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Review

Perceived barriers to leisure-time physical activity during pregnancy: A literature review of quantitative and qualitative evidence

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ABSTRACT

Objectives: Identify perceived barriers to leisure-time physical activity during pregnancy to inform future interventions aimed at improving physical activity levels in pregnancy.
Design: PubMed/Medline and Web of Science databases were systematically searched using a reference period between 1986 and January/2016.
Methods: A comprehensive search strategy was developed combining the following keywords: (barriers OR constraints OR perceptions OR attitudes) AND (physical activity OR exercise OR motor activity) AND (pregnancy OR pregnant women OR antenatal OR prenatal). Thematic synthesis was conducted to analyze the data. A socioecological model was used to categorize the reported barriers.
Results: Twelve quantitative studies and 14 qualitative studies were included. Barriers belonging to the intrapersonal level of the socioecological model were the most reported in the studies and were categorized in five themes as follows: (1) Pregnancy-related symptoms and limitations; (2) Time constraints; (3) Perceptions of already being active, (4) Lack of motivation and (5) Mother–child safety concerns. At the interpersonal level, barriers were coded into two descriptive themes: (1) Lack of advice and information and (2) Lack of social support. Two other themes were used to summarize Environmental, Organizational and Policy barriers: (1) Adverse weather and (2) Lack of resources.
Conclusions: A range of relevant barriers to leisure-time physical-activity engagement during pregnancy were identified in this literature review. Pregnancy-related symptoms and limitations barriers were the most reported in studies, regardless of study design. Mother–child safety concerns, lack of advice/information and lack of social support were also important emphasized pregnancy-related barriers to be targeted in future interventions.

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1. Introduction

As recommended for the general population, pregnant women should engage in at least 30 minutes of moderate-intensity physical activity on most days of the week to obtain health-related benefits.[1,2] Participation in leisure-time physical activity (LTPA) during pregnancy is especially important to prevent excessive weight gain,[3] increase fitness,[4] reduce the risk of gestational diabetes and preeclampsia,[5,6] lower anxiety, reduce depression and improve body Image.[7–10] Furthermore, numerous child health benefits have also been demonstrated in the literature.[3,11,12]

However, pregnancy is a critical period in women's life that is associated with significant physical, psychological and behav-

ioral changes which usually result in decreased overall physical activity levels.[13,14] Accordingly, several studies have shown that as pregnancy progresses LTPA engagement decrease and this decline tend to persist during the postpartum period or longer, significantly affecting exercise behavior among women.[15–18] Although the gestational period is temporary, physical inactivity during this period is particularly relevant and may predict long-term future risk of chronic diseases such as obesity, diabetes and cardiovascular disease.[19,20]

The reasons for the low levels of participation in LTPA among pregnant women are complex and could be influenced by various factors. While sociodemographic correlates of exercise during pregnancy such as education, income, age and parity are largely informative and difficult to modify, psychosocial cognitive factors represents modifiable characteristics that could be targeted by interventions.[16] In this context, perceived barriers to physical activity engagement are among the most frequently

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mentioned correlates and predictors of physical inactivity during pregnancy.[16,21] As in the general population, personal, social and environmental factors can act as barriers to LTPA participation, but many specific barriers such as the pregnancy physical changes and the maternal concerns about the safety of exercise during pregnancy have been cited as preventing healthy pregnant women from participating and maintaining adequate LTPA levels during this period.[21,22]

While the literature on this topic has increased in the past years and studies have identified many perceived barriers related to LTPA engagement during pregnancy, there is still a lack of research conducted with this specific population.[16] Studies identifying barriers for physical activity have been systematically reviewed for different ages and subgroups of the population[23,24] but no attempt to review barriers to LTPA among pregnant women has been made. A full understanding of barriers preventing women from being physically active during pregnancy is a crucial step to guide the design and implementation of effective interventions to promote physical activity among pregnant women. The aim of the present study is to identify and summarize perceived barriers to LTPA participation during pregnancy in different contexts and countries to inform future interventions aimed at increasing physical activity levels in this population group around the world.

