

FACTORS AFFECTING THE PROMOTION OF BACK CARE PRACTICES AMONG NURSES WORKING IN LONG TERM CARE SETTINGS: AN INTEGRATIVE REVIEW

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Abstract

Background: Work-related musculoskeletal injuries and disorders are multifactorial and have diverse negative occupational, economic, and health impacts, including poor quality of life, high compensation costs, and reduced productivity among the working populations. The impact is noticeable among nurses due to the physical demands of their duties, such as patient positioning and mobilization. Several approaches, including back-care programs, have been implemented to prevent negative impact and reduce the incidence of low back pain among nurses. However, back-care practices are influenced by various factors that affect their success among nurses, especially those working in long-term care settings.

Aim: This integrative review aims to identify the factors that promote back-care practices among nurses working in long-term care settings.

Method: This integrative review was guided by Whittemore and Knafl's (2005) framework. Three databases were searched for peer-reviewed studies published between 2011 and 2021 based on set inclusion and exclusion criteria. A hand search was also conducted among the reference lists of the included peer-reviewed articles. The identified articles were critically appraised using the Mixed Methods Appraisal Tool. Data was then extracted, and the various barriers and facilitators

of back-care practices were noted based on the three levels of the Socio-Ecological Model: individual, organizational, and environmental.

Results: Three main factors that influence back-care practices include lack of knowledge among nurses about the programs, lack of organizational support, and lack of maneuvering space.

Conclusion: It is imperative that educational sessions related to the safe handling of patients be provided to nurses to increase their knowledge and implementation of appropriate back-care practices.

Keywords: work-related musculoskeletal injuries, long-term care nurses, back care practices, socio-ecological model

Introduction

The term work-related musculoskeletal disorders (WMSDs) refers to musculoskeletal disorders (MSDs) that worsen due to injuries that happen during work. WMSDs are responsible for morbidity in many working populations and are known as an important occupational problem (Soares et al., 2019). WMSDs are caused by the interactions between various risk factors, which result in conditions that vary across different occupations (Yasobant & Rajkumar, 2014). The most affected regions of the body are the lower back, neck, shoulder, hand, and wrist. WMSDs have a huge impact and are an emerging problem in our modern societies, which lead to detrimental effects on quality of life (Shaw, 2018). These disorders represent the second largest cause of short-term or temporary work disability (Soares et al. 2019). Health-related complaints due to work have become a significant concern because of their negative impact on productivity (Fulton-Kehoe et al., 2000). Apart from lowering the quality of workers' lives and reducing productivity, WMSDs are the most expensive form of work disability, attributing to about 40% of all costs related to the treatment of work-related injuries (Yasobant & Rajkumar, 2014).

Musculoskeletal injuries are the most predominant group of injuries within all healthcare professions (Soares et al., 2019). However, nurses and nursing aids continue to be the most affected individuals due to the daily demands of their work practices, which require such things as mobilizing and positioning dependent patients. Back injuries account for 55% of the annual prevalence of injuries among nurses (Shaw, 2018). A study by the University of Alberta's Faculty of Rehabilitation Medicine found that 65% of orthopedic nurses and 58% of ICU nurses develop debilitating low back pain (LBP) at some point in their careers. In Qatar, Abolfotouh et al. (2015) noted that predictors of LBP are secondary to physical stress exposure. These injuries affect nurses both physically and psychosocially.

Numerous researchers have studied the factors that promote back care practices among nurses, especially those working in long-term care. In this review, long-term care refers to care delivered in hospitals for patients requiring care for a period of more than one year. Currently, the major factors in promoting back care practices are predominately at the individual and organizational levels (Shaw, 2018). Most research studies have documented many instances of the ergonomic hazards nurses experience, but few have discussed the prevention of such occurrences. One such article authored by Boughattas et al. (2017), demonstrated that multiple risk factors are present that impact nurses. These factors include "prolonged work hours, trunk torsion and layout of material" (p. 29). Therefore, this integrative review aims to explore factors related to nurses' back care practices in long-term care settings worldwide.

