ORIGINAL ARTICLE

REVISTA ENFERMAGEM ATUAL IN DERME

PROFILE OF PREGNANT WOMEN WHO DON'T EXERCISE

PERFIL DE LAS EMBARAZADAS QUE NO HACEN EJERCICIO

PERFIL DE GESTANTES QUE NÃO PRATICAM EXERCÍCIOS FÍSICOS

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ABSTRACT
Aim: to chacterize the profile of pregnant women who do not exercise. **Methods:** this was a descriptive, quantitative study carried out between October and December 2021, using a questionnaire made available via Google Forms with 65 pregnant women who did not exercise. Participants were collected using the snowball technique. The data was analyzed using simple descriptive statics in absolute and relative frequency. All ethical aspects of Research with human beings were respected and the project was approved by the Research Ethics Commitee with opion no.5.047.268. **Results:** the profile the pregnant women who do not exercise showed that most of them are married (69,23%), have completed higher education (36,92%) and have a family income of more than three minimum wages (36,92%). The most common reasons for not exercise were lack of time to go to the gym (33,84%) and lack of the habit of exercising (29,24%). **Conclusion:** the need for intervention to promote health among pregnant women is reinforced, given the multiple benefits that physical exercise brings to the mother-baby binomial.
Keywords: Maternal and Child Healt; Pregnant women; Exercise; Sedentary behavior

RESUMEN
Objetivo: caracterizar el perfil de las mujeres embarazadas que no hacen ejercicio. **Métodos:** se trató de um estudio descriptivo y cuantitativo realizado entre octubre y diciembre de 2021, mediante um cuestionario puesto a disposición a través de Google Forms com 65 mujeres embarazadas que no hacían ejercicio. La captación de participantes se realizó mediante la técnica de bola de nieve. Los datos se analizaron mediante estadística descriptiva simple em término de frecuencia abdoluta y relativa. Se respetaron todos los aspectos éticos de la investigación con seres humanos y el proyecto fue aprobado por el Comité de Ética de la Invesigación com el dictamen nº 5.047.268. **Resultados:** el perfil de las mujeres embarazadas que no hacen ejercicio mostró que la mayoría están casadas (69,23%), tienen estudios superiores (36,92%) y unos ingresos familiares superiores a tres salarios mínimos (36,92%). Las razones más comunes para no hacer ejercicio fueron la falta de tiempo para ir al gimnasio (33,84%) y no tener el hábito de hacer ejercicio (29,24%). **Conclusión:** se refuerza la necesidad de intervernir a favor de la promoción de la salud entre las embarazadas, dados los múltiples beneficios que el ejercicio físico aporta al binomio madre-bebé.
Palabras-clave: Salud Maternoinfantil; Mujeres Embarazadas; Ejercicio Fisico; Comportamiento Sedentario.

RESUMO
Objetivo: caracterizar o perfil de gestantes que não praticam exercícios físicos. **Métodos:** pesquisa descritiva de abordagem quantitativa, realizada no período entre outubro e dezembro de 2021, por meio de questionário disponibilizado pelo *Google Forms*® com 65 gestantes que não praticavam exercícios físicos. As participantes foram captadas por meio da técnica bola de neve. Os dados foram analisados com recurso da estatística descritiva simples em frequência absoluta e relativa. Foram respeitados todos os aspectos éticos em pesquisa com seres humanos e o projeto foi aprovado pelo Comitê de Ética em Pesquisa com parecer nº 5.047.268. **Resultados:** o perfil de gestantes que não praticam exercício físico evidenciou que elas são, em sua maioria, casadas (69,23%), possuem ensino superior completo (36,92%) e renda familiar acima de três salários mínimos (36,92%). Os motivos mais comuns para não praticar exercícios físicos foram falta de tempo para ir à academia (33,84%) e ausência do hábito de praticar exercício físico (29,24%). **Conclusão:** reforça-se a necessidade de intervenção em prol da promoção de saúde nas gestantes, tendo em vista os múltiplos benefícios que a prática de exercício físico desencadeia para o binômio mãe-bebê.
Palavras-chave: Saúde Materno-Infantil; Gestantes; Exercício Físico; Comportamento Sedentário.

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INTRODUCTION

Physical exercise, defined as the practice of physical activity, consists of performing planned, structured and repetitive body movements with the aim of improving one or more components of physical fitness. Exercising is essential for maintaining a healthy lifestyle [1]. In pregnant women, this habit has favorable results for both maternal and fetal health [2].

