

Application and Effectiveness of the Nola Pender Model in Nursing: A Narrative Review

Abstract

Background: Health behavior encompasses the behaviors and decisions individuals make regarding their daily activities, which can impact their health and well-being. This study aimed to explore the application and effectiveness of Nola Pender's health promotion model in nursing practice. **Materials and Methods:** This narrative review was conducted between 2018 and 2022. The keywords, such as "Nola, Pender," "lifestyle," "effectiveness," and "Nursing," were used, both in English and Spanish. These keywords were individually searched in international databases, such as Scielo, PubMed, Science Direct, and Google Scholar. Inclusion criteria were full texts of original articles and articles related to the use and effectiveness of the Nola Pender model in nursing practice. Studies with abstracts only, other nursing models, duplicates, or insufficient methodological rigor were excluded. Each article was evaluated for methodological rigor, clarity of objectives, study design, and relevance to nursing. A total of 32 articles met the criteria. **Results:** The analysis of the selected documents identified applications of the model in the promotion of eating habits, sexual and reproductive health, management of arterial hypertension, chronic obstructive pulmonary disease, participation in community activities and lifestyles in general. The Pender model proved to be effective in adherence to treatment, stress management and cardiovascular disease, hand hygiene, smoking reduction, and exercise promotion. **Conclusions:** The scientific literature analyzed shows the effectiveness of the Nola Pender model in nursing practice for health-promoting behaviors both individually and collectively. The model proposed by Pender provides different strategies with beneficial results for the health and well-being of people.

Keywords: Health promotion, healthy lifestyle, models, nursing models, nursing, wellness

Introduction

The Health Promotion Model (HPM) proposed by Nola Pender emerged as an integrative proposal in nursing theories, focusing on the promotion, enhancement, and understanding of healthy lifestyles.^[1] Its main purpose is to guide individuals and communities to achieve optimal levels of health and, in turn, identify possible factors that influence their lifestyles positively or negatively.^[2] Among these factors, there are cognitive and perceptual aspects considered as modifiable by the individual, and interpersonal and situational factors, which result from and respond to human behavior, thereby constituting lifestyle's determinants.^[1] This model provides the opportunity to effectively manage health promotion before health risk complications arise for people, allowing the identification of appropriate responses to needs, which are crucial for maintaining health.^[3]

The implementation of Pender's HPM in nursing practice typically involves structured educational interventions, motivational counseling, and the design of programs aimed at encouraging lifestyle modification. Nurses apply the model by assessing patients' prior experiences and personal characteristics, identifying perceived barriers and benefits, and enhancing self-efficacy to support behavior change. Interventions often include personalized health education, promotion of physical activity, dietary counseling, stress management strategies, and the creation of supportive environments that facilitate healthy decision-making. Through these approaches, the model provides a practical framework that guides nurses in fostering patient engagement and sustained adoption of healthier behaviors.^[4]

Over the past two decades, research has demonstrated the effectiveness of the HPM

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in diverse contexts, such as chronic disease management, maternal and child health, adolescent health promotion, and workplace wellness programs. Studies conducted in Latin America, Europe, and Asia have reported positive outcomes when using the model, including improved adherence to treatment, reduction of cardiovascular risk factors, and enhanced quality of life.^[5] Despite these advances, the literature remains fragmented, with limited synthesis of evidence that highlights how the HPM contributes to measurable health outcomes. This gap underlines the need for a comprehensive review that consolidates available findings and identifies best practices for nursing implementation.^[6]

In light of the above, there is a need to conduct a review of the articles that demonstrate the application and effectiveness of implementing this model. This will enable nursing professionals to have a consolidated document highlighting significant experiences with successful strategies from nursing practice.^[5] Therefore, this research seeks to fill that gap through a comprehensive and structured analysis of the scientific literature on the HPM.

Materials and Methods

This work is a narrative review carried out to answer the following research question: What evidence is reported in the scientific literature regarding the application of Nola Pender's HPM in nursing practice, specifically in terms of its use and effectiveness in promoting healthy lifestyles?

A literature search was conducted in the Scielo, PubMed, Science Direct, and Google Scholar databases between August and October 2022. Keywords, such as "Model," "Pender," "Nola," and "Lifestyle," were used, both in English and Spanish, to demonstrate the use of the Nola Pender's model in nursing practice. Additionally, the Boolean operators, such as "AND" and "OR," were applied to increase sensitivity (retrieving all potentially relevant records) and specificity (excluding irrelevant results). Sensitivity was enhanced by including synonyms and related terms, while specificity was improved by applying filters for publication year, language, and study type. The time frame was restricted to documents published between 2018 and 2022.

Validity was ensured by consistently applying the inclusion and exclusion criteria across all databases, and the selection process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)^[7] statement. Reliability was ensured by having two independent reviewers perform the selection and classification of studies; discrepancies were resolved by consensus. Articles were organized and classified based on identification, selection, eligibility, and inclusion, following the PRISMA guidelines. Retrieved articles were selected according to the inclusion and exclusion criteria.

Regarding the selection criteria, only research articles were considered, while those derived from literature reviews, reflection articles, editorials, letters to the editor, and studies employing more than two nursing theoretical models were excluded. The initial search identified 218 articles. After removing duplicates, 98 records remained. Screening led to the exclusion of 48 articles. The full texts of the remaining 50 articles were assessed, and 18 were excluded due to insufficient data on key study variables (utility and effectiveness). A total of 32 articles met all criteria and were included in the analysis [Figure 1].

