THE SUPPORTIVE-EDUCATIVE NURSING SYSTEM IN THE PROMOTION OF SELF-CARE AMONG HIGH-RISK PREGNANT WOMEN: INTEGRATIVE REVIEW

SISTEMA DE ENFERMAGEM APOIO-EDUCAÇÃO NA PROMOÇÃO DO AUTOCUIDADO A GESTANTES DE ALTO RISCO: REVISÃO INTEGRATIVA

APOYO-EDUCACIÓN DEL SISTEMA DE ENFERMERÍA EN LA PROMOCIÓN DEL AUTOCUIDADO A EMBARAZADAS DE ALTO RIESGO: REVISIÓN INTEGRADORA

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ABSTRACT

Objective: to analyze the supportive-educative Nursing system actions proposed by Dorothea Orem's Theory of Nursing Systems in promoting self-care among high-risk pregnant women based on Nursing diagnoses of NANDA-I taxonomy. **Method**: integrative review conducted on the following databases: CINAHL, Medline/Pubmed, Scopus, Web of Science, Embase, Science Direct, Cochrane Library, SciELO Library, and Virtual Health Library. **Results**: the sample comprised 17 papers reporting that the actions are implemented through guidance focused on the care plan, healthy lifestyle, the need to stop using drugs, disease control, and the need to maintain bonds with the Primary Health Care (PHC) service. **Conclusion**: the main supportive-educative Nursing system actions in promoting self-care among high-risk pregnant women were implemented through Nursing interventions to provide guidance regarding the importance of attending prenatal care and acquiring healthy habits during pregnancy. These actions benefited high-risk pregnant women and are common to most Nursing diagnoses identified in the study population.
Keywords: Self Care; Nursing Care; Prenatal Care; Health Education; Pregnancy, High-Risk; Health Promotion.

RESUMO

Objetivo: analisar as ações do sistema de Enfermagem apoio-educação proposto pela Teoria dos Sistemas de Enfermagem de Dorothea Orem, na promoção do autocuidado a gestantes de alto risco a partir dos diagnósticos de Enfermagem da taxonomia da NANDA-I. Método: revisão integrativa realizada nas bases de dados CINAHL, Medline/Pubmed, Scopus, Web of Science, Embase, Science Direct, Cochrane Library, biblioteca SciELO e Biblioteca Virtual em Saúde. Resultados: a amostra foi composta por 17 artigos que evidenciaram que as ações ocorrem, principalmente, por meio de orientações sobre o plano de cuidados, a adoção de hábitos saudáveis, a cessação do uso de drogas, o controle de doenças e a manutenção do vínculo com a Atenção Primária à Saúde (APS). Conclusão: as principais ações do sistema de Enfermagem apoio-educação na promoção do autocuidado a gestantes de alto risco foram realizadas por meio da implementação de intervenções de Enfermagem voltadas às orientações sobre a importância da realização do pré-natal e prática de hábitos saudáveis durante a gestação. Essas ações foram benéficas para as gestantes de alto risco e são comuns a maioria dos diagnósticos de Enfermagem identificados na população em estudo.
Palavras-chave: Autocuidado; Cuidado de Enfermagem; Cuidado Pré-Natal; Educação em Saúde; Gravidez de Alto Risco; Promoção da Saúde.

RESUMEN

Objetivo: analizar las acciones del sistema de apoyo-educación de Enfermería propuesto por la Teoría de los Sistemas de Enfermería de Dorothea Orem en la promoción del autocuidado a embarazadas de alto riesgo a partir de los diagnósticos de Enfermería de la taxonomía NANDA-I. Método: revisión integrativa realizada en las bases de datos CINAHL, Medline/Pubmed, Scopus, Web of Science, Embase, Science Direct, Biblioteca Cochrane, Biblioteca SciELO y Biblioteca Virtual de Salud. Resultados: la muestra estaba compuesta por 17 artículos que mostraron que las acciones ocurren principalmente a través de la orientación sobre el plan de cuidados, la realización de hábitos saludables, el cese del uso de medicamentos, el control de enfermedades y el mantenimiento del vínculo con la Atención Primaria de Salud. Conclusão: las principales acciones del apoyo-educación del sistema de Enfermería en la promoción del autocuidado a las embarazadas de alto riesgo se realizaron a través de la implementación de

intervenciones de Enfermería dirigidas a orientar sobre la importancia de los cuidados prenatales y la práctica de hábitos saludables durante el embarazo. Estas acciones fueron beneficiosas para las embarazadas de alto riesgo y son comunes a la mayoría de los diagnósticos de Enfermería identificados en la población de estudio.

Palabras clave: Autocuidado; Atención de Enfermería; Atención Prenatal; Educación en Salud; Embarazo de Alto Riesgo; Promoción de la Salud.

INTRODUCTION

Pregnancy is a physiological phenomenon in which women experience physical, hormonal, psychological, and social changes.[1] A pregnancy becomes high-risk when gestational complications and/or previously worsened clinical conditions endanger the mother's and/or fetus' health. Approximately 22% of women worldwide are classified under high-risk pregnancy.[1,2]

In order to prevent complications in the mother-fetus pair, the multidisciplinary health team can identify the gestational risk factors early to promote maternal-fetal health.[1] Nursing professionals stand out in the multidisciplinary team as they can improve the health of high-risk pregnant women with the implementation of health education actions and meet the real needs of this population, provide guidance focusing on their care needs.[1]

Health education enables nurses to promote self-care, which consists of individuals' actions to maintain their life, health, and well-being.[2] Self-care promotion can be based on Dorothea Orem's General Theory of Nursing, which has three interrelated theories: Self-Care, Self-Care Deficit, and Nursing Systems.[3]