Methodology

Whittemore and Knafli's (2005) integrative literature review framework was chosen as it is the most appropriate method to address the back-care practices among long-term care nurses.

Problem Identification

Whittemore and Knafli (2005) stated that problem identification is the first phase of integrative review. These authors also stated that a well-defined review objective and variables of significance will facilitate all other phases of a review, particularly the ability to differentiate between relevant and irrelevant information in the data extraction stage. This review has a clear purpose: to identify the factors that promote back care practises for nurses working in long-term care settings.

Literature Search

The literature search in this review was done with the assistance of a librarian. The search was completed using the Cumulative Index to Nursing and Allied Health Literature, Academic Search Complete, and PubMed databases as well as hand search. The keywords used in the search included back care, back pain, low* back pain, back injur*, back hygiene, musculoskeletal*, back disorder*, spinal cord injur*, spinal disord*, spinal pain, lower backache, long term care, long-term care, palliative, hospice, terminal, home care*, nursing home, elderly care, residential care, skilled nurs*, old age home, assist* living, retirement facility, nurse*, and geriatr* nurse*. The Boolean operators AND and OR were used to focus and/or broaden the search. The initial search resulted in 194 possible articles.

Data Evaluation

The 194 articles obtained from the initial search were reviewed to ensure that only the most appropriate articles were included in this review. After removing duplicates, the title and abstracts of 133 articles were reviewed for relevance according to inclusion and exclusion criteria (see Table 1). An additional 81 articles were eliminated through this process. The full text of the remaining 52 articles was also reviewed according to the inclusion and exclusion criteria. Thirty-nine of these articles were eliminated as their study settings were not long-term care or their study populations were not nurses. Thirteen articles were found to be relevant for inclusion in this review. The Mixed Methods Appraisal Tool was used to appraise these 13 articles. Once applied, all articles were found to have high methodological quality.

Table 1: Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • primary qualitative, quantitative, and mixed method studies • studies published in English • studies published between 2011 and 2021 • studies conducted in long term care settings • studies focused on back care practices • studies focused on nurses 	<ul style="list-style-type: none"> • not primary studies • studies not published in English • studies published before 2011 • studies not conducted in long term settings • studies not focused on back care practices • studies not focused on nurses

Data Analysis

According to Whittemore and Knafl (2005), data analysis includes data reduction, data display, data comparison as well as conclusion drawing and verification. In the data reduction process, the identified data is classified using several approaches such as type of evidence, chronology, sample characteristics, or planned conceptual classification (Whittemore & Knafl, 2005). The techniques of data reduction include coding the collected data in a matrix or spreadsheet to provide organized and concise information about the literature. For this review an extraction table was created to analyze and organize the data from the 13 articles. The second phase of data analysis is data display. In this phase, the extracted data is transformed into graphics such as graphs, matrices, charts, and networks (Whittemore & Knafl, 2005). The 11 factors related to the implementation of back care practice programs that were identified in the 13 articles can be found in Figure 1.