2. Methods

2.1. Search strategy

A literature review was carried out to identify studies that evaluated perceived barriers to LTPA during pregnancy, including evidence from both quantitative and qualitative methodological approaches. To identify potentially relevant studies, PubMed/Medline and Web of Science electronic databases were systematically searched including all papers published in the last thirty years, using the referencing period between 1986 and 15th of January/2016. A comprehensive search strategy was developed combining the following keywords: [(barriers OR constraints OR perceptions OR attitudes) AND (physical activity OR exercise OR motor activity) AND (pregnancy OR pregnant women OR antenatal OR prenatal)]. The search was only limited to studies conducted with humans. Additional relevant studies were identified by manually searching the reference lists of included studies and by citation tracking. In addition, experts in the field were contacted to identify potentially relevant studies. The searches were performed in August 2015 and updated in January 2016.

2.2. Criteria for inclusion and exclusion of studies

Original studies were included if they had reported perceived barriers to LTPA among pregnant women as their primarily or secondary outcomes. Therefore, studies with other outcomes but with information on barriers to LTPA during pregnancy were included. Articles were excluded if: (1) evaluated only barriers to other types of physical activity than those practiced during leisure time; (2) assessed the impact of specific elements of behavior on pregnancy LTPA (e.g. how fear affects LTPA participation during pregnancy); or (3) have evaluated the role of a specific barrier in LTPA behavior (e.g. the role of social support in LTPA beliefs during pregnancy). Two of the reviewers (CVNC and MRD) screened search results and when a decision regarding the relevance of the study could not be made based on the title and abstract alone, the full text of the article was obtained. Discrepancies in the decisions made were discussed until a consensus was reached.

2.3. Quality assessment of studies

The methodological quality of the quantitative studies was assessed according to a checklist specifically designed for the evaluation of descriptive cross-sectional studies.[25] The appraisal tool is composed of eleven items addressing the following aspects of the studies: issue, methods, recruitment of participants, accuracy of measurements, data collection, sample size, results presentation, data analysis, statement of findings, results extrapolation and validity of the research. Regarding the qualitative studies, the methodological quality was assessed using the assessment tool from the National Institute for Health and Clinical Excellence (NICE).[26] The checklist is comprised of fourteen items covering six major themes as follows: theoretical approach, study design, data collection, validity, analysis and ethics. For studies with more than one aim, only the methodological aspects related to the investigation of barriers to LTPA among pregnant women were considered in the assessments. All quality assessments were performed by two independent authors (CVNC and MRD for the quantitative studies and CVNC and HG for the qualitative studies). When scores were distinct between authors, papers were reassessed and discussed and a final score was attributed. No study was excluded based on scoring, since new insights, grounded in data, might be generated even in studies with poor methodological quality.

2.4. Data extraction and synthesis

For data extraction, each study was read and a data sheet was used to collect information about the study author and year, country of research, aims, sample size and characteristics, data collection methods and key findings. Data synthesis was conducted in three stages. Firstly, the results of each selected study were read and summarized in a data extraction form taking into account the barriers to LTPA physical activity reported by the pregnant women. Following this, a thematic synthesis of the extracted data was conducted and all reported barriers were coded into key descriptive themes (reflecting the main barriers to LTPA during pregnancy). Key descriptive themes were identified through linking and categorizing the individual reported barriers together (e.g. tiredness, fatigue, nausea, pain and other physical limitations were coded as Pregnancy-related symptoms and limitations). Finally, the socio-ecological model was used to guide analysis by categorizing the themes into (1) intrapersonal, (2) interpersonal and (3) environmental, organizational and policy barriers.[27] Two of the reviewers (CVNC and HG) independently undertook all stages of data syntheses and all reviewers agreed with the emerged themes and its categorizations. No discrepancies in coding were evident.

3. Results

The initial search strategy retrieved 1329 references, of which 1068 were screened excluding the duplicates found between databases. After title and abstract screening, 42 potentially relevant publications were selected to be examined in more detail by the authors. During the full-text reading stage, 18 studies were excluded because they did not meet the inclusion criteria and one new study was included after reading the previously included articles. Finally, 25 publications investigating perceived barriers to LTPA during pregnancy were selected, accounting for a total of 26 studies (12 with a quantitative design[21,28–38] and 14 studies with a qualitative design[29,39–51]). One study with a mixed-method design approach was found and accounted in both types of data.[29] All stages of the search strategy for the studies selection are described in detail in the supplemental Fig. S1.