

A Scoping Review of Factors Associated with Self-Management Among Patients with Breast Cancer

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ABSTRACT

Background: Self-management in patients with breast cancer plays an essential role in improving the quality of life of breast cancer patients. Self-management behaviour changes along with the treatment period and varies in patients with different demographic and psychosocial characteristics. However, systematic identification of self-management factors in this population is still lacking.

Purpose: This review aimed to identify factors that influence self-management in patients with breast cancer.

Methods: This study used a scoping review. Literature was searched from three databases: EbscoHost: Medline Ultimate, Pubmed, and Scopus, and additional literature was identified using Google Scholar, using the keywords "Self-management OR self-care AND breast cancer OR breast neoplasm OR breast tumours AND factors or causes or influences or reasons or determinants or predictors or contributors." The analysis was carried out thematically with a descriptive exploratory approach.

Results: A total of 11 articles were analyzed in this review. Several factors influence self-management in patients with breast cancer, including chemotherapy status, duration of illness, patient's personal experience, age, education level, social support, anxiety, self-efficacy, self-compassion, understanding of the condition, adaptation and acceptance of life with lymphedema.

Conclusion: This findings underscore the importance of developing comprehensive interventions that address these diverse factors to enhance self-management. These interventions should include patient education, psychological support, and social assistance to improve patients' ability to manage their condition. A holistic approach, incorporating medical care, emotional well-being, and social support, is essential to improving the overall quality of life for breast cancer patients.

Keywords: breast cancer, self-care, self-management

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BACKGROUND

Breast cancer is one of the most common malignant diseases affecting women worldwide. Every year, about 2.26 million women worldwide are diagnosed with breast cancer, and its incidence among women ranks first (Li et al., 2022; Sung et al., 2021). According to Global Cancer Statistics, it is estimated that by 2020, there will be 19.29 million new cancer cases worldwide, leading to 9.95 million deaths. Among these cases, breast cancer accounted for 11.7% of new cases and 6.9% of deaths, surpassing lung cancer as the most commonly diagnosed cancer (Qu et al., 2024; Sung et al., 2021). Cancer cases in Indonesia in 2020 based on Globocan data, the highest type of cancer is breast cancer, which is 68,858 cases (16.6%) of a total of 396,914 new cases of cancer in Indonesia with a death rate due to breast cancer in Indonesia of 22,430 cases (Kemenkes, 2022).

Breast cancer patients face a range of physical and psychosocial problems. These patients face a range of physical symptoms, including sleep disturbances, fatigue, sexual dysfunction and pain, caused by breast cancer itself and its treatment. Physical symptoms exacerbate psychological problems such as fear of disease recurrence, causing anxiety and depression, and reducing the quality of life of breast cancer survivors during rehabilitation (Sun et al., 2023). In addition, breast cancer patients are faced with challenges such as labor-related problems, sexual problems due to loss of libido or hormonal changes, fear of cancer recurrence, and psychological problems such as depression (J. Kim & Lee, 2023). Younger breast cancer patients have higher levels of anxiety and depression than older patients (Breidenbach et al., 2022). Managing the various physical and psychosocial impacts experienced by breast cancer patients can include self-management, which contributes to their recovery and survival (Shi et al., 2024).

The Institute of Medicine defines self-management as the systematic provision of education and supportive interventions by healthcare staff to improve patients' skills and confidence in managing their health problems, including regular assessment of progress and problems, goal setting, and problem-solving support (Institute of Medicine, 2003). Self-management is important for breast cancer patients as it provides the ability to actively engage in their own care, which has a positive impact on various aspects of life and treatment outcomes. Adherence to self-management activities is critical to achieving and maintaining optimal treatment outcomes (Jeffs et al., 2015). Self-management is often associated with increased empowerment and self-confidence, facilitating positive relationships and social support (Omidi et al., 2020). Effective breast cancer self-management can minimize symptoms and slow disease progression. Adherence to self-management is essential to avoid further disease progression and increased symptom severity that can negatively impact emotional well-being and quality of life (Alcorso et al., 2016). The benefits of self-management of lymphedema and symptom management associated with lymphedema are in addition to reducing swelling (Li et al., 2022; Omidi et al., 2020). Self-management behaviours in patients with breast cancer have also shown benefits for relieving upper limb lymphedema and improving recovery of function, reducing postoperative negative emotions such as anxiety and depression, and relieving cancer-related fatigue during chemotherapy (Jeffs et al., 2015; Wu et al., 2020).

