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LITERATURE INTEGRATIVE REVIEW ARTICLE

ADVANCED AGE PREGNANCY: REVIEW OF THE LITERATURE

GRAVIDEZ TARDIA: REVISÃO DE LITERATURA

EMBARAZO EN EDAD AVANZADA: REVISIÓN DE LA LITERATURA

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ABSTRACT

Objective*:** to analyze the publications on advanced age pregnancy in previous studies. ***Method: the study was constituted of a literature review on published scientific articles in international databases (Medical Literature Analysis and Retrieval System Online - MEDLINE, Latin American and Caribbean Literature in Health Sciences - LILACS, PsycNET, SCOPUS, and the Institute for Scientific Information - ISI). The following terms, late age, older women, elderly and maternal middle age were used and crossed with the terms pregnancy and gestation, in addition to the terms advanced maternal age and delayed childbearing. The searches were performed in the period between November 2010 and March 2011 and covered publications from 2006 to 2011. The selection of material was based on the preliminary reading of titles and abstracts and the criteria for inclusion consisted of: the full text available and published in English, Spanish, or Portuguese. The established criteria for exclusion did not contemplate the inclusion criteria and the addressing of the subject of advanced age pregnancy. Editorials, letters, and commentaries were also excluded. Each elected text was read; the information was hierarchically organized; the number of publications per database was identified and collated according to the content of the information presented. ***Results***: the findings are presented by databases, countries, and types of study and grouped in 4 (four) categories according to their content. The majority of the publications (33 out of 53) were placed in the group named Adverse risks (pre, peri, or post-natal**).** ***Conclusion***: the importance of this study is to produce theoretical reference on advanced age pregnancy by compiling scientific publications on the topic. ***Descriptors*:** woman; middle age; high-risk pregnancy.

RESUMO

Objetivo: analisar as publicações sobre gravidez tardia em estudos anteriores. ***Método***: a pesquisa constituiu uma revisão bibliográfica a artigos científicos publicados em bancos de dados internacionais (Medical Literature Analysis and Retrieval System Online - MEDLINE, Literatura Latino-Americana e do Caribe de Ciências da Saúde - LILACS, PsycNET, SCOPUS e Institute for Scientific Information - ISI). Utilizaram-se os termos: late age, older women, elderly, maternal middle age fazendo o cruzamento destes com pregnancy e gestation, além dos termos advanced maternal age e delayed childbearing. As buscas foram feitas no período de novembro de 2010 a março de 2011 e cobriram as publicações de 2006 a 2011. A seleção do material ocorreu a partir de leitura prévia dos títulos e resumos encontrados, sendo critérios de inclusão: edição em língua inglesa, espanhola e português e texto completo disponível. Os critérios de exclusão estabelecidos foram: não contemplar os critérios de inclusão e não abordar o tema da gravidez tardia. Excluíram-se também editoriais, cartas e comentários. Procedeu-se à leitura de cada texto; realizou-se a hierarquização das informações, apresentando a quantidade de publicações por base de dados e o agrupamento de acordo com o teor das informações apresentadas. ***Resultados***: os achados são apresentados por bases de pesquisa, países e tipos de estudo; ainda foram agrupados em 4 (quatro) categorias conforme o conteúdo abordado. A maioria das publicações (33 dos 53 válidos) foi enquadrada no grupo denominado Riscos adversos (pré, peri ou pós-natal**).** ***Conclusão***: a relevância deste estudo reside em produzir referencial teórico sobre a gravidez tardia realizando uma compilação das publicações científicas sobre o tema. ***Descritores***: mulher; meia-idade; gravidez de alto risco.