A review matrix was specifically designed for this study, capturing the following variables: study type, year of publication, country of origin, objectives, methodology, population, and key findings regarding the use and effectiveness of Pender's model. Data synthesis enabled the identification of application trends and assessment of the model's effectiveness at healthcare and community levels.

Ethical considerations

This study was approved by the Ethics Committee of the Simón Bolívar University, Barranquilla, Colombia, under the code PRO-CIE-USB-0267-00. The authors are committed to avoiding from redundant publication and plagiarism. Results that were not statistically significant were expressed and discussed without bias. Ethical standards were maintained throughout the review process, ensuring that all included studies were properly cited and that intellectual property rights were respected. Only publicly available data from peer-reviewed articles and reliable sources were used. The review was conducted following rigorous methodological guidelines to ensure transparency, accuracy, and integrity of the findings.

Results

Characteristics of the selected studies

During the review of the 32 articles selected for this research, it was found that two studies were published in 2018 (7–8), 5 studies in 2019 (9–13), 7 in 2020 (14–20), 10 in 2021 (21–30), and 8 articles in 2022 (31–38). Regarding the study locations, 2 were conducted in Turkey (11, 16), 15 in Iran (7, 12, 13, 17, 18, 19, 20, 23, 25, 26, 27, 28, 29, 39, 40), 5 in Brazil (14, 34, 35, 36, 37), 4 in Colombia (21, 30, 33, 38), 1 in Chile (8), 1 in China (24), 1 in the United States (22), 2 in Peru (9, 15), and 1 in Ecuador (10). Regarding the study type, it was found that 29 were original research articles (7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38), 2 are clinical cases (21, 36), and 1 is a brief communication (10). Regarding the methodological approaches identified, 29 studies were developed from a quantitative perspective, 2 from a qualitative perspective, and 1 from a participatory approach based on Maria Alicia Romaña's Psychodramatic Pedagogy methodology [Table 1].

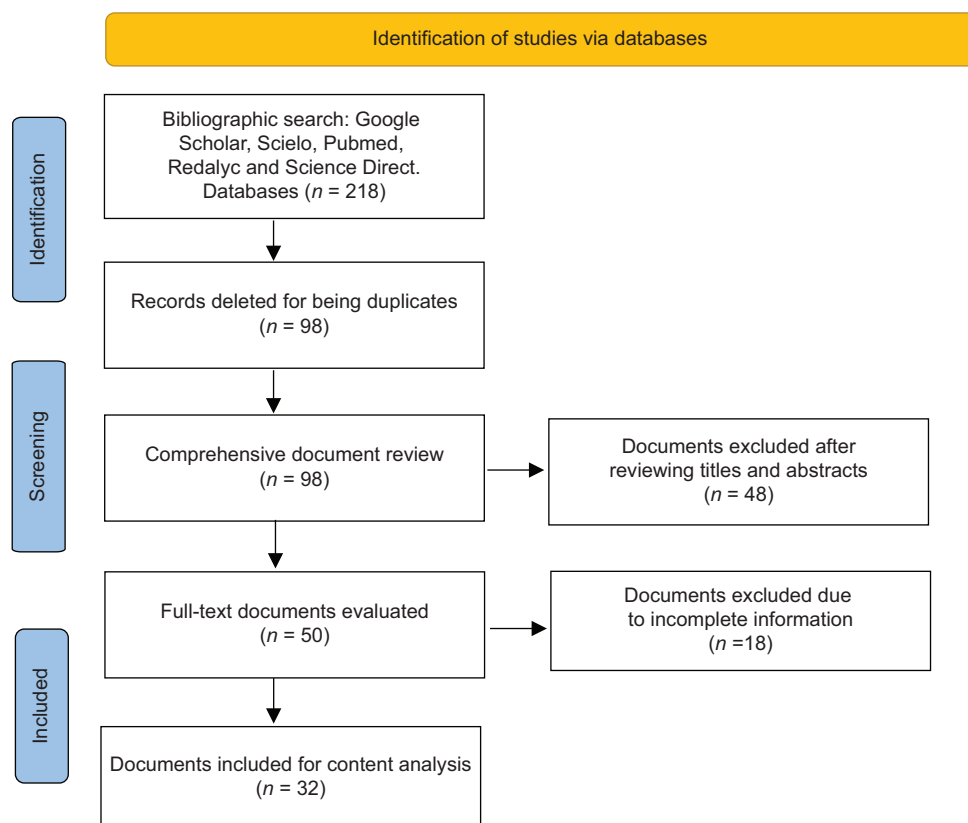


Figure 1: Flowchart of search and review of articles for the selection

Application and Effectiveness of Nola Pender's HPM in Nursing Practice.

Upon conducting the respective analysis of each selected study and the variables, they measured to achieve their objectives, several aspects related to the application and effectiveness of the HPM proposed by Pender emerged [Table 2].

Application of the model for the identification of healthy lifestyles.

The following are the main findings related to the usefulness of the Nola Pender model, demonstrating its effectiveness in areas, such as nutrition, mental health, pregnancy, sexual health, older adults, patients with celiac disease, diabetes, and arterial hypertension. Utility was also evident in identifying self-care practices, such as handwashing practices.