Several factors influence self-management. Knowledge is one of the factors that influence self-management, where knowledge of the disease process, the benefits of drugs and patient care plans are essential for the ability to manage themselves, so patients need to know how to apply self-management knowledge to patient life (Howell et al., 2017). Family support and strong motivation are also decisive factors in the success of therapy, as they can provide the emotional and practical encouragement patients need during the treatment

process (Qaribi et al., 2023; Metsälä et al., 2022). In addition, self-efficacy affects self-management where higher self-efficacy contributes to better self-management, especially with regard to exercise behaviour, in patients with breast cancer and also in patients with heart disease and diabetes (Chin et al., 2021). Then, coping is another predictor of self-management behaviours. Previous research showed that positive coping is positively related to self-management behaviour (Wu et al., 2020).

Various psychosocial factors may influence adherence to lymphedema self-management behaviours (Alcorso et al., 2016; O. Kim & Heo, 2022). For example, psychological distress in women diagnosed with breast cancer has been identified as a barrier to adherence. Similarly, among women at risk of developing breast cancer, various cognitive and affective factors are predictive of self-management adherence (Alcorso et al., 2016). Previous study stated that other factors affect self-management, such as the length of time since cancer diagnosis, which can affect patients' self-management experiences and self-management strategies, a history of chemotherapy before or concurrent with radiotherapy that can affect patients' self-management and QoL, and socioeconomic factors such as income, education, and employment status that can affect patients' access to resources and implementation of effective self-management (Qu et al., 2024).

Although previous studies have identified various factors that influence self-management in breast cancer patients, there are gaps in the understanding of how these multidimensional factors interact with each other in a broader context. Previous reviews have identified self-management and its factors, but the cancer population is broad and not specific to patients with breast cancer (Aung & Cheng, 2023). In fact, breast cancer has unique characteristics in terms of symptoms, disease course, and psychosocial impact that require a more specific and targeted self-management approach (Leon-Rodriguez et al., 2017; Nnaji et al., 2022; Unger-Saldaña, 2014). Self-management in breast cancer patients is not only about managing medical aspects, but also includes symptom management, social roles, and emotional conditions that are strongly influenced by the patient's experience of breast cancer diagnosis and treatment. Therefore, it is important to examine more deeply the factors that influence self-management, specifically in this population, so that interventions developed can be more targeted and effective in improving the quality of life of breast cancer patients.

OBJECTIVE

This review aimed to identify factors that influence self-management in patients with breast cancer.

METHODS

Study Design

The design applied was a scoping review, a flexible methodological approach to exploring new and rapidly evolving topics (Peterson et al., 2017). The scoping review framework includes five main stages: formulating the review question, identifying relevant research, selecting studies, mapping data, and compiling, summarizing, and reporting findings (Peterson et al., 2017).

Eligibility Criteria

The article selection process for this review was conducted by three reviewers based on the PRISMA Extension for Scoping Review (PRISMA-ScR) (see Figure 1) (Page et al., 2021). The research questions and article eligibility criteria used the PCC (Population, Concept, and Context) approach.

P (Population) : Breast cancer

- C (Concept) : Self-management
C (Context) : Factors or predictors

This review excluded inaccessible full-text articles, publications not in English, and secondary studies. The inclusion criteria were full-text articles that were accessible and published in English, as well as articles with quantitative and qualitative designs that addressed factors affecting the self-management of patients with breast cancer. Furthermore, this review had no criteria for limiting the year of publication because it comprehensively identified relevant studies.

Search Strategy

Article identification was conducted systematically using three main databases: EbscoHost: Medline Ultimate, Pubmed, and Scopus, and also one search engine, Google Scholar. The keywords used were "Self-management OR self-care AND breast cancer OR breast neoplasm OR breast tumours AND factors or causes or influences or reasons or determinants or predictors or contributors." The author used the Boolean operators "AND" and "OR" to prune or expand the search results for different forms of words.