The practice of regular physical activity by pregnant women brings many health benefits, such as reducing metabolic diseases, encouraging vaginal delivery with a consequent reduction in cesarean sections, and better recovery in the postpartum period [1,3]. It is also essential for preventing anxiety disorders and depression [1], reducing stress levels [4]. Therefore, physical exercise is recommended during pregnancy [5], as long as the frequency, intensity, duration, clinical condition are respected and there are no contraindications for this practice [6].

Evidence indicates that few Brazilian women practice physical activity and that this number is even lower during pregnancy [7-8]. Studies indicate that there is a high rate of sedentary lifestyle during pregnancy [3,9]. Therefore, the lack of physical exercise is common during pregnancy [8].

It is considered that, when pregnant women do not have obstetric complications or contraindications, it is desirable for them to remain active. To this end, they need to be encouraged to continue and even start physical activities [1] during pregnancy. Pregnancy is a time to change undesirable lifestyle habits, strengthening healthy practices that can last a lifetime [8].

There are gaps in knowledge regarding the practice of physical exercise during pregnancy [5], which may justify the lack of this habit among pregnant women. Therefore, deepening knowledge about physical activity during pregnancy is essential, since few women receive guidance, during prenatal care, about the importance of performing these practices [10].

In view of this, knowing the profile of pregnant women who do not practice physical exercise and the reasons for not doing so helps health professionals to outline new intervention strategies, with a view to improving maternal and fetal health and promoting health and reducing harm. Thus, the present study aimed to characterize the profile of pregnant women who do not practice physical exercise.

METHODS

This is a descriptive study with a quantitative approach, carried out between October and December 2021, through a questionnaire that was answered by pregnant women who did not practice physical activity.

To collect the data, questionnaires were applied using Google Forms®, which were sent through social media sites, WhatsApp® and Facebook® groups of which the researchers

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were members, and the recruitment of participants was done using the snowball techniques [11] in which the individuals selected by the researchers invite friends and acquaintances from their social network, enabling the inclusion of other participants. Thus, the first pregnant women, who were randomly selected and had no relationship with the researchers, were contacted through social networks, called “seeds”, who in turn indicated other people belonging to the study population, called “fruits” and so on. There was one pregnant woman called “seed” in each social network.

The following inclusion criteria were established for the selection of the “seeds” and “fruits” sample: being 18 years of age or older, being pregnant during the data collection period, regardless of gestational age, and not practicing any form of physical exercise during the gestational period. To be considered a pregnant woman who practiced physical exercise regularly, a minimum frequency of at least twice a week was stipulated. The exclusion criterion was incomplete questionnaires, however, no questionnaires were excluded.

The pregnant women referred to as “seeds” were invited to participate in the research via private message on social media, in which one of the researchers sent a virtual card inviting them to participate in the research. The card contained information about the objective, risks, and benefits. After expressing interest in participating, the pregnant women received a link to access Google Forms® via social media. The link provided participants with access to the Free and Informed Consent Form (FICF), in which they had to mark their acceptance to participate in the research and enter their personal email address. Filling in this information was mandatory in order to continue answering the other information in the questionnaire. The FICF included the researchers' email address and phone number, in case they had any questions or wanted to withdraw from the research at any time.

The data collection instrument was pre-designed and included multiple-choice questions, with the possibility of obtaining only one answer to the questions. In the first part of the questionnaire, the participant had access to the informed consent form and had to fill in her e-mail address. After filling in this information in the questionnaire, she was able to answer the independent variables of the study, which were on the next page of the questionnaire.

The independent variables of the study, which were on the second page of the questionnaire, consisted of sociodemographic questions related to age group and gestational week, which the participant marked; whether she had one or more children, which allowed us to identify whether she was primiparous or multiparous; marital status/marital situation, in which she marked one of the options (single, married, divorced or in a stable union); education

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(which had the following options: complete or incomplete elementary education, complete or incomplete high school education; complete or incomplete higher education and postgraduate studies); and family income, which consisted of alternatives of one to two minimum wages, two to three and more than three. It also contained the question of which region of the country the participant lived in at the time of data collection, with the following options: south, southeast, north, northeast and central-west.