RESUMEN

Objetivo: analizar las publicaciones sobre el embarazo en mujeres de edad avanzada en estudios previos. ***Método***: el estudio consistió en una revisión bibliográfica de artículos científicos publicados en bancos de datos internacionales (Análisis de la Literatura Médica y de Recuperación del Sistema en Línea - MEDLINE, Literatura Latino-Americana y del Caribe en Ciencias de la Salud - LILACS, PsycNET, SCOPUS y el Instituto de Información Científica – ISI).Se utilizaron los términos: edad avanzada, las mujeres mayores, las ancianas, madres de edad mediana haciendo el cruce entre el embarazo y la gestación, además de los términos edad materna avanzada y postergación de la maternidad. Las búsquedas fueron realizadas durante el período de noviembre del 2010 a marzo del 2011 y abarcó las publicaciones desde el 2006 hasta el 2011. La selección del material tuvo lugar a partir de la lectura previa de los títulos y resúmenes encontrados, siendo criterios de inclusión: publicación en inglés, español y portugués y los textos completos disponibles. Como criterios de exclusión fueran establecidos no contemplar los criterios de inclusión y no abordar el tema del embarazo en edad avanzada. También se excluyeron los editoriales, cartas y comentarios. Se procedió a leer cada texto, se produjo la clasificación de la información, que muestra el número de publicaciones por base de datos y la agrupación de acuerdo con el contenido de la información presentada. ***Resultados*:** los resultados son presentados por bases de datos, países y tipos de estudio, sin embargo, se agruparon en cuatro (4) categorías de acuerdo con el contenido discutido. La mayoría de las publicaciones (33 de 53 válidas) se enmarcaron en el grupo llamado los Riesgos adversos (pre, peri o postnatal). ***Conclusión***: la relevancia de este estudio reside en ofrecer referencias teóricas sobre el embarazo en mujeres de edad avanzada realizando una recopilación de las publicaciones científicas sobre el tema. ***Descriptores***: mujer; edad mediana; embarazo de alto riesgo.

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INTRODUCÃO

Among changes of economic, social, cultural nature, and others, is women who choose to postpone pregnancy until the age of 35 or older (advanced age pregnancy). This is normally the result from the intention of gaining financial stability in order to assure a pregnancy period with less economical concerns, or social context in which there is an accumulation of roles for them.[1-2]

Pregnancy is a biologically natural event, however, of particular importance in the life of a woman and, as such, it is developed in a social and cultural context, which influences and determines both its evolution and occurrence.[3] It is important to consider factors such as personal and obstetric history, context of the pregnancy, and age and bonding with the partner for the investigation of human reactions and thorough knowledge of this influence and complexity of experiences during the pregnant-puerperal cycle.

The age of 35 years old is usually used as a limit, mainly in primigravidae - women who become pregnant for the first time. Thus, there are polemics around this type of pregnancy, especially regarding the pre, peri, or post-natal risks for the woman and baby. The majority of studies in this area have focused on the observed adverse consequences on women with advanced maternal age.[4]

According to some authors, pregnancies at this age are a growing phenomenon not only in developed countries (Australia, United Kingdom, and United States), but also in developing (Brazil and Chile); this aged motherhood raises some interesting questions and dilemmas related to clinical care.[5-6]

This study aimed at contributing to the assessment of advanced age pregnancies, when the risk factors are not the focus, but often lead to the overlooking of the pregnant women being evaluated, in addition to the need for careful procedures in providing information and how it is transmitted. The fact of being generating a child can sometimes mean the disregard to the mother's need because the concern and attention are directed to the baby and their needs, leading into more responsibilities and restrictions on the pregnant woman.[7]

A reversed pattern is currently taking place, in which advanced age pregnancies have become more accepted by society with later negative connotations associated with maternity at a younger age.[8] Therefore, the objective of this study was to analyze the descriptions about advanced age pregnancy in indexed scientific publications.

OBJECTIVE

- To analyze the descriptions of advanced age pregnancy in previous studies.

METHODOLOGY

Initially, a research was performed in the DeCS in order to know how the term advanced age pregnancy was catalogued; however, a specific descriptor for the term was not identified and the general term is included in the high-risk pregnancy category. This procedure was also performed on the option Term finder - Thesaurus of Psychological Index Terms - PsycNET; a specific classification was not identified in this search either.

The electronic search of scientific publications was chosen for indexed databases (Medical Literature Analysis and Retrieval System Online - MEDLINE, Latin American and Caribbean Health Sciences Literature - LILACS, PsycNET, SCOPUS, and Institute for Scientific Information - ISI) using the terms *late age*, *older women*, *elderly women*, *maternal middle age*, and *aging* crossed with *pregnancy* and *gestation* in addition to the terms *advanced maternal age* and *delayed childbearing*. The LILACS and MEDLINE databases were consulted through the portal www.regional.bvsalud.org and PsycNET, SCOPUS, and ISI through the periodic portal from Capes (www.periodicos.capes.gov.br).

The searches were performed in the period between November 2010 to March 2011 and covered publications available for the years 2006 to 2011. The selection of material followed the reading of titles and abstracts from identified publications. The inclusion criteria were to be published in English, Spanish, or Portuguese and identified as full text available. The exclusion criteria were to not contemplate the inclusion criteria and address the subject of advanced age pregnancy. Editorials, letters, and commentaries were also excluded.

The selected texts were fully read and subsequently organized based on the hierarchy of information contents. The number of publications per database and the grouping, determined according to the content of the information provided, was compiled as shown in the subsequent items.