The Theory of Nursing Systems postulates that individuals can be supported through systems, such as supportive-educative systems, which are characterized by Nursing guidance and assistance provided to people who can learn how to perform self-care. In this case, nurses are health educators who consider individuals able to take care of themselves.[4]

Promoting self-care among high-risk pregnant women is necessary so that the mother-fetus pair can prevent complications and promote a healthy pregnancy.[4] Hence, women can actively participate in their health care and perform actions based on Nursing guidance.[4,5]

Studies show that promoting and practicing self-care during pregnancy can significantly reduce gestational complications.[3-5] This study's relevance lies in the need to identify evidence that summarizes the results of the Supportive-educative Nursing systems actions in promoting self-care among high-risk pregnant women and the importance of the health, life, and well-being of both mother and child.

Furthermore, self-care can be promoted through the operationalization of the Nursing Process, an important tool for nurses' clinical practice, so that nurses analyze data[6] and diagnose health problems of high-risk pregnant women. Consequently, nurses establish a care plan and implement Nursing interventions. [1,3,5] In this sense, this integrative review will support nurses' clinical practice since it will provide information about the care of the mother-fetus pair.

Therefore, this study aims to analyze the Supportive-educative Nursing systems proposed by Dorothea Orem's Systems Theory in Nursing to promote self-care to high-risk pregnant women based on the Nursing diagnoses of NANDA-I taxonomy.

METHOD

This integrative review was conducted through five stages: 1 – Establishment of the research question; 2 – Literature review; 3 – Data extraction; 4 – Data analysis; and 5 – Presentation of the results.[7]

The research question was based on the PICO strategy (P - Population: high-risk pregnant women; I - Intervention: actions of the supportive-educative Nursing system; C - Comparison: none; and O - Outcome: self-care promotion):[8] What are the actions of the Supportive-educative Nursing systems in promoting self-care among high-risk pregnant women based on the Nursing diagnoses of NANDA-I taxonomy?

The literature review was conducted in November 2022 through remote Virtual Private Network (VPN) access to the *Periódicos Portal* of the Coordination for the Improvement of Higher Education Personnel (CAPES) in the following databases: Cumulative Index to Nursing & Allied Health Literature (CINAHL), National Library of Medicine and National Institutes of Health (Medline/Pubmed), Scopus, Web of Science, Embase, Science Direct, Cochrane Library, Scientific Electronic Library Online (SciELO) and Virtual Library in Health (VHL). The descriptors used in the search are indexed in Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) (Table 1).

For the additive and restrictive combination of terms, the Boolean operators AND and OR were used, with the following search strategy: ("Pregnancy, High-Risk" OR "Pregnancy Complications") AND ("Self Care" OR "Self-Care Units") AND ("Prenatal Care" OR Nursing OR "Nursing Care" OR "Nursing Theory" OR "Models, Nursing") AND ("Health Education" OR "Health Promotion"), used

in Medline/Pubmed and adapted for other databases/virtual libraries.

Search strategies in English and Spanish were also used in the SciELO virtual library and the VHL portal. The *All Fields* tab was selected in all databases and virtual libraries. There was no restriction regarding the year of publication or language.

Inclusion criteria were: primary studies that answered this study's research question. In addition, the following were excluded: experience reports, integrative reviews, systematic reviews, narrative reviews, scope reviews, books, book chapters, editorials, letters to the editor, congress/conference abstracts, protocols, comments/criticisms, monographs, dissertations, and theses.

When searching for scientific evidence, the studies were exported to the EndNote reference manager software,[9] where duplicates were removed. Next, data were exported to the Rayyan application,[10] which supported the archiving, organization, and selection of studies.

Using the Rayyan application,[10] two independent researchers read the studies' titles and abstracts and carefully selected the articles according to the eligibility criteria. Next, the researchers read the full texts of the studies selected in the previous step and selected those to compose the final sample (17 papers). The search and selection of studies are described in the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) flowchart - 2021.[11] (Figure 1)

A form from the Joanna Briggs Institute (JBI) was used to collect data,[12] which was adapted for this study by including two questions addressing the actions of the Supportive-educative Nursing systems in promoting self-care among high-risk pregnant women.

Note that the Nursing diagnoses of the NANDA-I taxonomy were identified for the problems presented by the high-risk pregnant women to conduct a robust analysis of the actions of the Supportive-educative Nursing systems in promoting self-care based on the papers selected for this study. Thus, Nursing care was proposed based on this identification.

The level of evidence was classified according to the evidence-based practice in Nursing,[13] namely: Level I – systematic review, meta-analysis, or clinical guidelines of randomized controlled trials; Level II – randomized controlled trials; Level III – well-designed nonrandomized clinical trials; Level IV – well-designed cohort or case-control studies; Level V – systematic review of descriptive and qualitative studies; Level VI – a single descriptive or qualitative study; and Level VII – opinion of authorities and/or expert report.

Methodological rigor was assessed using the Critical Appraisal Skills Program (CASP).[14] Two independent researchers collected and analyzed data. When needed, a third researcher resolved divergences in any of these stages. Critical data analysis was conducted when interpreting the primary studies, synthesizing evidence on the actions of the Supportive-educative Nursing system in promoting self-care among high-risk pregnant women, and organizing the thematic categories that emerged. Finally, the results were presented descriptively, based on a synthesis of data collected from the studies included.