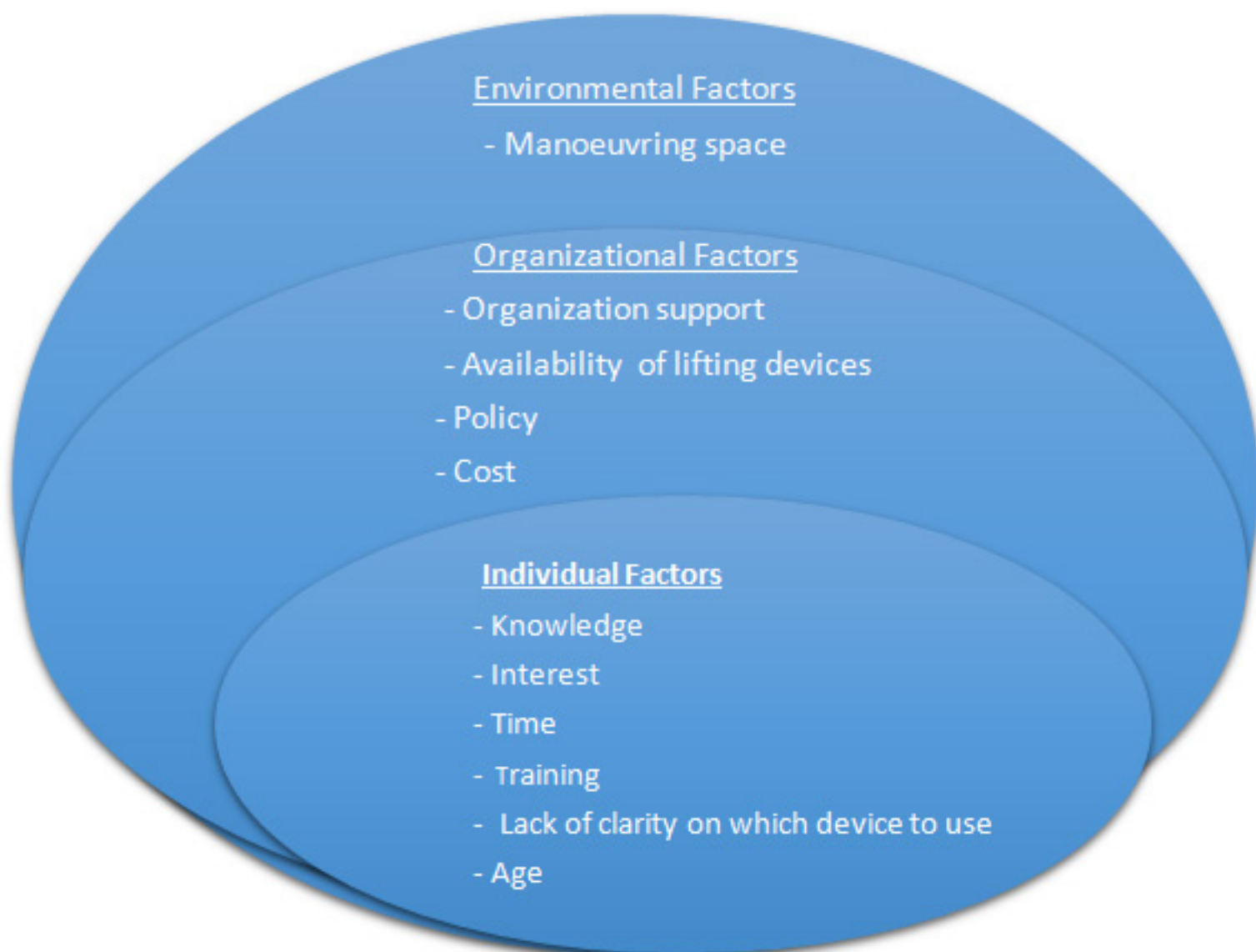
Figure 1: Factors Related to the Implementation of Back Care Practices from the 13 Articles



Data comparison is the next phase in data analysis, which includes a repeated process of evaluating data presentations of primary source data to identify patterns, themes, or relationships (Whittemore & Knaf, 2005). Whittemore and Knaf (2005) stated that similar variables should be grouped together, and a temporal order can be displayed. Relationships between variables or themes can also be represented. Moreover, these authors specified that data comparison and the identification of relevant and accurate patterns and themes require creativity and thorough study of data and data displays.