Nutrition and physical activity

Following Pender's Model, Peraza, Benítez, and Galeano^[10] proposed a similar strategy to enhance an institutional nutritional guidance program aimed at a specific academic community. The analysis indicated that nutritional disorders prevailed in both students and collaborators. Other similar studies evidenced the effectiveness of Pender's model because its elements made it possible to identify the nutrition and physical activity habits of the participants.

This finding facilitates the formulation of appropriate educational intervention programs from the perspective of the Nursing discipline.^[12,15,27]

Mental health

In a participatory research based on the Psychodramatic Pedagogy methodology of María Alicia Romaña, with a theoretical-analytical framework centered on Pender's Model and whose data were discussed from Paulo Freire's dialogical approach, it was possible to share the individual characteristics and experiences of adolescents facing the reality lived during the pandemic, highlighting mental health as the main theme in health promotion.^[36] Another study demonstrated its utility in identifying lifestyles for the development of healthcare plans adapted to individual needs.^[21]

Pregnant women

During the gestational period, according to the principles of Pender's HPM, it was observed that social support, perceived benefits, and perceived barriers stood out as the most relevant predictors of lifestyle.^[20]

Sexual health

Regarding sexual and reproductive health, the model demonstrated its utility because good communication with the sexual partner, negotiation skills, and a positive attitude toward condoms were considered beneficial for its

Table 1: General characteristics of the studies included in the review

Nº	Author(s)	Country	Study title	Type of study	Methodological approach
1	Goodarzi-Khoigani <i>et al.</i> ^[8]	Yazd, Iran	Impact of Nutrition Education in Improving Dietary Pattern During Pregnancy Based on Pender's Health Promotion Model: A Randomized Clinical Trial	Original article	Prospective clinical trial
2	Fernández <i>et al.</i> ^[7]	Chile	Adherence to antiretroviral treatment as a health-promoting behavior in older adults.	Original article	Cross-sectional descriptive and correlational study
3	Esteban <i>et al.</i> ^[9]	Perú	Efectividad de intervención basada en modelo de Nola Pender en promoción de estilos de vida saludables de universitarios peruanos	Original article	Preexperimental study with pretest and posttest.
4	Peraza <i>et al.</i> ^[10]	Ecuador	Health Promotion Model at the Metropolitan University of Ecuador	brief communication	Qualitative study
5	Karasu and Aylaz ^[11]	Kilis, Turquía	Evaluation of meaning of life and self-care agency in nursing care given to chronic obstructive pulmonary patients according to health promotion model	Original article	Experimental study
6	Shaahmadi <i>et al.</i> ^[12]	Savojbolagh, Iran	Factors Influencing Health Promoting Behaviours in Women of Reproductive Age in Iran: Based on Pender's Health Promotion Model	Original article	Descriptive and cross-sectional study
7	Bijani <i>et al.</i> ^[13]	Iran	Investigation of diabetes prevention behaviors among teachers of different level of education based on Pender model in selected educational centers in southwestern Iran, 2019	Original article	Retrospective cross-sectional study
8	Bessa <i>et al.</i> ^[14]	Brasil	Health control of celiacs health control of celiacs: analysis according to Pender's health promotion model	Original article	Descriptive and cross-sectional study
9	García <i>et al.</i> ^[15]	Perú	Healthy lifestyles in undergraduate students.	Original article	Descriptive, nonexperimental, cross-sectional study
10	Karatas and Polat ^[16]	Ankara, Turquía	Effect of nurse-led program on the exercise behavior of coronary artery patients: Pender's Health Promotion Model	Original article	Randomized controlled trial
11	Gorbani, Mahmoodi, Sarbakhsh, y Shaghagh, 2020 ^[17]	Iran	Predictive Performance of Pender's Health Promotion Model for Hypertension Control in Iranian Patients	Original article	Descriptive and cross-sectional study
12	Goudarzi <i>et al.</i> ^[18]	Hamadan, Iran	Determinants of medication adherence among hypertensive patients using the Pender's health promotion model	Original article	Descriptive and cross-sectional study
13	Masoudi <i>et al.</i> ^[19]	Shahrekord, Iran	Evaluating the effect of Pender's health promotion model on self-efficacy and treatment adherence behaviors among patients undergoing hemodialysis	Original article	Quasi-experimental study
14	Bahabadi <i>et al.</i> ^[20]	Tehran, Iran	Predictors of Health-Promoting Lifestyle in Pregnant Women Based on Pender's Health Promotion Model	Original article	Descriptive study
15	Rojas-Torres <i>et al.</i> ^[21]	Colombia	Nursing care of cluster headache patient based on Nola Pender's health promotion model: case report.	Case report	Clinical case
16	Chen and Hsieh ^[22]	Estados Unidos	Applying the Pender's Health Promotion Model to Identify the Factors Related to Older Adults' Participation in Community-Based Health Promotion Activities	Original article	Descriptive and cross-sectional study
17	Habibzadeh <i>et al.</i> ^[23]	Urmia, Iran	The effect of educational intervention based on Pender's health promotion model on quality of life and health promotion in patients with heart failure: an experimental study	Original article	Experimental study

Contd...

Table 1: Contd...