Study Screening

All authors independently selected studies that met the eligibility criteria. Using the Mendeley reference manager, the authors checked for duplication in the initial selection process. Then the authors checked titles, abstracts, and full texts for relevance to the research topic and established inclusion and exclusion criteria.

Quality Appraisal

In the final process, the authors checked each full text with the Joanna Briggs Institute (JBI) critical appraisal checklist (Joanna Briggs Institute (JBI), 2022). There are 11 statements for cohort studies, 8 for cross-sectional studies, and 10 for qualitative studies. Each statement has answer options: Yes, No, Not Applicable, and Unclear. The answer "Yes" was given a score of 1, and the other answers were given a score of 0. After assessment, the authors eliminated all studies with a JBI score of <70%. Subsequently, the authors provided decisions in case of discrepancies in the election results. All authors had no disagreement on the appropriateness of this study.

Data Analysis

In this review, the data extracted from the studies were analyzed using tables that describe in detail all the results related to the topic discussed. The information presented in the extraction table relates to the characteristics of the study: Author and Year, Country, Design, Sample, Instrument, Results, and JBI. The studies obtained in this review were observational studies with qualitative designs. Therefore, data analysis was conducted thematically with an exploratory descriptive approach.

The data analysis process begins with identifying and presenting the data obtained in tabular form based on the articles reviewed. After obtaining the data, all authors analyzed and explained each finding based on the extraction results. Finally, the authors rechecked the included studies to ensure and minimize errors during the extraction stage.

RESULTS

Study Selection

In the initial stage of the literature search for this scoping review, the search was conducted through several relevant databases and search engines. The databases used were EBSCOhost: Medline Ultimate (n=548), Scopus (n=1,674), and PubMed (m=153). In addition, additional searches were conducted through the Google Scholar search engine, considering topic relevance. The top 300 articles were sorted by relevance from the Google

Scholar search results and retrieved for further analysis. A total of 2,975 articles were obtained from all sources.

Of the 2,975 articles identified through various databases, 554 articles were removed due to duplication. Subsequently, 2,421 articles were screened based on title and abstract, resulting in 2,380 articles being removed as irrelevant. Of the 41 articles further examined based on eligibility criteria, 30 were removed for reasons such as language, unsuitable population, or not addressing predictors of self-management. Finally, 11 articles passed and were analyzed in the study.

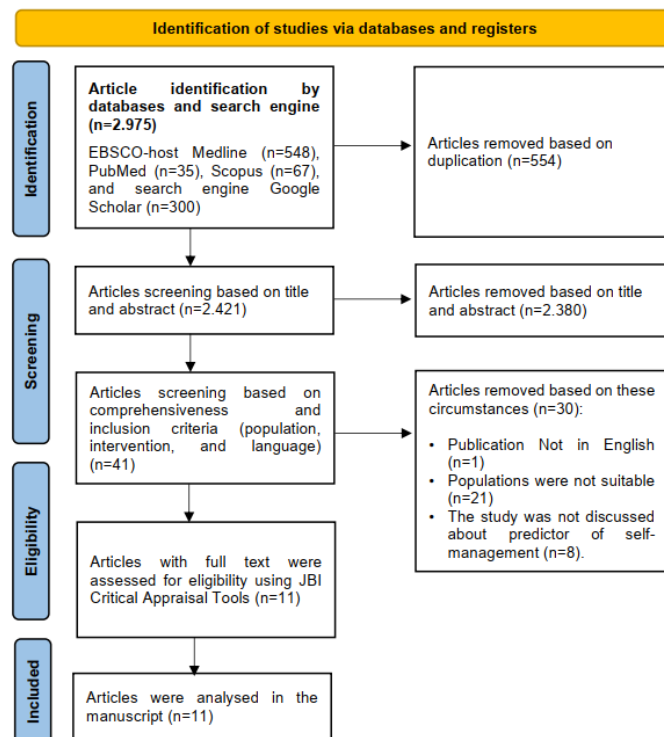


Figure 1. PRISMA Flow Diagram

Notes: The PRISMA figure was adapted from Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021; 372: n71. Creative Commons (Page et al., 2021).