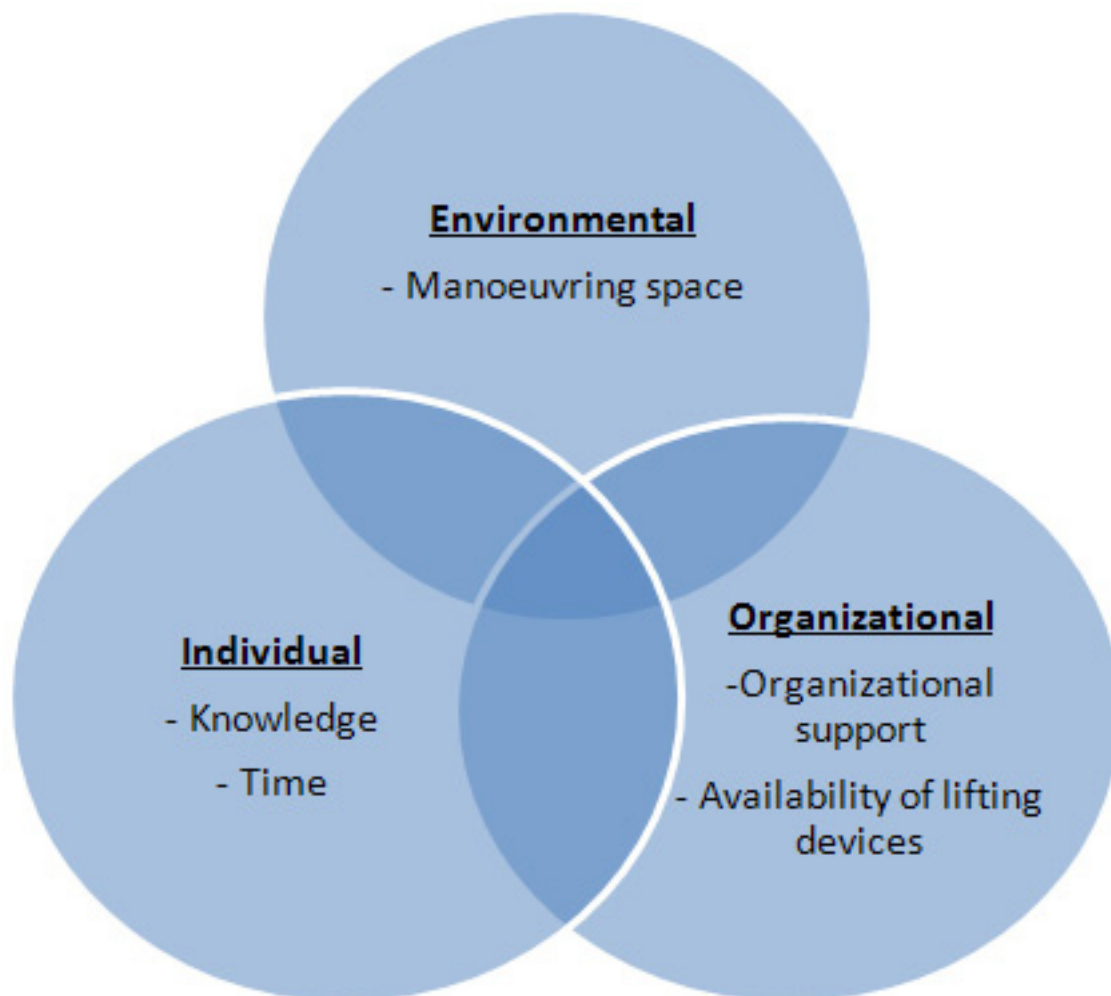
The socio-ecological model (SEM) was found to be an effective framework to identify factors influencing the back-care practices among long term care nurses who experience low back pain. "Social ecological models are visual depictions of dynamic relationships among individuals, groups, and their environments" (Golden et al., 2015, p. 9S). Factors categorized at the three main levels of the SEM can be seen in Figure 2.

Figure 2: Factors Categorized at Three Main Levels of the Socio-Ecological Model



Conclusion drawing and verification is the last phase in the data analysis process in which translation of the process changes from patterns and relation description to the conclusion and abstract level (Whittemore & Knaf, 2005). The main factors related to back care practices among nurses included individual, organizational, and environmental factors. The major themes at each level of the socio-ecological model are found in Figure 3.

