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SOCIAL INEQUALITIES AND GESTATIONAL RISK IN RURAL AND URBAN WOMEN: A SYSTEMATIC REVIEW OF LITERATURE

DESIGUALDADES SOCIALES Y RIESGOS GESTACIONALES EN MUJERES DE ZONAS RURALES Y URBANAS: UNA REVISIÓN SISTEMÁTICA DE LA LITERATURA

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Social Inequalities and Gestational Risk in Rural and Urban Women: A Systematic Review of Literature

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ABSTRACT

Maternal health reflects social equity and remains strongly influenced by the Social Determinants of Health (SDH), particularly in rural and low-resource settings. The objective was to describe social inequalities and their effect on pregnancy risk. This systematic review, conducted under PRISMA 2020 guidelines. The databases were PubMed, Scopus, and ScienceDirect. The synthesis of evidence reveals a direct correlation between the poverty index and the severity of complications. In various Latin American and middle-income country contexts, the maternal mortality ratio reached 75.19 per 1,000 live births, exceeding the national average, with critical vulnerability among women over 40 years of age (Ratio: 165.75). Although urban areas report a higher number of cases (251 vs. 165), rural areas face greater barriers related to the "third delay" (transportation and referral). The cost of care for severe preeclampsia (USD 827) acts as an impoverishment factor for low-income families, exacerbating the cycle of inequality. Social inequalities are not only geographical, but also structural and economic. A differentiated public policy is needed to mitigate the access gap in sparsely populated rural areas in order to effectively reduce maternal morbidity and mortality in the department.

Keywords: Maternal mortality, social inequalities, rural health, social determinants of health, obstetric risk.

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Desigualdades sociales y riesgos gestacionales en mujeres de zonas rurales y urbanas: una revisión sistemática de la literatura

RESUMEN

La salud materna es un reflejo de la equidad social y sigue estando fuertemente influenciada por los determinantes sociales de la salud (DSS), especialmente en entornos rurales y de escasos recursos. El objetivo fue describir las desigualdades sociales y su efecto sobre el riesgo durante el embarazo. Esta revisión sistemática se llevó a cabo siguiendo las directrices PRISMA 2020. Las bases de datos utilizadas fueron PubMed, Scopus y ScienceDirect. La síntesis de la evidencia revela una correlación directa entre el índice de pobreza y la gravedad de las complicaciones. En diversos contextos de países latinoamericanos y de renta media, la tasa de mortalidad materna alcanzó los 75,19 por cada 1.000 nacidos vivos, superando la media nacional, con una vulnerabilidad crítica entre las mujeres mayores de 40 años (tasa: 165,75). Aunque las zonas urbanas registran un mayor número de casos (251 frente a 165), las zonas rurales se enfrentan a mayores barreras relacionadas con el «tercer retraso» (transporte y derivación). El coste de la atención de la preeclampsia grave (827 dólares estadounidenses) actúa como factor de empobrecimiento para las familias con bajos ingresos, lo que agrava el ciclo de desigualdad. Las desigualdades sociales no son solo geográficas, sino también estructurales y económicas. Se necesita una política pública diferenciada para mitigar la brecha de acceso en las zonas rurales escasamente pobladas, con el fin de reducir de manera efectiva la morbilidad y la mortalidad maternas en el departamento.

Palabras clave: Mortalidad materna, desigualdades sociales, salud rural, determinantes sociales de la salud, riesgo obstétrico.

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INTRODUCTION

Maternal health is one of the most sensitive indicators of socioeconomic development, territorial equity, and the operational capacity of health systems (1,2). Beyond its clinical dimension, it reflects the structural conditions in which women live, including access to education, income, healthcare, and social support networks. In Latin America, despite regulatory efforts aimed at reducing maternal morbidity and mortality (such as expanding insurance coverage and establishing comprehensive maternal and perinatal care pathways), significant gaps persist between territories and population groups (2, 3). These disparities are not random but rather reflect structural inequities associated with the Social Determinants of Health (SDH).

Pregnancy risk is not distributed homogeneously across the population. On the contrary, it is organized along a social gradient determined by factors such as poverty, rurality, low educational attainment, and limited reproductive autonomy, all of which increase maternal vulnerability. In this context, obstetric complications (including hypertensive disorders of pregnancy, postpartum hemorrhage, and infections) cannot be addressed solely from a biomedical perspective, since their timely detection and appropriate management are conditioned by social and territorial factors that determine effective access to health services (2). This becomes particularly relevant in middle-income countries, where medium- and high-complexity institutions prevail, specialized human resources are available in this field, and diagnostic technologies are accessible within the system. In contrast, in rural areas, structural barriers related to road accessibility, ambulance transport, continuity of prenatal care, and the availability of comprehensive obstetric services still exist (4). In this case, rural women bear what we call a "triple burden": geographical distance leading to a delay in seeking medical care; economic insecurity that encourages delayed care seeking; and cultural and institutional barriers that inhibit successful interaction with the health system (4, 5).