Study Characteristics

Table 1 shows that various studies were conducted in several countries, such as China, Iran, Taiwan, Australia, the UK, India and Singapore. The research designs used varied from longitudinal (n=3) and cross-sectional (n=6) studies to qualitative studies (n=3). Regarding sample size (n=1,482), the study involving the largest number of participants was a cross-sectional study conducted in China by Li et al. (2022), which involved 281 breast cancer survivor patients. On the other hand, the study with the smallest sample size was a qualitative study conducted in Singapore by Cheng et al. (2017), which involved only 19 breast cancer survivors. These studies explored various aspects of self-management and self-care in breast cancer patients, focusing on factors that influence the effectiveness of such management and self-care.

Critical Appraisal Result

The results of the critical appraisal analysis found that with a cross-sectional design, most of them have good quality, and only Zhang et al. (2015) needed to explain in detail the cofounding factors and strategies. In addition, in cohort studies, all studies did not explain in

detail related to confounding factors and strategies to overcome them (Koshy et al., 2023; Qu et al., 2024; Wu et al., 2020). Finally, in all qualitative studies, statements indicating the researcher's cultural or theoretical position in the research were not clearly explained or absent (Cheng et al., 2017; Jeffs et al., 2015; Jenkins et al., 2023).

Factors Affecting Self-management in Patients with Breast Cancer

Several studies have identified various factors that influence self-management in patients with breast cancer. Chemotherapy status, disease duration, and patient experience with cancer were found to be important factors (Qu et al., 2024). Age and education level are also influential factors (Li et al., 2022; Wu et al., 2020). Social support and anxiety also play an important role (Wu et al., 2020). Self-efficacy and self-compassion were found to be factors that facilitate self-management (Abdollahi et al., 2020).

Perceived stress factors also have a negative influence, as shown by Abdollahi et al. (2020), while uncertainty about the patient's condition was found to be a factor that inhibits self-management in the study by Zhang et al. (2015). Hormone replacement therapy is also an influencing factor, as reported in the study of Alcorso et al. (2016). In addition, the level of acceptance and adjustment to life with lymphedema can affect their self-management (Jeffs et al., 2015).

Table 1. Data Extraction

Author and Year	Country	Design	Sample	Instrument	Results	JBI
(Qu et al., 2024)	China	A Longitudinal study	113 patients with breast cancer receiving radiotherapy	Cancer Self-Management Efficacy Scale	<ul style="list-style-type: none"> • Chemotherapy status ($\beta = 18.33$; $p = 0.024$) • Duration of illness ($\beta = 2.25$; $p = 0.028$) • Cancer experience ($\beta = -0.46$; $p < 0.001$) 	8/11
(Li et al., 2022)	China	A cross-sectional study	281 breast cancer survivors	Lymphedema Risk Management Behavior Questionnaire	<ul style="list-style-type: none"> • Age 40-59 years ($\beta = -0.23$; $p < 0.001$) • Causal uncontrolled factor ($\beta = -0.3$; $p < 0.001$) • Education level (collage) ($\beta = 0.19$; $p < 0.05$) 	8/8
(Chin et al., 2021)	Taiwan	A cross-sectional study	201 patients with breast cancer	Self-Care Scale	<ul style="list-style-type: none"> • Symptom-management self-efficacy was significantly correlated with self-care ($r = 0.30$; $p < 0.001$). 	8/8
(Abdollahi et al., 2020)	Iran	A cross-sectional study	210 women with breast cancer aged 27 to 60 years	Self-report questionnaires of self-care behaviors	<ul style="list-style-type: none"> • Perceived stress ($\beta = -0.37$; $p < .01$) • Self-compassion ($\beta = 0.38$; $p < .01$) 	8/8