Figure 3: Major Themes at Each Level of the Socio-Ecological Model



Results

This review critically examines a total of 13 research articles published between 2011 and 2021. These articles are primary resources that consist of quantitative, qualitative, and mixed-method studies. The primary data examined in this integrative review was obtained from studies conducted in various parts of the world: Germany (n = 4), USA (n = 4), Netherlands (n = 2), Spain (n = 1), Denmark (n = 1), and Canada (n = 1). There were ten quantitative studies: three cross-sectional, one descriptive, one descriptive pre-and post-intervention, one experimental, one longitudinal cohort, one staggered cohort control, one randomized control trial, and one cluster randomized control trial. The cross-sectional studies are Koppelaar et al. (2012), Koppelaar et al. (2013), and Kozak et al. (2017). Koppelaar et al. (2012) studied the effectiveness of ergonomic devices used by nurses in nursing homes on the mechanical load during patient handling activities. Koppelaar et al. (2013) evaluated the individual and organizational factors that affect nurses'

behaviors towards using lifting devices. Kozak et al. (2017) explored the extent that training programs reduce stressful trunk postures among geriatric nurses. In the descriptive study, Kurowski et al. (2017) assessed the incidence of musculoskeletal injury rates among long-term care nurses after the implementation of the safe resident handling program. In the descriptive pre-and post-intervention study, Garg and Kapellusch (2012) examined the long-term effectiveness of the use of patient-handling devices as part of an ergonomics program in reducing musculoskeletal injuries among nurses working in long-term care and chronic care hospitals. In the experimental study, Freitag et al. (2014) investigated the effect of the bending position of nurses on their trunk posture and exertion while doing routine tasks with patients. In the longitudinal cohort study, Gold et al. (2017) examined the prevalence of low back pain among home care nurses after the implementation of a safe resident handling program. In the staggered cohort-control study, Tompa et al. (2016) evaluated the cost benefits of a peer-coaching

programme for the use of patient lifts among nurses in a long-term care setting. In the randomized control trial, Otto et al. (2020) identified the work-related problems that affect nurses working in an elderly care setting and evaluated the effectiveness of the health promotion programs. In the cluster randomized control trial, Stevens et al. (2019) explored the mechanisms for reducing LBP in elderly care workers by using a multifaceted intervention.

The remaining three studies included one qualitative study (Fringer et al., 2014) and two mixed-method studies (O'Brien et al., 2019; Soler-Font et al., 2021). Fringer et al. (2014) examined the attitude of nursing home nurses regarding the implementation of kinaesthetic movement competence training and nurses' experience in integrating the training into their daily practice. O'Brien et al. (2019) studied the benefits of implementation of group-based acceptance and commitment therapy among nurses and nursing aides working in long-term residential settings regarding lifting practices and the associated injuries. Soler-Font et al. (2021) studied the process evaluation of a complex workplace intervention to prevent musculoskeletal pain in nursing staff.

This integrative review is focused on exploring the factors that influence the promotion of back care practices among the long-term care nurses. By using the SEM, the factors affecting the promotion of back care practice have been classified under three different levels of the model: individual, organizational, and environmental.

Individual Level Factors

Knowledge

Lack of knowledge among nurses and nurse trainers has been identified in three research studies as a significant barrier to the implementation of back care programs (Garg & Kapellusch, 2012; Koppelaar et al., 2013; Soler-Font et al., 2021). Inability of nurses to obtain comprehensive information about programs leads to limited knowledge. These three studies further indicated that limited understanding of the programs by nurses due to inadequate training affects the success of the programs. Nurses also have inadequate knowledge about workplace guidelines, which significantly affects their use of lifting devices (Garg & Kapellusch, 2012; Koppelaar et al., 2013). Additionally, Fringer et al. (2014) reported that the negative attitude of nurses towards new concepts due to limited knowledge about kinaesthetics competence training negatively impacted its success. Nurses need to be equipped with enough information and effective training about back-care programs to improve knowledge and facilitate the implementation and success of these programs. Knowledge is presented as a multidimensional factor that is applied to trainers and trainees. This review highlights nurses' preference to be involved only in the personal care activities where they have adequate understanding and information.