Nº	Author(s)	Country	Study title	Type of study	Methodological approach
18	Chen <i>et al.</i> ^[24]	China	Effects of a Goal-Oriented Intervention on Self-Management Behaviors and Self-Perceived Burden After Acute Stroke: A Randomized Controlled Trial	Original article	Randomized controlled trial
19	Khosravi <i>et al.</i> ^[25]	Mashhad, Iran	Improving Hand Hygiene Compliance of Intensive Care Unit by Using Pender's Model	Original article	Quasi-experimental study
20	Faroughi <i>et al.</i> ^[26]	Isfahan, Iran	The Effect of an Educational Intervention based on Pender's Health Promotion Model on Treatment Adherence in the Patients with Coronary Artery Disease	Original article	Randomized controlled clinical trial
21	Sany <i>et al.</i> ^[27]	Bojnourd, al noreste de Iran	Predictors of physical activity among women in Bojnourd, north east of Iran: Pender's health promotion model	Original article	Descriptive and cross-sectional study
22	Haghi <i>et al.</i> ^[28]	Guilan, Iran	The role of correlated factors based on Pender health promotion model in brushing behavior in the 13–16-year-old students of Guilan, Iran	Original article	Descriptive and cross-sectional study
23	Sabooteh <i>et al.</i> ^[29]	Isfahan, Iran	Designing and evaluation of E-health educational intervention on students' physical activity: an application of Pender's health promotion model	Original article	Quasi-experimental study with pretest, posttest, and posttest
24	Espinosa <i>et al.</i> ^[30]	Colombia	Barriers and facilitators influencing the adoption of healthy lifestyles in people with cardiovascular disease.	Original article	Mixed study
25	Díaz-Sánchezy Arias-Torres, 2022 ^[31]	Colombia	Effectiveness of nursing intervention in healthy lifestyle habits from Nola Pender's model.	Original article	Quasi-experimental study
26	Cardoso <i>et al.</i> ^[32]	Brasil	Healthy aging promotion model referenced in Nola Pender's theory	Original article	Descriptive and qualitative study
27	Neri <i>et al.</i> ^[33]	Brasil	Hand hygiene determinants of informal caregivers in hospitals under Pender's perspective	Original article	Qualitative study
28	Santi <i>et al.</i> ^[34]	Brasil	Adolescent health in the Covid-19 pandemic: a construction through Nola Pender's model	Original article	Participatory research based on the methodology of Maria Alicia Romaña's Psychodramatic Pedagogy.
29	Santos <i>et al.</i> ^[35]	Brasil	Sexual and reproductive health risk behaviours: higher education students' perceptions	Original article	Descriptive study
30	Baracaldo-Campo and Meneses-Pérez ^[36]	Bucaramanga - Colombia	Nursing process for smoking cessation in COPD patients: Case report.	Case report	Clinical case
31	Ahmadi <i>et al.</i> ^[37]	Sirjan, Iran	Factors influencing the consumption of fruits and vegetables in diabetic patients based on Pender's health promotion model	Original article	Descriptive and cross-sectional study
32	Bijani <i>et al.</i> ^[38]	Fasa, Iran	The effect of peer education based on Pender's health promotion model on quality of life, stress management and self-efficacy of patients with multiple sclerosis: a randomized controlled clinical trial	Original article	Randomized controlled clinical trial

Source: Own elaboration, 2024

regular use. Barriers included embarrassment when buying condoms, reduced sexual pleasure, and the stability of the relationship.^[37]

Older adults

Pender's model proved to be useful in predicting and detecting significant factors related to the involvement of older adults in community-based health promotion activities.^[22] In another study, seven antecedents, seven

attributes, and three consequences of the concept of healthy aging were identified. The authors claimed that the HPM guided the application of nursing processes in gerontological clinical practice.^[34]

Patients with celiac disease

The utility of the model provided significant insights into health control factors influencing the daily lives of individuals with celiac disease and their determinants. The

Table 2: Application and effectiveness of Nola Pender's Health Promotion Model (HPM) in nursing practice

Application and effectiveness of the Nola Pender model application	
Application	Effectiveness
Identifying healthy lifestyles in university students. ^[10]	Nutrition education for compliance with adequate nutritional guidelines in pregnant women. ^[7] Adherence to antiretroviral treatment in a group of older adults ^[8] Healthy lifestyle in adolescents. ^[9]
Identify healthy lifestyles in women of reproductive age. ^[12] Describing lifestyles in teachers with diabetes ^[13] To analyze health status in patients with celiac disease. ^[14] Assessing nutritional habits in adolescents. ^[15]	Health-promoting behaviors in patients with pulmonary disease. ^[11]
Used for hypertensive patients referred from health centers. ^[17] To identify factors related to medication adherence among hypertensive patients. ^[18]	In patients with coronary artery disease to increase exercise behavior. ^[16]
Used to determine predictors of healthy lifestyles in pregnant women. ^[20] In developing a nursing care plan for a patient with cluster headache. ^[21] To provide information related to the participation of older adults in community activities. ^[22]	Self-efficacy behaviors and treatment adherence of hemodialysis patients. ^[19]
As predictors of physical activity in women aged between 18 and 60 years. ^[27]	Educational intervention on quality of life and health promotion in patients with heart failure. ^[23] Intervention on self-care behaviors and self-perceived burden after acute stroke. ^[24] Adherence to hand hygiene. ^[25] Educational intervention on adherence to treatment in patients with coronary artery disease. ^[26]
To describe barriers and facilitators that influence the adoption of healthy lifestyles in people with cardiovascular disease. ^[30]	Educational intervention in urban public school students. ^[28] Educational intervention to improve the level of physical activity in adolescents. ^[29]
Used to model a process for promoting healthy aging. ^[34] A semi-structured instrument adapted from Nola Pender's HPM, from which the deductive categories were derived, was used. ^[33] Identify the individual characteristics and experiences of adolescents with respect to the lived reality of the pandemic. ^[34] To learn about higher education students' perceptions of sexual and reproductive health risk behaviors. ^[35]	Effectiveness of nursing intervention on healthy lifestyle habits in families attending a hospital institution. ^[31]
To know the factors that influence the consumption of fruits and vegetables in diabetic patients. ^[37]	In smoking cessation in the elderly. ^[36]
	Educational intervention in patients with multiple sclerosis for stress management. ^[38]