After completing these questions, they had access to the third page of the form, which consisted of the dependent variables. The dependent variables were related to obstetric issues (clinical complications), in which participants had the possibility of marking multiple-choice questions, according to their history, which covered: urinary tract infections, placental abruption, placenta previa, pre-eclampsia, eclampsia, gestational diabetes, high blood pressure, risk of thrombophilia, anemia and anxiety and depression.

The last page of the form contained questions related to non-adherence to physical activity during pregnancy, which addressed the reason why they did not exercise; exercises they believed could not be performed during pregnancy; and whether they had medical clearance to exercise. The instrument was self-administered and the time to complete all questions was approximately five minutes.

After completing the questionnaire, participants had access to the link to share the form, which they could copy and send to the participants referred to as “fruits”. Data collection was completed when no new participants were included, within a period of 7 days.

The data were organized with the help of Microsoft Office Excel® 2007 and analyzed by applying simple descriptive statistics in absolute (N) and relative (%) frequency. Thus, the data from the questionnaires were tabulated and transformed into percentage values.

All ethical aspects of research involving human beings were respected, in accordance with Resolution 466/2012 of the National Health Council, as well as Circular Letter No. 2/2021 of the National Research Ethics Commission (CONEP), Executive Secretariat of the National Health Council (SECNS), and Ministry of Health (MS) on “Guidelines for procedures in research with any stage in a virtual environment”. The research project was approved by the Research Ethics Committee of the signatory institution (Certificate of Presentation of Ethical Appreciation - CAAE No. 52447021.3.0000.5306). All participants had access to and electronically signed the Free and Informed Consent Form (FICF), which was sent along with the Google Forms® questionnaire. Only after reading and agreeing to the Form

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were they able to complete the form. The researchers sent the form signed by them to the email of each of the participants.

RESULTS

The study included 65 pregnant women who did not practice physical exercise, aged between 18 and 38 years, and who were between the 13th and 38th week of pregnancy. Of these, 58.46% lived in the southern region, 20% in the southeast region, 7.69% in the north and northeast regions, respectively, and 4.61% in the central-west region. The majority (55.4%) were primiparous.

Regarding marital status/marital status, it was found that the majority of pregnant women were married (69.5%), and regarding education, 36.92% had completed higher education. Regarding family income, 36.92% of pregnant women had a family income of more than three minimum wages and 32.30%, between one and two minimum wages, 16.92% (Table 1).

Table 1 - Sociodemographic data of pregnant women.

Variable	N	%
Marital Status		
Married	45	69,23
Single	14	21,54
Stable Union	5	7,69
Divorced	1	1,54
Education		
Incomplete elementary education	2	3,07
Complete elementary education	1	1,53
Incomplete high school education	7	10,76
Complete high school education	20	30,76
Incomplete university education	7	10,76
Complete university education	24	36,92
Post-graduation	4	6,15
Family income		
Until 1 minimum salary	9	13,84
1 to 2 minimum salaries	21	32,30
2 to 3 minimum salaries	11	16,92
Over 3 minimum salaries	24	36,92

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Regarding clinical complications during pregnancy (Table 2), it was found that 35.38 of the participants reported having none. The most frequently reported complication was urinary tract infection (30.76%), followed by placental abruption and gestational diabetes, both with the same incidence (9.23%).

Table 2 - Data on clinical complications during pregnancy

Variable	N	%
Clinical complications		
None	23	35,38
Urinary tract infection	20	30,76
Placental abruption	6	9,23
Placenta previa	2	3,07
Preeclampsia	1	1,53
Eclampsia	1	1,53
Gestational diabetes	6	9,23
High blood pressure	3	4,61
Thrombophilia risk	1	1,53
Anemia	1	1,53
Anxiety and depression	1	1,53

Table 3 shows that most participants believe that physical exercise can be performed during pregnancy (98.46%). However, lack of time to go to the gym was the most frequently cited reason for not exercising (33.84%), followed by not having the habit (29.23%) and feeling tired (16.92%=11).

Most pregnant women were unable to say which physical exercises should not be performed during pregnancy. However, they did say that running, sit-ups, weight training and jumping should not be performed, which shows their lack of information about the types of physical exercise that can be performed.

Another relevant fact is that most pregnant women have medical clearance to practice physical exercise, that is, they had no contraindications. This indicates that the fact of not practicing physical exercise is related to each woman's lifestyle and does not depend solely on medical clearance.