Time

Three articles have reported that lack of time among nurses has been one of the factors that influence the promotion of back care programs (Freitag et al., 2014; Fringer et al., 2014; Kurowski et al., 2017). Kurowski et al. (2017) stated that extra time required to use lifting devices causes nurses to think there is no need for using these devices. Similarly, in a study done by Freitag et al. (2014), nurses did not adjust beds to hip height when performing basic patient care even though height-adjustable beds were in many of the test wards, thinking that adjusting the height of the bed required more time. In addition, Fringer et al. (2014) stated that nurses' lack of time to improve their practice and theoretical knowledge about kinaesthetics obstructed the success of the program. Fringer et al. also noted that nurses' involvement with kinaesthetic practice required them to buddy up and work in pairs which required extra time yet encouraged their compliance in lifting and transferring of patients as they critiqued each others' movements. Therefore, allowing adequate time for nurses to provide safe patient handling may lead to increased implementation of proper back care practices.

Organizational Level Factors

Organizational Support

Lack of organizational support was the most evident factor at the organizational level in the literature. Inadequate cooperation among management hinders the application of back-care programs because it inhibits the success of the organizational projects and implementation of new programs (Garg & Kapellusch, 2012). Two studies have noted that poor organizational coordination and lack of funding also negatively influence human resource capacity, physical exhaustion, and resource mobilization (Koppelaar et al., 2013; Stevens et al., 2019). Otto et al. (2020) tested the acceptance of a multifactorial intervention program and observed that organizational culture and management are the most important factors to be considered in such programs.

Availability of Lifting Devices

Lack of enough lifting devices and availability of equipment negatively influences the use of back care programs. Garg and Kapellusch (2012) noted that inadequate patient-transferring devices and slings impeded the adequate application of back-care programs among nurses. The study also highlighted the requirement for lifting devices as tantamount to the success of safe handling practices. Similarly, Koppelaar et al. (2013) noted that a lack of ergonomic devices discouraged nurses from implementing safe back care practices through the structured patient handling program. Moreover, Koppelaar et al. (2012) stated that availability and use of patient lifting devices positively influenced back-care practices as well as the incidence of LBP among nurses. These studies have demonstrated that having adequate lifting devices positively influences nurses' back care practices.

Environmental Level Factors

The overarching theme reported at the environmental level was a lack of manoeuvring space to allow the use of lifting devices. Three studies reported on physical environment factors (Koppelaar et al., 2012; Koppelaar et al., 2013; Kurowski et al., 2017). In these studies, participants reported that a lack of manoeuvring space and room structure acted as environmental factors influencing the use of patient lifting devices as well as back care practices. Kurowski et al. (2017) stated that space constraint limited nurses' and nurse aides' ability to maneuver lifting devices inside and around the patients' rooms. The overarching theme in these cases demonstrates the need to consider space as a factor in the success of back care programs.

Discussion

The findings of this integrative review will allow nurses who work in long-term care, other healthcare providers, and stakeholders to understand the factors that influence the prevalence of LBP. Because nurses play an essential role in supporting health care systems and providing optimal quality of patient care, promoting healthy nurses who are free from MSD would ensure the delivery of high-quality patient care and cost-effective health services.

Individual Level

Inadequate knowledge is the most important barrier at the individual level. Nurses do not comply with back-care programs due to a poor understanding of the concepts and rationale of the programs (Garg & Kapellusch, 2012; Koppelaar et al., 2013). Similarly, Ovayolu et al. (2014) stated that nurses who do not receive back-care education experienced more back pain and reported higher back pain scores. These authors argued that nurses should receive regular education sessions about back care programs to increase knowledge about the use of lifting devices, rules for lifting protocols, and use of body mechanics during patient care activities. Moreover, Tefera et al. (2021) indicated that giving training to nurses is essential as it improves nurses' clinical practices, increases knowledge about patient transferring techniques, and reduces the occurrence of LBP. A study done by Karahan and Bayraktar (2013) showed that training programs to prevent LBP among nurses had a significant effect on nurses' knowledge and improved behavior toward safe patient handling.