RESULTS

All papers were written in English (n=17).[15-31] Most were published in Brazil[16,20,21] (n=3) and the United States of America (USA) (n=5),[19,23,24,27,30] from 2017 to 2022 (n=10).[15,16,21,25-31] Regarding the type of studies, qualitative (n=4),[16,20,21,26] cross-sectional studies (n=4)[18,23,25,27], and clinical trials (n=4)[15,22,28,31] were the most prevalent.

As for the studies' settings, most were conducted in a hospital environment (n=8)[15,16,20-23,29,30], and three addressed the actions of the supportive-educative Nursing system based on Dorothea's Theory of Nursing Systems[22,24,31]. Most studies presented a level of evidence equal to VI (n=8).[16,18,20,21,23,25-27] All studies were classified as having good methodological rigor[15-31] (Figure 2).

When high-risk pregnant women presented the Nursing diagnoses from the NANDA-I[6] taxonomy — Risk for unstable blood pressure; Anxiety; Fear; Ineffective health maintenance; Risk-prone health behavior; Risk of unstable blood glucose level; Stress overload, and Sedentary lifestyle — the actions of the supportive-educative Nursing system were implemented to promote self-care. The actions that stood out the most were guidance for the women to attend prenatal care; seek their doctors; maintain a healthy lifestyle; and cease the consumption of alcohol and/or other drugs (Table 2).

The actions of the supportive-educative Nursing system in promoting self-care among high-risk pregnant women were categorized into 1 – Guidance on the care plan and therapeutic regimen;[15,17,20,21,25-27,30] 2 – Guidance on a healthy lifestyle; [18-20,22-24,26,28-31] 3 – Encouraging women to attend prenatal consultations, seek medical care, and keep bonds with Primary Health Care (PHC); [15-17,20,28] 4 – Guidance on stopping smoking and drug use; [17-18,23-24] 5 – Guidance on the importance of vaccination and disease control; [16-17,30] and 6 – Guidance on stress control.[16,19,23]

Table 1- PICO Strategy and descriptors used in the search. *Recife*, PE, 2022

PICO Strategy		Descriptors
P (Population)	High-risk pregnant women	(*"Pregnancy, High-Risk" OR "Pregnancy Complications"*)
I (Intervention)	Supportive-educative Nursing system	(*"Prenatal Care" OR Nursing OR "Nursing Care" OR "Nursing Theory" OR "Models, Nursing") AND ("Health Education" OR "Health Promotion"*)
C (Comparison)	None	-
O (Outcome)	Self-care promotion	(*"Self Care" OR "Self-Care Units"*)

Identification of studies via databases and virtual libraries

Identification

Studies Identified (n=479)
CINAHL (n=64)
Medline/Pubmed (n=13)
Scopus (n=115)
Web of Science (n=54)
Embase (n=135)
Science Direct (n=75)
Cochrane Library (n=6)
SciELO (n=0)
BVS (n=17)

→ Studies excluded before screening:
Duplicated studies (n=29)

Identification

Studies screened
(n = 450)

→ Studies excluded (n=402)
Congress abstracts (n=13)
Book/chapter (n=10)
Reviews (n=14)
Other topics (n=365)

Studies assessed
(n =48)

→ Studies excluded (n=31)
Studies not answering the research question
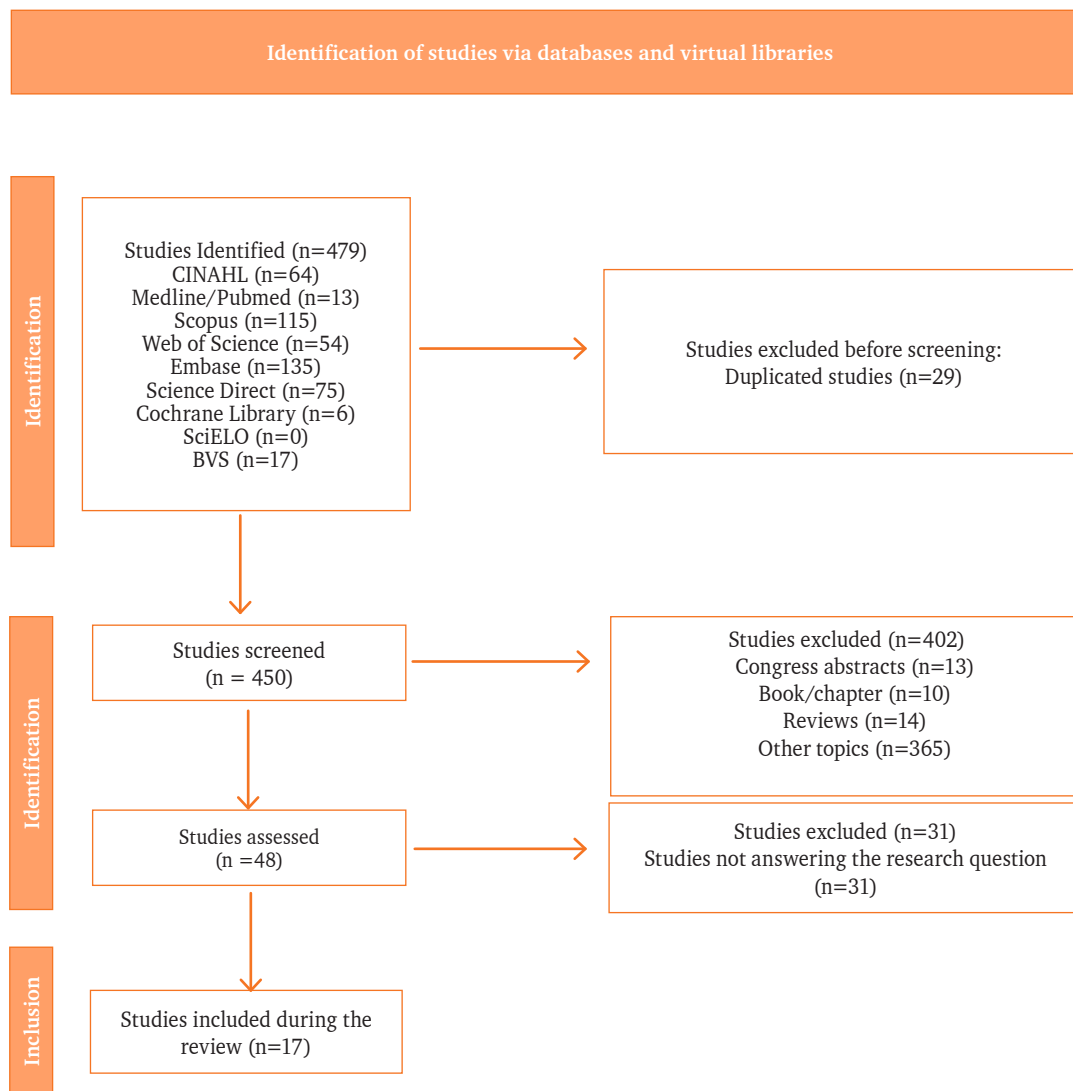(n=31)