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Table 3 - Data on non-adherence to physical activity during pregnancy.

Variable	N	%
Reason for not exercising		
Nausea	2	3,07
Fatigue	11	16,92
Sleepness	3	4,61
No habit	19	29,23
Lack of time to go to the gym	22	33,84
Fear of miscarriage	5	7,69
Medical orientation	3	4,61
Exercises that should not be performed during pregnancy		
Running	3	4,61
Weight lift	2	3,07
Lift workout	3	4,61
Box	1	1,53
Jump	2	3,07
Jump rope	2	3,07
Free jumps	3	4,61
Abdominal exercises	3	4,61
Water aerobics	1	1,53
Up & down stairs	2	3,07
Don't know	43	66,15
Physical exercises can be performed during pregnancy		
Yes	64	98,46
No	1	1,53
Walking can be done during pregnancy		
Yes	65	100%
They had medical clearance for physical exercise		
They had medical clearance	54	83,07
They did not have medical clearance	11	16,92

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DISCUSSION

The results of this study reveal that most pregnant women who do not practice physical activities are married. Regarding academic qualifications and family income, higher education and income above three minimum wages were the most reported by pregnant women. This result does not corroborate those found in the literature, which state that pregnant women who have a steady partner, a high level of education [7,12] and a higher income are those who practice physical exercises the most [12-13].

This finding may indicate changes in the profile of pregnant women who do not practice physical activities, as they differ from those found in the literature. It is important to emphasize that the study took place during a pandemic, when contact restrictions were suggested due to the risk of contamination by the coronavirus, which may have contributed to changing this profile, but it is not possible to state that there is such a relationship. However, even during pandemic times, frequent physical activity is recommended as it minimizes symptoms such as anxiety, depression and insomnia [14].

The most common clinical complications presented by pregnant women were related to urinary tract infections, placental abruption, gestational diabetes, high blood pressure, placenta previa, preeclampsia, eclampsia, risk of thrombophilia, anemia, anxiety and depression. Physical exercise is not recommended for pregnant women with placental abruption, placenta previa, preeclampsia and eclampsia. It is important to note, however, that the other clinical complications mentioned by the participants do not prevent the practice of exercise [15]. In addition, it has been proven that physical exercise prevents anxiety and depression during prenatal care [16].

Physical exercise in pregnant women with metabolic diseases, such as diabetes and high blood pressure, presents favorable results for maternal and fetal health [15-17]. Physical exercise, combined with dietary control, are options for the treatment of pregnant women with diabetes. Therefore, pregnant women who have this metabolic alteration can practice physical exercise, considering that such practice contributes to the reduction of blood glucose levels [1,18]. Furthermore, it prevents gestational diabetes [4,16,19] and gestational hypertension [16,19-20].

Physical exercise can also be considered an essential factor in the prevention of depressive disorders in women who are in the pregnancy-puerperal period [1]. Physical exercise prevents depression during pregnancy [16,21], as well as reduces stress levels and has the ability to prevent psychological disorders [4].

Currently, there is a high prevalence of young women with obesity and cardiometabolic diseases who do not practice physical exercise [22]. Low physical activity and a sedentary lifestyle are factors that contribute to high

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cardiovascular risk [23]. Therefore, it is important to develop actions to encourage the practice of physical exercise before, during and after pregnancy [22]. Sociodemographic and behavioral factors directly affect the quality of life of pregnant women, so it is necessary to prioritize actions to encourage this practice during prenatal care [12].

Lack of time, physical complaints, fatigue or lack of energy are some of the factors that prevent women from practicing activities during pregnancy [24]. Despite being physiological, pregnancy can have direct impacts on both the physical and psychological health of pregnant women.

Some personal and environmental factors, such as lack of time, lack of knowledge, limited access to information from health professionals, fatigue and lack of social support, are considered important barriers to practicing physical activity during pregnancy [25]. In view of this, it is important for pregnant women to receive educational information in order to have the possibility of developing an improvement in their quality of life [12].

The lack of time to go to the gym was the most mentioned cause by the participants in this study. In this sense, it is necessary for health professionals to develop intervention and planning strategies with pregnant women to reverse or minimize this situation. It is worth noting that physical exercise does not need to be performed only in gyms, so suggesting strategies such as walking is a possible intervention. Walking is a physical exercise that pregnant women consider can be performed during this period, and in addition, it results in health benefits and, therefore, should be encouraged [26].