Source: Own elaboration, 2024

study revealed that individuals with celiac disease did not adhere to the proper diet and presented factors inherent to

daily life and social issues, characterized as obstacles for an effective health control.^[14]

Hypertensive patients

Other contributions of the model were in identifying predictive factors for adherence to therapeutic and lifestyle recommendations for hypertension control. Perceived benefits, perceived barriers, situational influences, and interpersonal influences showed a high level of adherence to control recommendations among the population.^[17,30]

Diabetic patients

In a study conducted in Iran, a higher score was found in the dimension of spiritual growth, while the lowest score was associated with the dimension of interpersonal relationships.^[13] Another similar study investigated factors affecting the consumption of fruits and vegetables in diabetic patients, with self-efficacy being the strongest predictor.^[39]

Other utilities of the model

The utility of the model was also evident in a study that included hand hygiene before meals and after using the bathroom. Sensitivity to hand hygiene was observed, but barriers and self-efficacy were related to the availability of soap or hand sanitizer, lack of awareness of importance, and forgetfulness of the practice.^[35]

Effectiveness of the model

The Nola Pender model demonstrated, through various studies, its effectiveness in promoting healthy lifestyles, especially in nutrition, physical activity, stress management, treatment adherence, and in patients with COPD, stroke, and multiple sclerosis.

Nutritional education

Results showed that the Nola Pender model demonstrated effectiveness in terms of compliance with dietary guidelines and the food pyramid in pregnant women.^[8]

Adherence to treatment

Regarding treatment adherence, research has evidenced the model's effectiveness in older adults, highlighting the perception of benefits and the scarce presence of barriers as determining factors.^[7] Similarly, another study of a similar nature revealed positive impacts of an educational program on patients undergoing hemodialysis, especially in self-efficacy behaviors and treatment adherence.^[19] The model's effectiveness was also shown in patients with coronary artery disease.^[26]

COPD patients

In the study by Karasu and Aylaz, it was discovered that care provided to COPD patients according to the HPM increased self-care agency and enhanced patients' sense of purpose or quality of life.^[11]

Improvement of healthy lifestyles

In relation to adolescents, it was observed that an educational program was effective in promoting healthy

lifestyles, including physical activity, health responsibility, and stress management.^[9] Additionally, another study confirmed effectiveness in improving the quality of life in heart failure patients.^[23] Regarding the middle-aged population, effectiveness was evident both in hand hygiene scores^[25] and in the adoption of healthy lifestyle habits in families attending a hospital institution.^[33] Effectiveness was also highlighted in smoking cessation in older individuals, with a stable emphasis on the role of family involvement.^[38]

Physical activity

Regarding the physical activity dimension, a study with patients with coronary artery disease demonstrated the effectiveness of an educational program in promoting exercise in this specific population.^[16] Similarly, constructs derived from the model were identified as determinants of the level of physical activity, as evidenced in different research studies.^[27,29]

Patients with stroke

An educational intervention based on Pender's HPM demonstrated effective improvement in self-care behaviors, as well as in the reduction of perceived physical and emotional burden in individuals who survived a stroke.^[24]

Multiple sclerosis

In patients diagnosed with multiple sclerosis, a significant improvement was observed in the quality of life, as well as in stress management skills and self-efficacy.^[40]

Discussion

This review confirmed that Nola Pender's HPM has been widely applied in nursing practice, demonstrating its effectiveness in promoting health-enhancing behaviors, especially in interventions aimed at health promotion, disease prevention, and health maintenance in both community and clinical settings, providing key, timely, and practical tools in areas, such as nutrition, physical activity, mental health, chronic disease management, sexual and reproductive health, and elderly care, allowing for timely, individualized, and patient-centered nursing interventions.^[41,42]

Among the most important findings is the model's effectiveness in identifying dietary habits and behaviors related to physical activity. Studies by Peraza, Benítez, and Galeano, among others,^[12,15,27] support this result by showing that the components of Pender's model allow for early detection of lifestyle-related risk factors and the implementation of educational programs focused on healthy eating and exercise.