Inclusion

Studies included during the
review (n=17)

Figure 1 - Flowchart of the selection of the studies included in the integrative review. *Recife*, PE, Brazil 2022

METHODOLOGICAL RIGOR – CRITICAL APPRAISAL SKILLS PROGRAMME (CASP) CHECKLIST FOR EACH TYPE OF STUDY PARA CADA TIPO DE ESTUDO

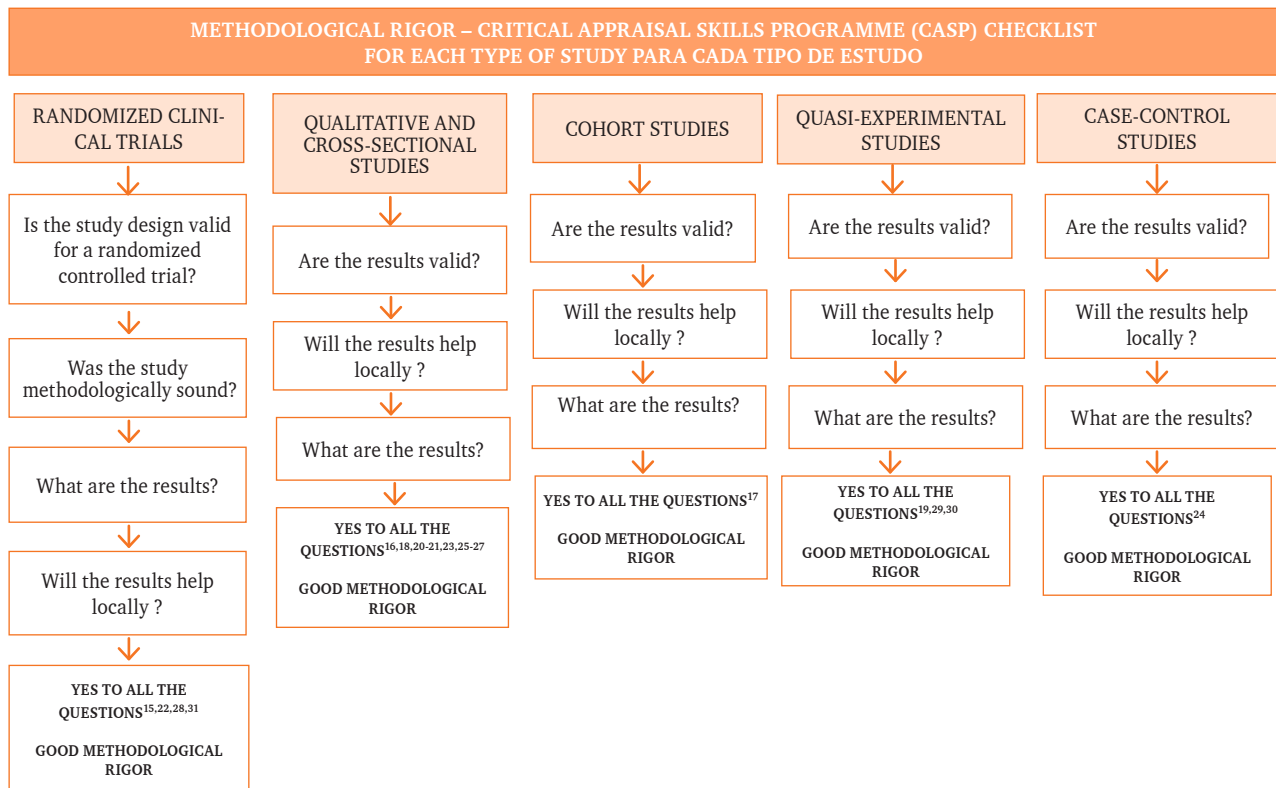| RANDOMIZED CLINICAL TRIALS	QUALITATIVE AND CROSS-SECTIONAL STUDIES	COHORT STUDIES	QUASI-EXPERIMENTAL STUDIES	CASE-CONTROL STUDIES
Is the study design valid for a randomized controlled trial?	Are the results valid?	Are the results valid?	Are the results valid?	Are the results valid?
Was the study methodologically sound?	Will the results help locally ?	Will the results help locally ?	Will the results help locally ?	Will the results help locally ?
What are the results?	What are the results?	What are the results?	What are the results?	What are the results?
Will the results help locally ?	YES TO ALL THE QUESTIONS[16,18,20-21,23,25-27] GOOD METHODOLOGICAL RIGOR	YES TO ALL THE QUESTIONS[17] GOOD METHODOLOGICAL RIGOR	YES TO ALL THE QUESTIONS[19,29,30] GOOD METHODOLOGICAL RIGOR	YES TO ALL THE QUESTIONS[24] GOOD METHODOLOGICAL RIGOR
YES TO ALL THE QUESTIONS[15,22,28,31] GOOD METHODOLOGICAL RIGOR				