Walking is one of the most popular exercises because it is inexpensive and easy to access [5]. During pregnancy, it is a practice that can be recommended when pregnant women are unable to perform other physical activities due to lack of time and their busy schedule [24].

The gestational period is an opportune time to promote positive health behaviors that bring short- and long-term benefits to the mother's health [22]. To prevent complications during pregnancy, it is important that health care workers consider encouraging pregnant women to change lifestyle factors [27]. They need to be encouraged to practice physical exercise, and they should also receive information about its benefits [8] and contraindications.

Pregnant women who exercise are less likely to have a cesarean section and low birth weight, which indicates that physical exercise is not related to prematurity [28], nor does it negatively interfere with the baby's development, as it does not alter the fetal heart rate or the uteroplacental blood flow [29]. Practicing physical activity during pregnancy is considered safe and brings benefits to the health of the mother and baby [8].

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Regarding knowledge about physical exercise during pregnancy, most pregnant women responded that it can be done, which shows that they have knowledge on this topic. This finding corroborates a study that shows that women are aware of the benefits of exercise and know that it is safe for the baby, but they do not have the habit of practicing it, and many give up practicing it during this period [8]. The fact that women do not have the habit of practicing physical exercise before the gestational period makes them even more prone to a sedentary lifestyle during pregnancy [9].

In this study, a significant number of pregnant women did not know which types of physical exercise could not be performed during pregnancy. This result corroborates a study that showed that many women are unsure whether it is safe to perform physical activities and exercises during this phase of life [30]. Physical activity and exercise by pregnant women improve quality of life [12]. Therefore, it is important that health professionals encourage pregnant women to continue or start physical exercise [1].

Considering that physical exercise during pregnancy brings benefits to most women [1] and that health professionals, particularly nurses, have a preponderant role in the health education of pregnant women, it is necessary that they be trained on the multiple benefits that physical activity promotes for the health of the mother-baby binomial, and they should also recommend that pregnant women without medical or obstetric contraindications be physically active in order to obtain benefits for their health and reduce the possibility of gestational complications [19].

Health education about physical exercise for pregnant women is important, as it encourages them to maintain this habit, providing a time to exchange information and discuss doubts. During prenatal care, it can demystify negative aspects of pregnancy and encourage changes in lifestyle habits, which can prevent negative perinatal outcomes [8].

The main limitation is the use of social media to reach a greater number of participants. Although pregnant women use these technologies, working with online questionnaires is still challenging. Identifying the reasons why pregnant women do not perform physical activities contributes to movements and strategies aimed at promoting health and improving the quality of life of pregnant women.

CONCLUSIONS

This study made it possible to characterize the profile of pregnant women in terms of sociodemographic aspects, marital status, education level and monthly income. Regarding the practice of physical exercise, it was found that most had medical clearance to practice it and knew that physical exercise can be done during pregnancy. Furthermore, most of the clinical complications that they reported as

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reasons for not doing it were not impediments to the practice of physical exercise.

Finally, knowing the profile of pregnant women who do not practice physical exercise points to the need for interventions to promote health in this population group, considering the benefits of this practice for the health of the mother-baby binomial.

REFERENCES

1. Birsner ML, Gyamfi-Bannerman C. Physical Activity and Exercise During Pregnancy and the Postpartum Period: ACOG Committee Opinion, Number 804. Obstet Gynecol 2020; 135(4):178-88. DOI: http://dx.doi.org/10.1097/AOG.0000000000003772

2. Rudin LR, Dunn L, Lyons K, Livingston J, Waring ME, Pescatello LS et al. Professional Exercise Recommendations for Healthy Women Who Are Pregnant: A Systematic Review. Womens Health Rep. (New Rochelle). 2021;2(1):400-12. DOI: http://dx.doi.org/10.1089/whr.2021.0077

3. Hailemariam TT, Gebregiorgis YS, Gebremeskel BF, Haile TG, Spitznagle TM. Physical activity and associated factors among pregnant women in Ethiopia: facility-based cross-sectional study. BMC Pregnancy Childbirth. 2020;20:92. DOI: http://dx.doi.org/10.1186/s12884-020-2777-6

4. Rodríguez JH, Domínguez YA, Choqueticlla JM. Beneficial effects of physical exercise in people with type 2 diabetes mellitus. Rev. cuba. Endocrinol [Internet]. 2018 [acesso 2021 Maio 16]; 29(2):1-18. Disponível em: https://www.medigraphic.com/cgi-bin/new/resumenI.cgi?IDARTICULO=84725.