In terms of mental health through Pender's HPM, its usefulness was particularly notable during the COVID-19 pandemic in adolescents. Similar studies highlight components, such as self-efficacy and perceived benefits,

as key factors for emotional well-being and stress management, and also demonstrate the model's capacity to incorporate individual experiences into mental health promotion plans.^[21,36]

As for the main findings related to pregnancy and reproductive health, the model's effectiveness is highlighted in identifying social support, perceived benefits, and barriers as key predictors for adopting healthy lifestyles and safe sexual behaviors. Related research confirms that support networks and interpersonal factors directly influence the mother-child dyad and adherence to preventive practices, while partner communication and self-efficacy are associated with greater protection in sexual health.^[43,44]

In the context of chronic disease management, the studies reviewed showed the model's usefulness in predicting treatment adherence and lifestyle modification. Perceived benefits, barriers, and self-efficacy were key factors in following recommendations.^[13,17,30,39] The model has provided significant tools for patient education, enabling a deeper understanding of individuals' health-related behaviors and actions. This is directly supported by studies reporting that "education provided according to Pender's HPM helped patients develop a more positive attitude toward disease management, making it a reliable and applicable resource."^[45-47]

In summary, the findings confirm that Nola Pender's HPM is applicable and effective in nursing practice for improving and strengthening people's lifestyles, treatment adherence, and self-care.^[48-50] For this reason, it can be considered a valuable and applicable tool across multiple clinical and community settings. Its focus on individual characteristics, perceived benefits, and barriers provides a robust theoretical and practical framework for promoting health-enhancing behaviors and guiding nursing interventions at both the individual and populational levels.

In response to the research question, the literature shows that Nola Pender's HPM has been effectively applied in nursing practice, particularly in promoting healthy lifestyles and self-care. Its implementation has yielded positive outcomes, reinforcing it as a robust and adaptable framework that strengthens nursing's role in health promotion.

While this narrative review has certain limitations, it also offers valuable insights for nursing research and practice. The heterogeneity of methodologies, populations, and healthcare contexts illustrates the flexibility of Pender's HPM but highlights the need for more comparative studies. Moreover, the focus on specific groups, such as patients with chronic diseases, women, and older adults, while limiting generalization, offers relevant perspectives for nursing care and opens opportunities to expand the model's application to other populations and settings.

One of the main limitations of this narrative review exploring the use and effectiveness of Nola Pender's model

in nursing practice is the heterogeneity of the studies analyzed regarding methodology and study subjects across both clinical and community contexts, and at individual and group levels. Additionally, most of the articles focused on specific populations, which limits the generalization of results to other population groups.

Conclusion

The model proposed by Pender has been consistently used, bringing forth numerous results that highlight the benefits achieved when implementing it in patient interventions. The findings show its effectiveness mainly in promoting health-promoting behaviors such as physical activity, nutrition, stress management, adherence, and management of chronic diseases such as hypertension, diabetes, respiratory diseases, and multiple sclerosis. Regarding the application of the model in nursing practice, it is worth highlighting that the interventions it proposes to nursing professionals aim to improve people's health status and empower them to preserve their well-being. In this sense, Nola Pender's model provides various strategies and becomes a valuable tool with beneficial results for health promotion and maintenance.

As evidenced in this review, educating individuals about healthy habits and lifestyles has proven effective in improving the lifestyle dimensions outlined in Pender's model. For future research, and considering the limitations found, we suggest conducting studies that evaluate the model's effectiveness in other contexts, populations, and needs, such as mental health promotion, active and healthy aging, and diverse age groups and individuals.

It is important to highlight the academic value of this research, as it compiles and analyzes updated evidence on the application of Nola Pender's HPM in diverse healthcare contexts. This work provides future nursing professionals with a solid conceptual framework, accompanied by practical examples that facilitate the understanding and implementation of health promotion strategies in their professional practice. Furthermore, it fosters the development of essential competencies for the discipline, such as the design, implementation, and evaluation of interventions aimed at the comprehensive well-being of individuals and communities.

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Conflicts of interest

Nothing to declare.