Figure 2 - Methodological rigor of the studies included in this integrative review. *Recife*, PE, Brazil 2022

Table 2 - Synthesis of information extracted from the studies in the sample. *Recife*, PE, Brazil 2022

Study's title	Authors/ country and year of publication / Periodical	Study's design/ sample/setting/level of evidence	Nursing diagnoses / Supportive-educative Nursing system actions in promoting self-care among high-risk pregnant women	Results and Conclusions
The effects of an educational programme about preeclampsia on women's awareness: a randomised control trial.[15]	Alnuaimi K, Abuidhail J, Abuzaid H Switzerland 2020 *International Nursing Review*	Randomized Controlled Clinical Trial 113 high-risk pregnant women Public hospital in Jordan II	Nursing Diagnosis: Risk for unstable blood pressure. Actions: Guidance on blood pressure monitoring and proteinuria; Counseling on the early identification of preeclampsia signs and symptoms; Encouraging women to attend prenatal consultations and seek their physicians.	The educational actions focus on involving high-risk pregnant women in self-care to improve the pregnancies' outcomes. The women who received orientation, counseling, and encouragement experienced increased awareness regarding preeclampsia and how to prevent gestational complications.
Susceptibilities and health problems of pregnant women: care adopted in the family health strategy.[16]	Oliveira DC, Mandú ENT Brazil 2017 *Revista de Enfermagem UFPE on line*	Qualitative study 5 nurses Family Health Units and Reference Hospital for high-risk pregnancies in Brazil VI	Nursing Diagnoses: Anxiety and Fear. Actions: Guidance to decrease anxiety and worry; to attend prenatal consultations; immunization; Encouragement for them to keep bonds with the Primary Health Care Unit.	Self-care promotion actions were needed to prevent adverse repercussions to high-risk pregnant women's physical health and quality of life.

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Table 2 - Synthesis of information extracted from the studies in the sample. *Recife*, PE, Brazil 2022

Study's title	Authors/ country and year of publication / Periodical	Study's design/ sample/setting/level of evidence	Nursing diagnoses / Supportive-educative Nursing system actions in promoting self-care among high-risk pregnant women	Results and Conclusions
An observational study of the impact of an antenatal asthma management service on asthma control during pregnancy.[17]	Grzeskowiak LE, Smith B, Roy A, Dekker GA, Clifton VL Ireland 2015 *European Journal of Obstetrics and Gynecology and Reproductive Biology*	Cohort study 169 high-risk pregnant women Prenatal Care units in a Hospital in Australia IV	Nursing Diagnosis: Ineffective health maintenance. Actions: Orientation on managing asthma and pharmacological therapy; Recommendations on performing spirometry; Counseling regarding the importance of not smoking; Encouragement to follow the care plan and seek their physicians.	The nurse-led asthma management service shows an impact on improving asthma control during pregnancy. The women received guidance, counseling, recommendations, and encouragement to decrease asthma exacerbations.
Changes in health behaviors made by pregnant substance users.[18]	Higgins PG, Clough DH, Frank B, Wallerstedt C Canada 1995 *International Journal of the Addictions*	Cross-sectional study 31 high-risk pregnant women Prenatal care in the USA VI	Nursing Diagnosis: Risk-prone health behavior. Actions: Orientation to stop using harmful substances and regarding healthy eating.	The educative program to promote self-care decreased the incidence of perinatal morbidity and mortality.
Health practices and anxiety in low-income, high-and low-risk pregnant women.[19]	Kemp VH, Maker DD EUA 1993 *Journal of Obstetric, Gynecologic and Neonatal Nursing*	Quasi-Experimental studies 65 high-risk pregnant women Low and high-risk prenatal clinics in a tertiary care facility III	Nursing Diagnoses: Anxiety and risk-prone health behavior. Action: Orientation on healthy habits and stress management.	The nurses implemented self-care promotion actions to assess the health practice of high-risk pregnant women. As a result, the women who received orientations presented lower levels of anxiety.
Orientations of nursing in the high risk gestation: the pregnant perceptions.[20]	Luciano MP, Silva EF, Cecchetto FH Brasil 2011 *Revista de Enfermagem UFPE on line*	Qualitative study 15 high-risk pregnant women Public hospital in Brazil VI	Nursing Diagnoses: Risk-prone health behavior, Risk of unstable blood glucose level, and ineffective health maintenance. Actions: Guidance to timely communicate gestational complications; Guidance on a healthy lifestyle and the importance of following the treatment prescribed; Encouragement to control blood glucose.	Nurses helped pregnant women experience healthier pregnancies and encouraged them to be active agents of self-care.
HIV-positive pregnant and puerperal women and their interfaces of care.[21]	Rahim SH, Gabatz RIB, Soares TMS, Milbrath VM, Schwartz E Brazil 2017 *Revista de Enfermagem UFPE on line*	Qualitative study 15 high-risk pregnant women Public hospital in Brazil VI	Nursing Diagnoses: Risk-prone health behavior, Risk of unstable blood glucose level, and ineffective health maintenance. Actions: Guidance to timely communicate gestational complications; Guidance on a healthy lifestyle and the importance of following the treatment prescribed; Encouragement to control blood glucose.	Nurses helped pregnant women experience healthier pregnancies and encouraged them to be active agents of self-care.