This is a central issue of interest to the public health community in general: are current models of maternal care sensitive to the pluralistic aspects supported by territorial and social diversity, or do they reflect the same models that fail to address the particularities of rural areas? Exploring gestational risk among rural and urban women provides a path not only to making entrenched inequalities visible, but also evidence that supports the design of differentiated, territorial, and intersectional strategies to meet

the needs for inequitable and timely maternal care (6, 7). Current models of maternal care still face structural limitations in adequately addressing the diverse territorial and social needs of contemporary Latin America.

METHODS

Protocol and registration:

This systematic review was not registered in an international database of protocols such as PROSPERO prior to its execution. However, an internal methodological protocol was developed before the start of the search and selection process, defining the objectives, eligibility criteria, search strategies, and synthesis methods. The lack of public registration constitutes a methodological limitation that is explicitly acknowledged in this study.

Studio design:

A systematic review with a comparative-analytical approach was conducted with the objective of identifying, evaluating and integrating the available scientific evidence on the impact of Social Determinants of Health (SDH) on gestational risk in women of reproductive age and on maternal morbidity and mortality, in particular contrasting rural and urban environments in Latin America.

Eligibility criteria (PICO): The inclusion and exclusion criteria for article selection included:

Table 1. PICO.

Table 2. Inclusion and exclusion criteria.

Search strategy and information sources:

The identification of scientific evidence was based on a systematic search of PubMed, Scopus , and ScienceDirect , covering the period 2018–2024. MeSH and DeCS descriptors were interconnected using Boolean operators to maximize the retrieval of studies focused on maternal mortality and social determinants. This phase allowed for the identification of critical research such as Rodríguez Hernández's (2023) analysis of inequality in Chocó, Ocampo-Mendoza's (2024) study of the economic impact of preeclampsia, and Vargas Martínez's (2024) study of vulnerability in Meta.

The search strategy combined controlled terms (MeSH and DeCS) and free terms related to maternal mortality, maternal morbidity, social determinants of health, and rural/urban residence. The search equation used in PubMed was: ("Maternal Mortality "[MeSH] OR "Maternal Morbidity "[MeSH] OR

" Pregnancy Complications "[MeSH]) AND ("Social Determinants of Health "[MeSH] OR poverty OR " socioeconomic factors " OR inequality OR rural population OR urban population) AND (" Latin America " OR Colombia OR Brazil OR Mexico OR Peru OR Ecuador) Filters : Humans ; Publication date from 2018/01/01 to 2024/12/31; English OR Spanish.

For Scopus and ScienceDirect , the strategy was adapted using TITLE-ABS-KEY fields and equivalent Boolean operators: TITLE-ABS-KEY ("maternal mortality " OR "maternal morbidity " OR " pregnancy" complications ") AND TITLE-ABS-KEY ("social determinants " OR poverty OR inequality OR "rural population " OR " urban population ") AND TITLE-ABS-KEY (" Latin America " OR Colombia OR Brazil OR Mexico OR Peru OR Ecuador).

Table 3. Search strategies.

Selection of studies:

The selection of studies was carried out in two phases. In the first phase, two reviewers independent evaluated titles and summaries of the records identified to determine his eligibility Preliminary. In the second phase, the articles potentially relevant were evaluated to text complete according to the inclusion and exclusion criteria previously defined.

Data selection and extraction was carried out by two reviewers in an independent. The discrepancies between the reviewers were resolved through Discussion and consensus. In case of disagreement If the issue persisted, a third evaluator was brought in for the final decision. The selection process was documented through the flowchart in accordance with the PRISMA 2020 statement.

Data summary:

Table 3 presented the characteristics, intervention, outcome measures, and conclusions of each, in order to demonstrate the articles used for the research.

RESULTS

Selection of studies:

Our search began in PubMed, Scopus, and ScienceDirect, yielding a total of 57 studies. Two duplicate articles were initially removed. Then, 17 records were excluded based on title and abstract criteria for not meeting the inclusion criteria. Finally, the remaining 38 articles were read in full, resulting in the

exclusion of 9 articles for various methodological reasons. Ultimately, 29 articles met the inclusion criteria and were incorporated into the final review. (Figure 1.)

Figure 1. Selection of studies.

The study selection process was conducted according to the PRISMA 2020 statement. Initially, 57 records were identified from the PubMed, Scopus, and ScienceDirect databases. After removing two duplicate records, 55 titles and abstracts were assessed. Subsequently, 38 articles were reviewed in full text, of which 9 were excluded for not meeting the methodological eligibility criteria. Finally, 29 studies were included in the qualitative synthesis (Figure 1).

Study characteristics:

Detailed data extracted from each article are presented in Table 4, where characteristics were categorized according to the PICOS criteria: study design, participants, intervention, outcomes, and main findings. Each included study provided and reported key data for comparing maternal health in rural and urban women.

Table 4. Characteristics of the studies.

Quality assessment methodological and risk of bias

To ensure that the risk of bias in the included studies was adequately assessed, the methodological quality of the included studies was evaluated using tools specific to each study design. One instrument for evaluating observational studies (cohort, cross-sectional, and ecological) was the Newcastle-Ottawa Scale (NOS), which identifies three dimensions, including sample selection, comparability of groups, and outcome assessment.