References

- Hoyos GP, Borjas DM, Ramos AS, Meléndez RM. El modelo de promoción de la salud de Nola Pender. Una reflexión en torno a su comprensión. *Eneo Unam* 2011;8:8.
- Triviño-Vargas ZG, MX. Factores predictores de conductas promotoras de salud en docentes de enfermería de tres universidades de Cali, Colombia. *Univ y Salud* 2018;20:160.
- González-Aguilera MJ, Miranda-Vidal P, Sánchez-Ahumada V, Vega-Jil V, Mosqueda-Díaz SA. Factores relacionados con la violencia de pareja adolescente desde el modelo de Nola Pender: Una revisión integrativa. *Rev iberoam Educ investi Enferm* 2021;11:30-43.
- Ministerio de salud y protección social; Subdirección de Enfermedades No Transmisibles. Páginas-Prevención de enfermedades no transmisibles; 2022. Available from: <https://www.minsalud.gov.co/salud/publica/PENT/Paginas/Enfermedades-no-transmisibles.aspx>. [Last accessed on 2024 Jun].
- Salomé A, Molina H, Maricela P, Herrera M, Rocío V, Tierra T. El profesional de enfermería en la promoción de salud en el segundo nivel de atención. *Revista Eugenio Espejo* 2022;16:98-111.
- Estrada JC. El cuidado de enfermería en pacientes con riesgo cardiovascular sustentado en la teoría de Nola J Pender. *Investig en Enfermería Imagen y Desarrollo* 2017;19:107.
- Goodarzi-Khoigani M, Moghadam MB, Nadjarzadeh A, Mardanian F, Fallahzadeh H, Mazloomi-Mahmoodabad S. Impact of nutrition education in improving dietary pattern during pregnancy based on Pender's health promotion model: A randomized clinical trial. *Iran J Nurs Midwifery Res* 2018;23:18-25.
- FernándezSilva CA, Lopez-Andrade CM. Adherencia al tratamiento antirretroviral como conducta promotora de salud en adultos mayores. *Rev Cuid* 2018;9:2201-14. Available from: <https://www.redalyc.org/articulo.oa?id=359557443010>.
- Felipe R, Esteban C, Rivera JP. Efectividad de intervención basada en modelo de Nola Pender en promoción de estilos de vida saludables de universitarios peruanos Effectiveness of an Intervention Based on the Nola Pender Model in Promoting Healthy Lifestyles in Peruvian Universities. *Rev Cubana Enfer* 2019;35:1-10.
- Peraza C, Benítez F, Galeano Y. Modelo de promoción de salud en la Universidad Metropolitana de Ecuador. *MediSur* 2019;17:903-6.
- Karasu F, Aylaz R. Evaluation of meaning of life and self-care agency in nursing care given to chronic obstructive pulmonary patients according to health promotion model. *Appl Nurs Res* 2020;51:151208.
- Shaahmadi F, Shojaeizadeh D, Sadeghi R, Arefi Z. Factors influencing health promoting behaviours in women of reproductive age in Iran: Based on Pender's health promotion model. *Open Access Maced J Med Sci* 2019;7:2360-4.
- Bijani M, Rostami K, Ghasemi A, Emami M, Fereidouni Z. Investigation of diabetes prevention behaviors among teachers of different level of education based on Pender model in selected educational centers in southwestern Iran, 2019. *Rev Latinoam Hipertens* 2019;14:290-4.
- Bessa CC, Alexandrino L. Controle de saúde de celiacos: análise segundo o modelo de promoção da saúde de Pender. *Texto e Context Enferm* 2020;29:1-11.
- García FM, Rojas JA. Estilos de vida en estudiantes de pregrado. *Rev Conrado* 2020;16:69-75. Available from: <http://scielo.sld.cu/pdf/rc/v16n75/1990-8644-rc-16-75-69.pdf>.
- Karataş T, Polat Ü. Effect of nurse-led program on the exercise behavior of coronary artery patients: Pender's Health Promotion Model. *Patient Educ Couns* 2021;104:1183-92.
- Gorbani F, Mahmoodi H, Sarbakhsh P, Shaghaghi A. Predictive performance of Pender's health promotion model for hypertension control in Iranian patients. *Vasc Health Risk Manag* 2020;16:299-305.
- Goudarzi H, Barati M, Bashirian BM. Determinants of medication adherence among hypertensive patients using the Pender's health promotion model. *J Educ Health Promot* 2020;9:89.
- Masoudi R, Lotfizade M, Gheysarieha RL. Evaluating the effect of Pender's health promotion model on self-efficacy and treatment adherence behaviors among patients undergoing hemodialysis. *J Educ Health Promot* 2020;9:89.
- Bahabadi FJ, Estebsari F, Rohani C, Kandi ZR, Sefidkar R, Mostafaei D. Predictors of health-promoting lifestyle in pregnant women based on Pender's health promotion model. *Int J Womens Health* 2020;12:71-7.
- Torres IL, Vásquez LE, Rojas DM. Nursing care of a patient with cluster headache based on the Nola Pender health promotion model: Case report. *Rev Cient Soc Enferm Neurol (Engl ed)* 2023;57:36-42.
- Chen H, Hsieh P. Applying the Pender's health promotion model to identify the factors related to older adults' participation in community-based health promotion activities. *Int J Environ Res Public Health* 2021;18:9985.
- Habibzadeh H, Shariati A, Mohammadi F, Babayi S. The effect of educational intervention based on Pender's health promotion model on quality of life and health promotion in patients with heart failure: An experimental study. *BMC Cardiovasc Disord* 2021;21:478.
- Chen Y, Wei Y, Lang H, Xiao T, Hua Y, Li L, *et al.* Effects of a goal-oriented intervention on self-management behaviors and self-perceived burden after acute stroke: A randomized controlled trial. *Front Neurol* 2021;12:650138.
- Khosravi N, Alami A, Aelami MH, Khosrovan S. Improving hand hygiene compliance of intensive care unit by using Pender's model. *Ethiop J Health Sci* 2021;31:553-60.
- Faroughi F, Shahriari M, Keshvari M, Shirani F. The effect of an educational intervention based on Pender's health promotion model on treatment adherence in the patients with coronary artery disease. *Iran J Nurs Midwifery Res* 2021;26:216-22.
- Sany SB, Shahroodi MV, Khaboshan ZH, Orooji A, Esmaeily H, Jafari A, *et al.* Predictors of physical activity among women in Bojnourd, north east of Iran: Pender's health promotion model. *Arch Public Health* 2021;79:178.
- Haghi R, Ashouri A, Karimy M, Rouhani-Tonekaboni N, Kasmaei P, Pakdaman F, *et al.* The role of correlated factors based on Pender health promotion model in brushing behavior in the 13-16 years old students of Guilan, Iran. *Ital J Pediatr* 2021;47:111.
- Sabooteh S, Feizi A, Shekarchizadeh P, Shahnazi H, Mostafavi F. Designing and evaluation of E-health educational intervention on students' physical activity: An application of Pender's health promotion model. *BMC Public Health* 2021;21:657.
- Espinosa JN, Malagón MY, Granados SP, Clavijo OS, Herrera MC, Díaz-Heredia LP. Barriers and facilitators that influence on adopting healthy lifestyles in people with cardiovascular disease. *Investigación y Educación en Enfermería*