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Table 2 - Synthesis of information extracted from the studies in the sample. *Recife*, PE, Brazil 2022

Study's title	Authors/country and year of publication / Periodical	Study's design/ sample/setting/ level of evidence	Nursing diagnoses / Supportive-educative Nursing system actions in promoting self-care among high-risk pregnant women	Results and Conclusions
The effect of Orem's Self Care Model on Control of Preeclampsia in Pregnant Women: A Randomized Clinical Trial.[22]	Shobeiri F, Doosti F, Oshvandi K, Soltanian A Indian 2016 *Research Jounal of Pharmaceutical, Biological and Chemical Sciences*	Randomized Controlled Clinical Trial 60 high-risk pregnant women Hospital in Iran II	Nursing Diagnosis: Risk for unstable blood pressure. Actions: Guidance (based on the Dorothea Orem's Theory of Nursing Systems) regarding healthy eating and on how to prevent gestational complications.	The self-care of women with preeclampsia is improved by an educative support system. The women who received orientations improved their behavior and self-awareness regarding the prevention of gestational complications.
The relationship between perceived stress and health-promoting behaviors in high-risk pregnancy.[23]	Stark MA, Brinkley RL USA 2007 *Journal of Perinatal and Neonatal Nursing*	Cross-sectional study 67 high-risk pregnant women Hospital VI	Nursing Diagnoses: Stress overload, Sedentary lifestyle and Risk-prone health behavior. Actions: Encouragement for women to create a healthy environment in their homes; Orientation regarding healthy eating, exercises, spiritual practices, prenatal care; Orientation to stop using alcohol and other drugs.	The nurses provide stress management techniques and self-care to promote health during high-risk pregnancies.
Resourcefulness and self-care in pregnant women with HIV.[24]	Boonpongmanee C, Zauszniewski JA, Morris DL USA 2003 *Western Journal of Nursing Research*	Case-control study 79 high-risk pregnant women Prenatal clinic in Thailand IV	Nursing Diagnosis: Risk-prone health behavior. Actions: Orientation (based on Dorothea Orem's Theory of Nursing Systems) to prevent risky behaviors (e.g., smoking and drug use); Encouragement to healthy eating and keeping an appropriate weight.	The findings regarding the effects of depression help promote self-care. The women who received guidance were encouraged to adopt a healthy lifestyle and showed better self-care during prenatal care.
Mobile Web-based Education: Engagement and Satisfaction with HiChart among Pregnant Women.[25]	Kim HJ, Kang HS South Korea 2019 *Child Health Nursing Research*	Cross-sectional study 97 high-risk pregnant women Medical center in South Korea VI	Nursing Diagnosis: Ineffective health maintenance. Action: Orientation regarding glycemic control.	The information nurses provided to high-risk women through an educational program promoted self-care.
Self-care Education Needs in Gestational Diabetes Tailored to the Iranian Culture: A Qualitative Content Analysis.[26]	Kolivand M, Keramat A, Rahimi M, Motaghi Z, Shariati M, Emamian M Iran 2018 *Iranian Journal of Nursing and Midwifery Research*	Qualitative study 13 high-risk pregnant women and two nurses Diabetes clinic in Tehran VI	Nursing Diagnosis: Risk-prone health behavior. Actions: Orientation (based on Dorothea Orem's Theory of Nursing Systems) to prevent risky behaviors (e.g., smoking and drug use); Encouragement to healthy eating and keeping an appropriate weight.	High-risk pregnant women have educational and support needs that Nursing professionals can meet.
Relationships Among Neighborhood Poverty, Access to Healthy Food, and Diabetes Self-Management in Women Who Received Perinatal Nurse Home Visits.[27]	Birati Y, Bloch JR, McKeever A, Chiatti BD USA 2022 *Journal of Obstetric, Gynecologic and Neonatal Nursing*	Cross-sectional study 264 high-risk pregnant women Pennsylvania, Philadelphia VI	Nursing Diagnosis: Risk of unstable blood glucose level. Action: Encouraging women to control their glycemic level,	Nurses can optimize the health outcomes of women with diabetes during pregnancy by promoting self-care.

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Table 2 - Synthesis of information extracted from the studies in the sample. *Recife*, PE, Brazil 2022