The findings from this review indicate that nurses do not use lifting devices as the devices take more time out of their day (Koppelaar et al., 2012; Kurowski et al., 2017). Kucera et al. (2019) also found that nurses prefer not to use lifting devices as their use is time-consuming. Moreover, nurses spend a lot of time on clinical patients' care and have no time to participate in any other activities. Noble and Sweeney (2018) stated that time constraints were a remarkable barrier to the use of assistive devices in patient handling among clinical nurses. Moreover, Schoenfisch et al. (2011) identified that time spent in equipment retrieval, set up, use, and return to storage is more than that spent

on patient lifts and/or transfers, which discourages nurses from using lifting devices and reduces compliance to back care practices. This review shows that nurses with good knowledge about back care practices and the use of lifting devices make enough time to comply with back care practices.

Organizational Level

The findings from this review show that lack of management cooperation, commitment, and support negatively impact back-care practices (Garg & Kapellusch, 2012; Koppelaar et al., 2012; Kurowski et al., 2017). Management engagement and support encourage nurses to constantly be involved in the use of lifting devices (Kucera et al., 2019; Wahlin et al., 2021). Larsen et al. (2019) identified that management has a role in coordinating intervention programs in reducing WMSDs. These researchers also identified that management supports back-care programs by organizing enough staff in the units to avoid staff shortage as well as reduce workload. Coman et al. (2018) stated that management at the organizational level need to study the risk of manual handling to find solutions for this risk, which will support the success of the back-care programs.

This review found that unavailable or unready available lifting devices force nurses to use manual handling instead of following back-care practices (Garg & Kapellusch, 2012; Koppelaar et al., 2012; Koppelaar et al., 2013). Other literature has also supported this finding. Samaei et al. (2017) stated that the unavailability of advanced patient handling equipment is a remarkable risk factor that affects the prevalence of LBP among nurses. Similarly, Noble and Sweeney (2018) declared that the unavailability of lifting devices predisposes long-term care nurses to use the wrong lifting techniques, thus increasing the incidence of LBP. However, the availability of patient lifting equipment encourages nurses to use these devices, thus preventing LBP among nurses (Aljohani & Pascua, 2019; Burdorf et al., 2013).

Lack of specified funding to purchase patient lifting devices reinforces the use of manual handling which increases the prevalence of LBP incidents among long term care nurses. In this review, management's failure to purchase and organize the necessary lifting devices and implement back-care programs was due to unavailability of funding (Garg & Kapellusch, 2012; Tompa et al., 2016). Similarly, Noble and Sweeney (2018) stated that lack of funding is the main reason that hospitals do not support back care programs and purchase lifting devices.

Environmental Level

This review found that maneuvering space affects back-care practices because it limits workflow and basic nursing operations (Koppelaar et al., 2012; Koppelaar et al., 2013). Similarly, Richardson et al. (2018) identified that unorganized workplaces will make it hard for nurses to comply with safe patient handling techniques. This finding

indicates that limited workspace reduces free movement in accessing equipment and working together as a team to safely handle patients. Additionally, Noble and Sweeney (2018) stated that the risk for back injuries can significantly be reduced by providing enough space for nurses to practice safe patient handling and mobility. Thomas and Thomas (2014) stated that assessment and modification of spaces where patients are moved and transferred is required to create enough space for safe patient handling and reduce the incidence of back injuries.

Conclusion

This integrative review was conducted to identify the possible barriers to the promotion of back care practises among nurses working in long-term care settings to ensure effective implementation of back care practices. The main barriers are at the individual, organizational, and environmental levels. At the individual level, lack of knowledge limits nurses' interest and use of back-care programs. At the organizational level, lack of organizational support significantly influences the implementation of back care programs. At the environmental level, lack of maneuvering space limits nurses' ability to use safe patient handling techniques. Managing these barriers will improve nurses' quality of life, quality of patient care, nurses' and patients' satisfaction as well as organizational outcomes.

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