- 2021;39. Available from: <https://doi.org/10.17533/udea.ice.v39n3e04>.
31. Castro MC, Ticona CV, Rayme MI, Sosa JC. Estilos de vida asociados a la adherencia al tratamiento en pacientes hipertensos. *Arch Venez Farmacol y Ter* 2021;40:389-95. Available from: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=lth&AN=152530027&lang=es&site=ehost-live%0A10.5281/zenodo.5227306>.
 32. Cardoso RB, Caldas CP, Brandão MAG, Souza PA, Santana RF. Healthy aging promotion model referenced in Nola Pender's theory. *Rev Bras Enferm*. 2021;75:e20200373. doi:10.1590/0034-7167-2020-0373.
 33. Neri MF, Silva RA, do Nascimento JC, do Sousa É, Rocha R, Barros LM, *et al.* Hand hygiene determinants of informal caregivers in hospitals under Pender's perspective. *Rev Bras Enferm* 2021;75:e20210012.
 34. Santi DB, Rossa R, Bomfim LD, Dias AR, Higarashi IH, Baldissera VD. Adolescent health in the Covid-19 pandemic: A construction through Nola Pender's model. *Rev Bras Enferm* 2022;75:e20210696.
 35. Santos MJ, Ferreira MM, Ferreira EM. Sexual and reproductive health risk behaviours: Higher education students' perceptions. *Rev Bras Enferm* 2022;75:e20210712.
 36. Baracaldo-Campo HA, Meneses-Pérez DA. Proceso de enfermería para la cesación del hábito tabáquico en paciente con EPOC: Reporte de caso. *MedUNA* 2022;25:42-51.
 37. Ahmadi Tabatabai SV, Esmailnejad AS, Sadeghi R, Zeidabadi B. Factors influencing the consumption of fruits and vegetables in diabetic patients based on Pender's health promotion model. *J Educ Health Promot*. 2022;11:51. doi:10.4103/jehp.jehp_183_21.
 38. Bijani M, Rostami K, Ghasemi A, Emami M, Fereidouni Z. Investigation of diabetes prevention behaviors among teachers of different level of education based on Pender model in selected educational centers in southwestern Iran, 2019. *Rev Latinoam Hipertens* 2019;14:290-4. Available from: <https://www.redalyc.org/journal/1702/170263002016/html/>.
 39. Bağrıaçık E, Bayraktar N. Evaluation of the effect of training given according to Pender's Health Promotion Model on psychological insulin resistance. *Hum Nutr Metab*. 2022;29:200153. doi:10.1016/j.hnm.2022.200153
 40. Gurbuz IZ, Akin S. Relationship between quality of life, self- efficacy and social support in patients with multiple sclerosis. *Int J Palliat Nurs*. 2023;29:598-612. doi:10.12968/ijpn.2023.29.12.598.
 41. Hamzehgardeshi Z, Mohammadi N, Rezaeian M. The effect of health promotion model-based interventions on preventive behaviors: A systematic review. *J Educ Health Promot*. 2023;12:277. doi:10.4103/jehp.jehp_271_23.
 42. Esteban RF, Caycho-Rodríguez T, Arias SA, Guerra MR, Vilchez CC, Orci KC, *et al.* Efectividad de intervención basada en modelo de Nola Pender en promoción de estilos de vida saludable de universitarios peruanos. *Rev Cubana Enferm* 2019;35. Available from: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-03192019000400009.
 43. Beydokhti TB, Dehnoalian A, Moshki M, Akbary A. Effect of educational- counseling program based on precede-proceed model during Pregnancy on postpartum depression. *Nurs Open* 2021;8:1578-86.
 44. Younas A, Rasheed SP, Sundus A, Inayat S. Nurses' perspectives of self-awareness in nursing practice: A descriptive qualitative study. *Nurs Health Sci* 2020;22:398-405.
 45. Ydalsys NH. Efectividad de intervención de Enfermería en conocimientos para mejorar el estado de salud en adultos diabéticos. En: *1er Simposio para el desarrollo de las Especialidades de Enfermería*; 2022.
 46. Jalali A, Ziapour A, Ezzati E, Kazemi S, Kazeminia M. The impact of training based on the Pender health promotion model on self-efficacy: A systematic review and meta-analysis. *Am J Health Promot* 2024;38:918-29.
 47. Jalali A, Rajati F, Kazeminia M. Empowering the older people on self-care to improve self-efficacy based on Pender's health promotion model: A randomized controlled trial. *Geriatr Nurs* 2025;61:574-9.
 48. Upreti AS, Aryal B, Kuikel J, Sharma MK. Dietary practices of type 2 diabetes mellitus patients concerning Pender's health Promotion Model in Lalitpur district, Nepal. *Hum Nutr Metab* 2024;38:200288.
 49. Santos MG, Pleutim NI, Queiroz-Cardoso AI, Ramalho LD, Souza VS, Teston EF. Use of the health promotion model by nursing in primary care: An integrative review. *Rev Bras Enferm* 2025;78:e20240096.
 50. Bakhshi H, Firoozbakht M, Jamali N, Jahanfar S. Effect of a mobile app-based nutritional education intervention based on the health promotion model on gestational weight gain: Protocol for a randomized controlled trial. *Trials* 2024;25:361.