Author and Year	Country	Design	Sample	Instrument	Results	JBI
(Wu et al., 2020)	China	A longitudinal follow-up investigation	128 breast cancer patients	Chronic Disease Management Questionnaire	<ul style="list-style-type: none"> • Age (OR=1.06; 9/11 p=0.021) • Primary school education (OR = 0.99; p=0.003) • Social support (OR = 0.96; p=0.035) • Anxiety (OR = 3.08; p=0.04) • Self-efficacy (OR = 0.96; p=0.013) 	8/11
(Alcorso et al., 2016)	Australia	A cross-sectional study	200 adult women (18+years) previously diagnosed with breast cancer -related lymphedema	Seven Management Behaviors scale	<ul style="list-style-type: none"> • Hormone replacement therapy ($\beta = 0.19$; p=0.017) • Time since diagnosis ($\beta = -0.21$; p=0.009) 	8/8
(Jeffs et al., 2015)	United Kingdom	The qualitative study used a grounded theory approach	21 women in the breast cancer -related lymphedema self-management phase participated in one in-depth interview	Not applicable	<ul style="list-style-type: none"> • The level of acceptance and adjustment to life with lymphedema may influence their self-management. This seems to have a direct impact on their ability to self-manage lymphedema. 	9/10
(Zhang et al., 2015)	China	A cross-sectional study	97 patients with breast cancer	Appraisal of Self-care Agency Scale Revised.	<ul style="list-style-type: none"> • The mean scores of self-care behaviours (53.96) were all within the moderate range. • Uncertainty was a significant predictor of self-care ($\beta = 0.192$, p = .047). • Uncertainty ($\beta = 0.247$, P = .015) and self-efficacy ($\beta = 0.266$, P = .006) 	6/8

Author and Year	Country	Design	Sample	Instrument	Results	JBI
(Koshy et al., 2023)	India	A longitudinal descriptive study	170 female patients with clinically diagnosed breast cancer (stage I, II, or III)	Self-Care Diary	<ul style="list-style-type: none"> Severe fatigue was found in 80.0% of participants at T1 and 61.2% at T2. Vomiting (47.7%), mucositis (48.2%), and nausea (49.1%) were also found to be severe at T1, but these side effects were moderate (53.8%, 58.8%, and 51.8%, respectively) at T2. Although many self-care behaviours were used to prevent infection, nausea/vomiting, bleeding, decreased appetite, difficulty sleeping, and constipation, the overall self-care behaviour was found to be poor. A negative correlation was found between self-care behaviour and chemotherapy side effects. As side effects decreased, self-care behaviour increased. 	independently predicted self-care behavior.
(Cheng et al., 2017)	Singapore	Qualitative study	19 breast cancer survivors (<5 years since diagnosis)	Not applicable	<ul style="list-style-type: none"> Participants engaged in various self-management tasks, including managing health and well-being, emotions, roles, and relationships. Emotional management involves maintaining a positive attitude and utilizing 	9/10

Author and Year	Country	Design	Sample	Instrument	Results	JBI
(Jenkins et al., 2023)	England	Qualitative study	32 patient participants	Not applicable	<p>supportive resources.</p> <ul style="list-style-type: none"> Managing roles and relationships includes adjusting to life as a cancer survivor, maintaining marital relationships, and performing other family and social roles. Most participants actively participated in various self-management tasks and behaviours that could help improve their health and prevent cancer recurrence. 	
					<ul style="list-style-type: none"> During the year, 9/10 (19% (5/26) discontinued endocrine therapy altogether due to side effects. There is also uncertainty about who to contact for psychological support, affecting how they self-care. The COVID-19 pandemic has discouraged some participants from contacting helplines to avoid burdening the National Health Service. 	

DISCUSSION

Self-management in patients with breast cancer is influenced by various factors, including health conditions, psychological aspects, and sociodemographic factors. This review aims to identify factors that influence self-management in patients with breast cancer. An in-depth understanding of these factors may help in designing more effective interventions to support patients in self-managing their disease.

Some studies suggest that chemotherapy status, disease duration, and patients' experience with cancer play an important role in determining how effectively patients can manage themselves during cancer treatment (Qu et al., 2024). The longer and more complex the treatment, the greater the impact on the patient's self-management ability (Qu et al., 2024). The study found that the cancer experience of patients with breast cancer during radiotherapy increased first and then decreased (T2 > T3 > T1), but all of them were at a moderate level (Qu et al., 2024). This suggests that patients have a significant negative cancer

experience during the radiotherapy period. As the number of radiotherapy treatments increases, radiotherapy-related side effects such as nausea and vomiting worsen in the late stages of treatment, so patients' perceptions of negative experiences become more pronounced (Polgár et al., 2022). Therefore, this will have an impact on self-management. Therefore, helping patients reduce the negative impact of their disease, increasing their sense of disease control, improving the efficacy of self-management, and motivating them to participate in disease management are necessary to improve their quality of life (Cardoso et al., 2013).