RESULTS

A total of 8,869 articles were identified, 70 articles were selected in a primary stage and 53 articles were selected after exclusion of

repeated material and articles not addressing the subject. These are presented in Table 1 according to the database in which they were made available.

Table 1. Distribution of articles per databases

Database	Number of studies	Percentage
Medline	7	13.2%
Lilacs	4	7.5%
Psycnet	10	18.9 %
Scopus	8	15.1%
Isi	24	45.3%
Total	53	100%

Only 53 articles were selected based on the inclusion and exclusion criteria after the searches. Table 2 shows the distribution of publications per year and databases (Table 2).

Table 2. Publications distributed by year and databases

Year	Medline	Lilacs	Psycnet	Scopus	ISI
2006	1		1	1	1
2007		1	2	2	6
2008	2		1	3	5
2009	3	3	3	1	4
2010			2	1	6
2011	1		1		2
Total	7	4	10	8	24

The selected articles were distributed in 18 (eighteen) types regarding the content delineation such as comparative, experimental, qualitative, retrospective (observational and case control), population or hospital based, transversal, and observational among others. However, the literature review type stood out with 15 articles distributed as: 1 in MEDLINE, 4 in PsycNET, 2 in SCOPUS, and 10 in ISI; and the population-based retrospective with 13 (thirteen) publications (2 in PsycNET, 3 in SCOPUS, and 8 in ISI).

According to the language, the publications were distributed as 4 in Spanish, 1 in Portuguese, and the majority in English (48 articles). The distribution of the studies per databases and countries is presented in Table 3; a diverse range of countries was observed.

Table 3. Amount of studies by countries and databases.

Country	Medline	Lilacs	Psycnet	Scopus	Isi	Total/Country
Germany					1	1
Australia			1		1	2
Belgium				1	1	2
Brazil	1					1
Canada	1		3		5	9
Chile		3				3
China	1				1	2
Cuba		1				1
Spain	1					1
United States	1		5	4	6	16
England				1	1	2
Iran					1	1
Israel				1	1	2
Japan				1	1	2
United Kingdom	1		1			2
Sweden	1				1	2
Taiwan					2	2
Non-Existent					2	2
Total	7	4	10	8	24	53

The studies were grouped into categories based on the objectives described in the articles. Some studies focused on pregnant women after 35 years old, others on women who were 40 years old or older; however, the present study considered advanced age pregnancy the one in which the woman is 35 years old or older, which is the definition of the International Federal Council of Gynecology and Obstetrics. [9]

Thus, the classification of the articles based on addressed content resulted in 4 (four) categories named as Positive Aspects, Adverse Risks (pre, peri, and postnatal), Assisted Reproduction, and Professional Attitude (Table 4).

Table 4. References of articles grouped by categories.

Categories	Bibliographic references	n
Positive Aspects	6, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21	14
Adverse Risks	1, 4, 5, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.	32
Assisted Reproduction	51, 52, 53, 54	4
Professional Attitude	8*, 55, 56, 57	3
Total		53

*article cited in the Positive Aspects category

DISCUSSION

The quantity of publications obtained from the performed searches using all terms regarding information and distribution of articles by base was 16 publications in MEDLINE, 267 in LILACS, 4406 in PsycNET, 34 in SCOPUS, and 2,864 in ISI. Although the PsycNET presented a greater number in the overall results, the ISI was the database that presented the highest number of valid articles about advanced age pregnancy with 24 publications out of the 53 selected articles and representing 45.3%. All other databases presented close percentages with the exception of LILACS which index was only 7.5% of the studies. The number of publications per year and databases is practically similar; a reduced number was observed in the year 2011 because the searches were performed until March of 2011.

The distribution of articles by country and databases showed that most studies are from international sources. These showed similar frequency per countries in MEDLINE and a predominance of studies from Chile in LILACS. The studies in the PsycNET, SCOPUS, and ISI were well diversified; however, in PsycNET the studies from the United States and Canada and in SCOPUS and ISI from the United States stood out.

The category Positive Aspects contained 14 out of the 53 surveyed articles because it addressed the theme of advanced age pregnancy in a positive way or at least not describing it in a negative way. The basis of the contents was diversified as commented below.