Qualitative and mixed-methods studies were measured by the Joanna Briggs Institute (JBI) checklists, which focused specifically on evidence of methodological congruence, research purposes and consistency (or lack thereof), theoretical perspective and methodology employed, and the validity of the analysis and clarity of the meaning of the results.

Systematic reviews were assessed as an adequate comparison of reviews in the AMSTAR 2 tool, which allows systematic reviews that include observational studies with respect to methodological quality under certain critical domains (e.g., search strategy, study selection, assessment of risk of bias, synthesis of evidence).

Each study was scored according to how well it met the criteria of the relevant tool for classifying articles as high, moderate, or low quality. Overall, most included studies demonstrated good methodological quality in terms of participant selection and outcome specification. However, we found limitations in the control of confounding variables and heterogeneity of contexts in some observational studies. Despite these limitations, the evidence was generally consistent and provided a robust narrative synthesis of the available evidence.

Table 5. Quality Assessment methodological according to tool applied (NOS, JBI and AMSTAR 2).

Most studies demonstrated high methodological quality according to the tools applied (NOS, JBI, and AMSTAR 2). However, heterogeneity in designs and outcomes limited the possibility of establishing a formal hierarchy of evidence or issuing direct clinical recommendations.

Limitations of the study

This study presents some limitations that must be considered when interpreting their findings. First, the review systematic was not registered previously in an international database of protocols as PROSPERO, which can limit design traceability methodological Initial. Second, the heterogeneity of the studies included in design terms, populations, and outcomes obstetrics prevented the performance of a meta-analysis quantitative. Likewise, the predominance of observational studies limits the possibility of establishing relations causes direct. However, the consistency of the results across different contexts strengthens the validity of the synthesis presented.

Discussion:

The findings confirm that social and territorial inequalities play a decisive role in shaping gestational risk in different global contexts.(4) Maternal risk is closely linked to structural factors such as poverty, rurality, gaps in insurance coverage and limited availability of accessible and timely services (21). In rural areas, these conditions are exacerbated by geographical dispersion, precarious transportation and greater distance to centers of high-level care, elements that increase the vulnerability of pregnant women and explain a significant part of the variability observed in maternal morbidity and mortality (6 ,21).

Although urban areas register a higher absolute number of obstetric events, the review shows that rural women face a proportionally greater risk, especially due to delays associated with transportation and medical referral. This “third delay,” widely documented in Latin American literature, represents a

critical factor that conditions late access to specialized services and increases the probability of adverse outcomes (6).

In this regard, the relationship between poverty and obstetric complications is one of the most consistent elements identified. Adverse socioeconomic conditions not only increase exposure to risk factors but also limit early initiation and continuity of prenatal care. The high cost of managing serious complications, such as severe preeclampsia, is also a factor of impoverishment that perpetuates cycles of inequality, especially in households with lower economic capacity. This analysis shows that gestational risk cannot be interpreted solely as an individual health problem, but as a phenomenon deeply associated with self-reinforcing structural inequities (22).

Similarly, this review identifies that rural women bear a "triple burden" characterized by geographical, economic, and cultural barriers that affect their interaction with the health system across the board. The lack of effective insurance coverage, limitations in medical transport, and the discontinuity of obstetric services create a cycle of vulnerability that is difficult to break (1, 6). Beyond the rural-urban comparison, these findings demonstrate that pregnancy risk responds to structural dynamics that require multisectoral interventions and not just isolated clinical strategies (16).

Finally, although the review was conducted using rigorous methodological criteria, it is acknowledged that the heterogeneity of the included studies and the predominance of observational designs may influence the consistency and generalizability of the results. One limitation of the study is the lack of prior registration of protocols on international platforms, which could limit the traceability of the initial methodological design. Nevertheless, the convergence of evidence regarding the influence of social determinants of health and territorial inequalities strengthens the validity of the conclusions. The findings highlight the need to implement public policies with a differential and territorial approach, addressing not only the provision of services but also the structural conditions that influence pregnancy risk in rural and urban populations. Closing gaps in access, insurance coverage, and quality of care is essential to improving maternal outcomes in territories with persistent inequities (2,6).

CONCLUSION

The results of this review demonstrate that pregnancy risk is profoundly influenced by social, economic, and territorial inequalities that transcend biomedical factors. Women living in rural areas face a "triple

burden" of geographical barriers, economic limitations, and cultural and institutional obstacles, resulting in delayed or fragmented access to maternal services and greater vulnerability to serious obstetric complications.

The evidence analyzed confirms that poverty, precarious insurance coverage, and high obstetric care costs not only increase gestational risk but also perpetuate cycles of inequality that disproportionately impact women in more vulnerable conditions, particularly older women and those residing in territories with less capacity to resolve these issues.

In this context, it is essential to move towards public policies with a territorial, differential, and intersectional approach that address the identified structural gaps. Strengthening health insurance coverage, improving ambulance services, integrating cultural and community-based approaches, and reinforcing epidemiological surveillance systems are priority areas for intervention to reduce critical delays and improve maternal outcomes. Only through coordinated, multisectoral strategies will it be possible to move towards more equitable maternal care that is sensitive to persistent territorial inequalities.

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