Age and education level are also important factors. Research suggests that older patients (and those with lower education may have greater challenges in managing their own conditions (Wu et al., 2020). In addition, social support and anxiety are other factors that influence how patients manage their disease (Wu et al., 2020). Support from family and friends can enhance self-management, while high levels of anxiety can hinder it (Abdollahi et al., 2020; Wu et al., 2020).

Time since diagnosis also affects the self-management of patients with breast cancer (Alcorso et al., 2016). The study reported that patients were initially more enthusiastic and committed to their self-management but became less compliant over time as they faced barriers in following their rules (Alcorso et al., 2016). Furthermore, previous studies found that adherence to health check-ups (e.g., mammograms) was associated with the use of hormone replacement therapy (Byles et al., 2014). The influence of hormone replacement was also identified in several studies, where hormone therapy may affect patients' ability to self-manage (Alcorso et al., 2016).

Psychological aspects such as self-efficacy (confidence in managing symptoms) and self-compassion are also important (Wu et al., 2020; Zhang et al., 2015). Patients with higher self-efficacy and self-compassion tend to be more successful in managing their condition (Abdollahi et al., 2020; Wu et al., 2020; Zhang et al., 2015). Self-compassion reflects treating oneself well despite struggles and failures (Allen & Leary, 2010). Furthermore, self-compassion was recently shown to moderate the relationship between perceived stress and self-care behaviours in women with breast cancer, suggesting that self-compassion may enhance the ability to manage health-related behaviours and withstand the effects of stress during difficult times (Abdollahi et al., 2020). Although the role of self-compassion has not been explored in mothers who may face additional parenting challenges due to their cancer diagnosis, these findings suggest that increasing self-compassion may be an appropriate intervention for this population.(Kuswanto et al., 2024).

The level of acceptance and adjustment to life with lymphedema may influence their self-management (Jeffs et al., 2015). Lymphedema, particularly associated with breast cancer, can have a significant impact on a patient's quality of life, and how they deal with it can affect their self-management process (Ahmed et al., 2008). When patients accept and adjust to lymphedema, they tend to be more proactive in managing symptoms and following treatment recommendations, such as physical therapy and the use of compression garments (Pettini et al., 2022). Greater self-acceptance is often associated with reduced levels of stress and anxiety, which may influence the effectiveness of self-management strategies (Secinti et al., 2019).

Overall, self-management in breast cancer patients is influenced by a complex combination of physical conditions, social support, psychological factors, and individual patient characteristics. Effectively managing these factors can help improve patient quality of life and overall treatment outcomes.

Study Limitations

Several limitations in this study need to be considered. First, there is relatively limited research on factors that influence self-management in breast cancer patients, which may affect the scope and depth of understanding on this topic. Existing studies often focus on or cover a narrow range of aspects that may influence self-management, which may not fully capture the complexity of patients' experiences. In addition, the sample size in this review is still quite small, which may limit the generalizability of the findings to a wider population. Small samples may affect the statistical power and external validity of the results, so the results may not be fully representative or applicable to all breast cancer patients and lack generalizability. Therefore, further studies with larger sample sizes and more comprehensive methodologies are needed to obtain more accurate and generalizable insights.

CONCLUSION

Based on the findings, 11 factors were identified that influence self-management in breast cancer patients, including chemotherapy status, disease duration, personal experience, age, education level, social support, anxiety, self-efficacy, self-compassion, understanding of the condition, and adaptation and acceptance of life with lymphedema. Hormone replacement therapy also plays a crucial role in self-management. These results indicate that the self-management process in breast cancer patients is influenced by the interaction of various medical, psychological, and social factors. Therefore, the findings underscore the need for the development of support programs that include patient education, psychological support, and social interventions to improve self-management in breast cancer patients. Clinical practice should integrate social support more systematically and ensure better access to hormone replacement therapy and lymphedema management treatments. Clear and structured education about the condition and treatments is also essential for patients to manage their symptoms more effectively. The findings highlight that structured education and adequate emotional support can enhance the quality of self-management for patients. As such, these measures should be incorporated into clinical policies to improve overall patient outcomes in breast cancer management.

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CONFLICTS OF INTEREST

The authors had no conflicts of interest in this research.

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