5. Melo ASO, Silva JLP, Melo FO, Barros ES, Santos HL, Amorim MMR, et al. Is Moderate Intensity Exercise during Pregnancy Safe for the Fetus? An Open Clinical Trial. Rev. Bras. Ginecol. Obstet. 2019; 41(09):531-38. DOI: http://dx.doi.org/10.1055/s-0039-1697035

6. Tsakiridis I, Bakaloudi DR, Oikonomidou AC, Dagklis T, Chourdakis M. Exercise during pregnancy: a comparative review of guidelines. J Perinat Med. 2020;48(6): 519-25. DOI: http://dx.doi.org/10.1515/jpm-2019-0419

7. Silva VR, Boing AF. Prevalence of physical activity and associated factors among. Rev. Bras. Saúde Mater. Infant. 2021; 21(03):925-34, 2021. DOI: http://dx.doi.org/ 10.1590/1806-93042021000300011

8. Godoy-Miranda AC, Cirelli JF, Pinho-Pompeu M, Paulino DSM, Morais SS, Surita FG. Putting Knowledge into Practice-The Challenge of Acquiring Healthy Habits during Pregnancy. Rev Bras Ginecol Obstet. 2019; 41(08): 469-75. DOI: http://dx.doi.org/10.1055/s-0039-1692633.

9. Menichini D, Fanetti O, Molinazzi MT, Facchinetti F, Ricchi A, Neri I. Physical activity in low risk pregnant women: a cross-sectional study. Clin Ter. 2020;171(4): e328-e334. DOI: http://dx.doi.org/10.7417/CT.2020.2235

10. Rudin LR, Dunn L, Lyons K, Livingston J, Waring ME, Pescatello LS et al. Professional Exercise Recommendations for Healthy Women Who Are Pregnant: A Systematic Review. Womens Health Rep. (New Rochelle). 2021;2(1):400-12. DOI: http://dx.doi.org/10.1089/whr.2021.0077

11. Vinuto J. A amostragem em bola de neve na pesquisa qualitativa. Temáticas. 2014;22(44):203-20. DOI: http://dx.doi.org/10.20396/tematicas.v22i44.10977

12. Soares PRAL, Calou CGP, Martins ES, Beserra GL, Silva IC, Ribeiro SG, et al. Health-related quality of life of pregnant women and

associated factors. Acta Paul Enferm. 2021; 34:eAPE002075. DOI: http://dx.doi.org/10.37689/acta-ape/2021AO002075

13. Flannery C, Dahly D, Byrne M, Khashan A, McHugh S, Kenny LC, et al. Social, biological, behavioural and psychological factors related to physical activity during early pregnancy in the Screening for Pregnancy Endpoints (Cork, Ireland) cohort study. BMJ Open. 2019; 9(6):e025003. DOI: http://dx.doi.org/10.1136/bmjopen-2018-025003

14. Yuan K, Zheng YB, Wang YJ, Sun YK, Gong YM, Huang YT, Chen X, Liu XX, Zhong Y, Su SZ, Gao N, Lu YL, Wang Z, Liu WJ, Que JY, Yang YB, Zhang AY, Jing MN, Yuan CW, Zeng N, Vitiello MV, Patel V, Fazel S, Minas H, Thornicroft G, Fan TT, Lin X, Yan W, Shi L, Shi J, Kosten T, Bao YP, Lu L. A systematic review and meta-analysis on prevalence of and risk factors associated with depression, anxiety and insomnia in infectious diseases, including COVID-19: a call to action. Mol Psychiatry. 2022;27(8):3214-3222. DOI: http://dx.doi.org/10.1038/s41380-022-01638-z.

15. Rezende CAB, Montenegro CAB. Obstetrícia fundamental. Rio de Janeiro: Guanabara Koogan; 2019.

16. Ribeiro MM, Andrade A, Nunes I. Physical exercise in pregnancy: benefits, risks and prescription. J Perinat Med. 2021 Sep 6;50(1):4-17. DOI: http://dx.doi.org/10.1515/jpm-2021-0315

17. Campos MSB, Buglia S, Colombo CSSS, Buchler RDD, Brityo ASX, Mizzaci CC, et al. Position Statement on Exercise During Pregnancy and the Post-Partum Period – 2021. Arq. Bras. Cardiol. 2021; 117(1): 160-80. DOI: http://dx.doi.org/10.36660/abc.20210408

18. Martins AM, Brati LP. Treatment for gestational diabetes mellitus: a literature review. Femina. 2021;49(4):251-56. [acesso 2021 Maio 16]. Disponível em: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1224096.