Study's title	Authors/country and year of publication / Periodical	Study's design/ sample/setting/ level of evidence	Nursing diagnoses / Supportive-educative Nursing system actions in promoting self-care among high-risk pregnant women	Results and Conclusions
Effects of comprehensive Nursing intervention on maternal and infant outcomes for gestational diabetes mellitus patients.[28]	Meng Y India 2021 *International Journal of Diabetes in Developing Countries*	Randomize Clinical Trial 93 high-risk pregnant women Prenatal clinic II	Nursing Diagnoses: Ineffective health maintenance and Sedentary lifestyle. Actions: Orientation regarding healthy eating and exercises; Encouraging women to attend prenatal consultations.	Nursing interventions can effectively improve gestational results. Women who received guidance and were encouraged to attend prenatal care experienced fewer gestational complications.
Effect of Tele-Nursing Guidelines on Health Lifestyle and Self-Efficacy among Women with Gestational Diabetes during COVID-19 Pandemic.[29]	Mohamed AMAM, Mohamed HSE, Ahmed NME, Ahmed EAG Turkey 2022 NeuroQuantology	Quasi-Experimental study 50 high-risk pregnant women University hospital in Zazazigue III	Nursing Diagnosis: Risk of unstable blood glucose level. Actions: Orientations on a healthy lifestyle.	Guidance is provided during Nursing routine care in prenatal units to promote self-care – the women who received such guidance present improved lifestyles.
Effects of WeChat platform-based Nursing intervention on disease severity and maternal and infant outcomes of patients with gestational diabetes mellitus.[30]	Chen L, Zhang W, Fu A, Zhou L, Zhang S EUA 2022 *American Journal of Translational Research*	Quasi-Experimental study 112 high-risk pregnant women Hospital in China III	Nursing Diagnosis: Risk of unstable blood glucose level. Actions: Guidance on the pathogenesis and harms of gestational Diabetes Mellitus, healthy eating, and therapeutic regime.	The Nursing intervention helped patients to obtain greater glycemic control and decreased the risk of adverse outcomes. The women who received guidance presented better care management.
The Effect of Prenatal Self Care Based on Orem's Theory on Preterm Birth Occurrence in Women at Risk for Preterm Birth.[31]	Rezaeean SM, Abedian Z, Latifnejad-Roudsari R, Mazloum SR, Abbasi Z Iran 2020 *Iranian Journal of Nursing Midwifery Research*	Randomize Clinical Trial 176 high-risk pregnant women Health units at Mashhad University of Medical Sciences II	Nursing diagnosis: Risk-prone health behavior. Actions: Orientation on healthy habits during pregnancy.	The educative intervention based on Dorothea Orem's Theory of Nursing Systems improved self-care among high-risk pregnant women. The women who received guidance presented better self-care practices during pregnancy

DISCUSSION

This study innovates by analyzing the actions of the supportive-educative Nursing system in promoting self--care among high-risk pregnant women and the implications of these actions in clinical practice and the scientific field. Note that the actions were implemented after the nurses clinically assessed the health problems identified among pregnant women, which indicated the need for self-care.

In recent years, especially from 2016 on, more studies have addressed the promotion of self-care among high-risk pregnant women.[15,16,21,22,25-31.] Such an increase in studies is seen starting in 2016, probably because one of the objectives established from 2016 to 2030 by the United Nations Agenda for Sustainable Development is to reduce maternal mortality rates due to gestational complications. Hence, it may have aroused the interest of researchers to conduct studies that promote self-care during the gestational period and prevent unfavorable outcomes for the mother-fetus pair.[32] Therefore, nurses have sought to implement effective actions in clinical practice to improve the care provided during pregnancy and childbirth.[33]

The surveys conducted by this study's sample were primarily performed in public and private hospitals, as

high-risk pregnant women are cared for by a multidisciplinary health team in specialized or reference services.[15,16,20-23,28-30] Nurses stand out in this multidisciplinary team and address health problems based on the operationalization of the Nursing Process, which is an essential tool in clinical practice. They perform diagnostic reasoning and implement health education actions to enable women to become autonomous and take care of their health during pregnancy. Hence, nurses must be sensitive and capable of perceiving these women's self-care needs beyond clinical assessments.[33]

In the scientific scope of Nursing, self-care promotion among high-risk pregnant women can be based on Dorothea Orem's Theory of Nursing Systems, which has the supportive-educative Nursing system as one of its pillars.[6,24] Three studies[22,24,31] in the sample addressed Nursing care based on this theory. The promotion of self-care is intended to contribute to favorable perinatal outcomes and avoid undesirable consequences for mothers and fetuses.[23,34]

The first category — "Guidance on the care plan and therapeutic regimen" — is highlighted in the actions of the supportive-educative Nursing system implemented by nurses to promote self-care among high-risk pregnant women presenting the Nursing Diagnosis of ineffective health maintenance. Such action was implemented in an educational program by providing guidance on the signs and symptoms of preeclampsia and routine care. The professionals encouraged pregnant women to attend prenatal care and to seek care when experiencing gestational complications.[15]

When the high-risk pregnant women presented the Nursing Diagnosis of Risk for unstable blood pressure, the nurses provided guidance on monitoring blood pressure and proteinuria levels to prevent gestational complications and encouraging a healthy lifestyle.[35]

Altered blood pressure negatively affects pregnancy outcomes.[35] Approximately 14% of pregnant women die yearly due to this risk factor. Therefore, women must be instructed on the complications that harm the mother-fetus pair.[15,36]

Other recommendations on the care plan and therapeutic regime were: drug therapy and spirometry were recommended for pregnant women with asthma; pregnant women with Gestational Diabetes Mellitus (GDM) were instructed to control blood glucose; and the therapeutic regimen was recommended for those with HIV.[15,17,20-21,25,26,28,29] These actions enable controlling for gestational complications,[36,37] because they prevent the occurrence of the Nursing diagnoses of Ineffective health maintenance and Risk for unstable blood glucose.

The Nursing diagnoses Sedentary lifestyle and Risk-prone health behavior lead to the need to provide guidance on a healthy lifestyle.[17-19,23,24,25] Implementing educational actions encourages healthy eating and physical exercise, as women with a poor lifestyle are more vulnerable to fetal complications, preeclampsia, GDM, overweight, and obesity, which are factors that increase the maternal mortality rate.[37]

Mortality rates decrease when pregnant women start early prenatal care and attend at least six appointments, as the Ministry of Health recommends. From this perspective, "encouraging women to attend prenatal consultations, seek medical care, and maintain bonds with PHC" — another category found — were also identified among the actions of the supportive-educative Nursing system.[15-17,25]

Prenatal care, usually performed by nurses at the PHC unit, enables the early identification of risk factors and gestational complications to decrease maternal and/or fetal morbidity and mortality. Additionally, it enables the implementation of educative actions that encourage self-care among pregnant women.[38] Women in high-risk pregnancies are referred to specialized and/or referral services to be monitored by a doctor and other health professionals. However, nurses encourage these women not to lose their bonds with the PHC service.[16,39]

Only one study in this review showed the role of nurses in promoting self-care to high-risk pregnant women in PHC.[16] The authors emphasized the challenges of maintaining a bond with the primary health care service when the pregnant woman is referred to other services, which may interfere with self-care promotion.

