare practitioners should identify pain management limitations in their clinical settings as early as possible and devise solutions to achieve early optimal pain management such as differences in pain expression, communication barriers and religion concept of pain.

Data collection from different settings for generalization of the findings. Future research directions for improving pain management include Investigating cultural sensitivity training's impact on pain management. Developing pain assessment tools for diverse populations. Examining the relationship between healthcare workers' self-efficacy and pain management. Conducting comparative studies across different healthcare settings. Investigating interdisciplinary collaboration's impact on

pain management. Developing and evaluating pain management training programs. Pursuing these research directions can help address pain management challenges, improve patient care and develop effective strategies for better outcomes.

Institutional Review Board Statement

The faculty of Nursing, Suez Canal University Research Ethics Committee approved the study (June 2022; code No. 19). The participants were told about the research's goal, and their responses were kept anonymous.

Data Sharing Statement

The datasets used and/or reviewed during the current investigation are available from the corresponding author upon reasonable request.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work.

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