As for the subject, some studies sought to only assess whether there are risks in this type of pregnancy[6]; others characterized the phenomenon and/or contextualized the phenomenon [8, 10-2]; one of the studies sought to focus on the experience of the pregnant woman,[13] while another evaluated some of the characteristics of the woman pregnant at that age.[14-6] However, the approach is that the advanced age pregnancy is not related to maternal and perinatal adverse outcomes[17-8], as a study ratified that there is no correlation between advanced maternal age (AMA and trisomy of the chromosome 21[19]; one study noted that data about correlations between preterm birth and AMA are inconsistent,[20] and also that pregnant women do not present reduced physical or mental capacity.[21]

The category called Adverse Risks in advanced age pregnancy, in which negative aspects are regarded, included all the articles that dealt with advanced maternal age-related adverse outcomes, such as pre, peri, and/or postnatal risks. Thirty-two studies were classified in this category.

These publications sought to draw a genetic profile and biological processes in pregnant women with advanced age [22-25] considering the AMA correlation with the decrease in fertility [26] among the contents covered. Some studies stated that these pregnant women tend to develop more diseases (hypertension, diabetes, preeclampsia)[7,27-9] and loss of the fetus than younger pregnant women.[4,29-31]

Some studies highlighted the high incidence of Caesarian[5,32] as well as premature birth in this public[34-6], or the combination of these two items[37-8]. While others focused on issues on the fetus, as low weight[35,39-42], low apgar index[1,37-8] malformation,[28,39,43] neonatal death,[37,44] and maternal perinatal death.[39,45]

In this category, some articles corroborated the need to increment educational processes to inform that there is a decrease in fertility with increasing age in women [46] and the fact that perinatal risks are higher in these pregnant women, when the interval between pregnancies generally tends to be small[47]; others raised the difficulty related to the internalization of behaviors in children from mothers at old age.[48]

One article commented that African women at a late age present more adverse effects than their American counterparts, associating the African race to worse outcomes [49]. Another study focused on intrauterine growth restriction[39] and finally, an article ratified that advanced maternal age, related to the first-born child, has direct relation to wage penalties.[50]

In the Assisted Reproduction category, 4 (four) articles contemplated the theme of advanced age pregnancy related to Assisted Reproduction; two of them approached the subject in a positive way. One article[51] stated that the assisted reproduction in the female reproductive cycle is not associated with a negative impact on the well-being of the child. However, another study [52] ensured that there are no obstetric complications in the pregnancy by in vitro fertilization in women with advanced age.

Two articles in the above category argued different contents from the data cited above because they presented opposed arguments. The article [53] ratified that the use of assisted reproduction techniques has grown in women with advanced maternal age because the difficulty to get pregnant is increased at this age; the authors state that[54] in twins' pregnancy at an advanced age, the use of assisted reproduction techniques constitute risk factors.

The last category nominated Professional Attitude, as the previous category, covered 3 articles that had not been mentioned yet and 1 (one) was grouped in the first category. They were very similar as for the contents because the arguments targeted the amount of information offered to pregnant women at the advanced age; thus, this can either overwhelm them or present risks to the pregnancy.

The need for careful ways to present such information and the professional posture toward the pregnant woman is important because often they offer assistance to a high-risk pregnancy, which does not mean that advanced age necessarily implies in pregnancy risk.[55-6]

Authors[8,57] also commented, within this category, that the attitude of professionals is also important with respect to the guidelines given to these pregnant women in the choices and time that would be more appropriate to conceive, and since this is a growing phenomenon it is necessary to look at this fact because it is the result of social context.

Therefore, the objective of this study was to expose the contents presented in publications about the phenomenon of advanced age pregnancy. The identified number of publications was not significant; most of the studies were revisions of the literature and reported adverse risks related to this type of pregnancy. In the following topic more aspects about the catalogued publications and some relevant suggestions are presented.

CONCLUSION

It is striking that the social profile of women is changing, and for various reasons, some women have opted to have children later in life, outside the age range considered as ideal for pregnancy. This reality on the rise also increases the responsibility of healthcare professionals, requiring skills beyond those specific to their area of expertise, such as understanding the significance of this phenomenon for women and the likely impacts on the course of pregnancy.

A need for more studies on the theme of advanced age pregnancy is observed, especially, field studies because the majority among the published articles consisted of studies based on medical records and/or related materials, whose records are more about biological, epidemiological, or medical information.

About the contextualization of the phenomenon, much of the literature also highlights the issue of the quest for financial stability and the presence of a stable partner, among other aspects. However, when this is reported for women attending prenatal care in public health networks these explanations may not be the most appropriate.

More research about the opinion and position of professionals who assist these pregnant women are also needed because while some may be current on the subject and present an adequate informative attitude, a careful approach on the type of information offered and the way it is presented are also needed. In addition, some professionals still present a level of prejudice in the care of this population or a tendency to see these as high-risk pregnancies.

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