Nurses also instructed women to communicate the presence of gestational complications timely.[20] Note that these complications can lead to prematurity, maternal death, miscarriage, fetal death, or other adverse maternal outcomes, such as placental abruption, premature birth, premature rupture of membranes, GDM, gestational hypertension, fetal macrosomia, and fetal malformations.[40]

Gestational hypertension, GDM, and fetal macrosomia are more prevalent in obese pregnant women. Approximately 50% of pregnant women worldwide have a Body Mass Index (BMI) above 30kg/m2, contributing to these adverse outcomes. Consequently, preventing obesity during pregnancy is a critical strategy for improving maternal-fetal outcomes.[41]

During educational programs, interventions, and Nursing consultations, nurses advise high-risk pregnant women to maintain a healthy weight during pregnancy and encourage them to take an interest in self-care. In addition, they list the risk factors that can harm the mother-fetus pair.[15,17] Nurses recommend glycemic control, comply with the therapeutic regimen, and take the tests and necessary care for those who develop.[15,17,19,20,22,24]

The Nursing Diagnosis Risk-prone health behaviors might be related to the consumption of tobacco, alcohol, or other drugs. There has been an increase in the use of these harmful substances during pregnancy in recent decades, which has consequences for both the mother and fetus in the short or long term.[42]

Health professionals are recommended to ask pregnant women about the use of these substances; thus, the nurses promote "guidance on stopping smoking and using other drugs." This category stands out, as women are highly receptive to advice related to the effects of lifestyle on maternal and fetal health to make changes to ensure the fetus' health and well-being.[17,18,23,24,41] Also noteworthy are interventions to promote self-care related to the importance of vaccination and disease control, as vaccination protects women, fetuses, and children from infectious diseases.[15,42]

Psychological changes may occur in high-risk pregnancies due to the susceptibility of the mother-fetus pair to gestational risks.[16,19,23] Anxiety and Fear were Nursing diagnoses identified in this study. They cause changes in the fetal heartbeat, premature delivery, low birth weight, fetal distress, and malformations.[42]

Depression, on the other hand, increases cesarean sections and prematurity rates. These conditions may cause stress, interfering with maternal-fetal psychological well-being. Hence, nurses provide "guidance on stress control," the last category found in this review, to encourage a healthy psychological and social environment and spiritual practices,[16,19,23] to reduce Stress Overload, a Nursing Diagnosis also presented by high-risk pregnant women.

Most supportive-educative Nursing system actions show that guidance during the gestational period was given to high-risk pregnant women. Note that women have the autonomy to make decisions about their health based on these recommendations; hence, the women's decisions interfere with the effectiveness of actions.[35] The studies included in the sample of this integrative review show that the role of nurses in supportive-educative actions was effective.[15,17,19,22,24,28]

The findings show that implementing supportive-educative Nursing system actions to promote self-care among high-risk pregnant women is essential for the mother-fetus pair's health, life, and well-being.[1-3] During clinical practice, nurses should identify the responses of pregnant women to gestational complications and diseases so that they can provide guidance regarding the necessary care and implement health education to prevent unfavorable perinatal outcomes and improve the healthcare provided to this population based on the operationalization of the Nursing Process.[24]

This review contributes to the body of Nursing knowledge, as the findings can help the clinical practice of nurses working with high-risk pregnant women. In addition, they draw attention to the importance of nurses' scientific basis when planning and implementing interventions.

As for the findings' practical implications, the positive impact of the supportive-educative Nursing system actions in caring for mother-fetus pairs is highlighted. These findings show that the nurse's role in promoting self-care among high-risk pregnant women must be conducted from the primary to the tertiary healthcare level so that better results are obtained in healthcare. Additionally, these actions must be implemented as soon as Nursing diagnoses are identified and a care plan is devised.

This study's limitations include the fact that few studies address the actions of the supportive-educative Nursing system in promoting self-care among high-risk pregnant women, as the number of papers that emerged in the search shows. Furthermore, these studies adopted different methodologies, which may have led to variability when synthesizing findings.

CONCLUSION

The actions of the supportive-educative Nursing system in promoting self-care among high-risk pregnant women were analyzed and implemented through guidance that promoted the maintenance of the mother-fetus pair's well-being, health, and life. These actions were implemented when the NANDA-I taxonomy Nursing diagnoses presented by the high-risk pregnant women were identified: Risk for unstable blood pressure; Anxiety; Fear; Ineffective health maintenance; Risk-prone health behavior; Risk of unstable blood glucose; Stress overload; and Sedentary lifestyle.

The analysis of the actions implemented in the studies included in this review enabled us to identify the importance of nurses encouraging the maintenance of the well-being and health of the mother-fetus pair and address the clinical problems presented by pregnant women at

any healthcare level. Therefore, this study contributes to the Nursing field, as the promotion of self-care among high-risk pregnant women can be implemented through the operationalization of the Nursing Process based on Nursing diagnoses and the establishment of a care plan, which can be based on Dorothea Orem's Theory of Nursing Systems.

Finally, there is a need for further research, mainly primary studies, to identify more evidence supporting nurses' clinical practice in the care provided to high-risk pregnant women and in promoting self-care to this population.

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