19. Gallo-Galán LM, Gallo-Vallejo MA, Gallo-Vallejo JL. Ejercicio físico y embarazo. Medicina basada en la evidencia (MBE) [Physical exercise and pregnancy. Evidence based medicine (EBM)]. Semergen. 2022;48(6):423-30. DOI: http://dx.doi.org/10.1016/j.semerg.2022.02.008.

20. Gasparin VA, Albrecht CC, Favero DC, Gregolin KR, Pitilin EB, Silva DTR. Physical activity in pregnant women as prevention of gestational hypertensive syndrome. Rev enferm UFPE on line. 2018; 12(4):1017-26. DOI: http://dx.doi.org/10.5205/1981-8963-v12i4a230733p1017-1026-2018

21. Martínez-Paredes JF, Jácome-Pérez N. Depression in Pregnancy. Rev. colomb. Psiquiatr. 2019;48(1):58-65. DOI: http://dx.doi.org/10.1016/j.rcp.2017.07.003

22. Dipietro L, Evenson KR, Bloodgood B, Sprow K, Troiano RP, Piercy KL, et al. Benefits of Physical Activity during Pregnancy and Postpartum: An Umbrella Review. Med Sci Sport Exerc. 2019; 51(6):1292-302. DOI: http://dx.doi.org/10.1249/mss.0000000000001941.

23. Soares Passinho R, Sallazar Ferreira Pereira R, Marçal Pimenta A. Fatores associados ao alto risco cardiovascular segundo o Escore de Framingham: revisão integrativa. Cienc Cuid Saude. 2023; 22:e64364. DOI: http://dx.doi.org/10.4025/ciencuidsaude.v22i0.64364

24. Gallo LM, Vallejo MAG. Walking during pregnancy: the physical activity preferred by pregnant women. Revagog. 2021; 3(3):80-7. Disponível em: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1343841

25. Okafor UB, Goon DT. Physical activity and exercise during pregnancy in Africa: a review of

the literature. BMC Pregnancy Childbirth. 2020; 25;20(1):732. DOI: http://dx.doi.org/10.1186/s12884-020-03439-0.

26. Porter AK, Rodríguez DA, Frizzelle BG, Evenson KR. The Association between Neighborhood Environments and Physical Activity from Pregnancy to Postpartum: a Prospective Cohort Study. J Urban Health. 2019; 96(5):703-19. DOI: http://dx.doi.org/10.1007/s11524-019-00376-y

27. Novaes ES, Melo EC, Ferracioli PLRV, Oliveira RR de, Mathias TA de F. Gestational risk and associated factors in women cared by the public health network. Cienc Cuid Saúde. 2018; 17(3): e45232. DOI: http://dx.doi.org/10.4025/cienccuidsaude.v17i3.45232

28. Schmidt TP, Tuon T, Wagner KJP, Boing AF, Danielewicz AL. Physical activity in gestational trimesters and perinatal outcomes in SUS puerperal women. Rev. Saúde Pública. 2021; 55: 58. DOI: http://dx.doi.org/10.11606/s1518-8787.2021055003067

29. Skow RJ, Davenport MH, Mottola MF, Davies GA, Poitras VJ, Gray CE, et al. Effects of prenatal exercise on fetal heart rate, umbilical and uterine blood flow: a systematic review and meta-analysis. Br J Sports Med, 2019; 53(2):124-33. 2019. DOI: http://dx.doi.org/10.1136/bjsports-2018-099822

30. Hayman MJ, Alfrey K-L, Waters K, Cannon S, Mielke GI, Keating SE, et al. Evaluating Evidence-Based Content, Features of Exercise Instruction, and Expert Involvement in Physical Activity Apps for Pregnant Women: Systematic Search and Content Analysis. JMIR Mhealth Uhealth. 2022; 10(1): e31607. DOI: http://dx.doi.org/10.2196/31607

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Declaration of conflict of interests

Nothing to declare..

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