Article

Factors Associated with Uncertainty Levels Among Migrant Mothers that had their Children Hospitalized During the Neonatal Period*

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Theme: Health, well-being, and quality of life promotion

Contribution to the discipline: This study contributes elements that clarify the chances of applying theoretical knowledge to a situation of particular interest for Nursing for which few studies are available in the local context. Migration is a global phenomenon in which women and their children represent a highly vulnerable group; however, the conditions of Venezuelan migrants in Colombia are especially complex, which highlights the need to deepen the description of their social conditions, as well as of the levels and factors associated with the uncertainty they experience during hospitalization in a neonatal unit.

Abstract

Introduction: Neonatal hospitalization is a critical experience for mothers. Migration can increase uncertainty levels; it is for this reason that knowing this reality is of utmost importance and interest for Nursing. **Objective**: To describe uncertainty levels among migrant women and the associated factors. **Materials and Methods**: A quantitative, descriptive, cross-sectional, and correlational study with convenience sampling in which the participants were 181 Venezuelan mothers over 14 years old without acute health conditions and who had their children hospitalized. The Parents-Children Uncertainty scale was applied; this tool has adequate psychometric properties to be used in Colombia, with a Cronbach's alpha value of 0.86. Descriptive statistics, correlational analysis and a regression model were applied for data analysis. **Results**: The uncertainty levels were high in 93.92 % of the cases and presented a correlation with hospitalization time (sig. 0.050) and migratory status (sig. 0.006). The following variables explained the uncertainty levels: hospitalization days (sig. 0.004); birth weight (sig. 0.016); gestational age (sig. 0.054); and number of prenatal control appointments (sig. 0.004). Searching for information outside the hospital setting reduced the uncertainty levels (sig. 0.059). **Conclusion**: Uncertainty levels are high among migrant mothers, and the associated factors point to the need to provide clear information, particularly in the case of mothers in irregular migratory situations and with children undergoing prolonged hospitalizations; guidelines on the use of educational resources should be offered.

Keywords (Source: DeCS)
Uncertainty; neonatal nursing; human migration; intensive care unit; neonatal; parents.

Factores asociados al nivel de incertidumbre de madres migrantes con hijos hospitalizados durante el periodo neonatal*

* Derivado de la tesis de maestría en enfermería: "Nivel de incertidumbre de las madres migrantes venezolanas en Colombia frente a la enfermedad de sus hijos recién nacidos hospitalizados". Universidad de Antioquia. https://hdl.handle.net/10495/46321

Resumen

Introducción: la hospitalización de los neonatos es una experiencia crítica para las madres. La migración puede causar mayores niveles de incertidumbre, por eso, reconocer esta realidad es un tema de gran importancia e interés para la enfermería **Objetivo**: describir el nivel de incertidumbre de las madres migrantes y los factores asociados. **Materiales y método**: estudio cuantitativo, descriptivo, transversal y correlacional mediante muestreo a conveniencia; participaron 181 madres venezolanas mayores de 14 años sin alteraciones agudas de salud, con hijos hospitalizados. Se aplicó la escala de la incertidumbre padres- hijos, que cuenta con propiedades psicométricas adecuadas para su uso en Colombia, con un alfa de Cronbach de 0,86. Para el análisis de datos, se aplicó estadística descriptiva, análisis correlacional y un modelo de regresión. **Resultados**: el nivel de incertidumbre fue alto para el 93,92 % y mostró correlación con el tiempo de hospitalización sig 0,050 y con el estatus migratorio sig 0,006. Las variables que explican el nivel de incertidumbre son: días de hospitalización (sig. 0,004), peso al nacer (sig. 0,016), edad gestacional (sig. 0,054) y número de controles prenatales (sig. 0,004). La búsqueda de información fuera del hospital disminuyó el nivel de incertidumbre (sig. 0,059). **Conclusión** el nivel de incertidumbre es alto en las madres migrantes y los factores relacionados señalan la necesidad de entregar una información clara, particularmente para las madres con condición migratoria irregular y con hijos con hospitalizaciones prolongadas; se debe orientar acerca del uso de recursos educativos pertinentes.

Palabras clave (Fuente DeCS)
Incertidumbre; enfermería neonatal; migración humana; unidad de cuidado intensivo, neonatal; padres.

Fatores associados ao nível de incerteza de mães migrantes com neonatos hospitalizados*

* Artigo derivado da tese de mestrado em Enfermagem intitulada "Nível de incerteza das mães migrantes venezuelanas na Colômbia diante da doença de seus neonatos hospitalizados" (Nivel de incertidumbre de las madres migrantes venezolanas en Colombia frente a la enfermedad de sus hijos recién nacidos hospitalizados). Universidade de Antioquia, Colômbia. https://hdl.handle.net/10495/46321

Resumo

Introdução: A hospitalização de neonatos representa uma experiência crítica para as mães, principalmente em contextos de migração, em que pode causar níveis mais altos de incerteza. Reconhecer essa realidade é um tema de grande relevância para a enfermagem. **Objetivo:** descrever o nível de incerteza das mães migrantes e os fatores associados. **Materiais e método:** estudo quantitativo, descritivo, transversal e correlacional, com amostragem por conveniência. Participaram 181 mães venezuelanas com mais de 14 anos de idade, sem alterações agudas de saúde e com neonatos hospitalizados. Aplicou-se a Escala de Incerteza em Pais e Filhos, que apresenta propriedades psicométricas adequadas para uso na Colômbia, com alfa de Cronbach de 0,86. Para a análise de dados, utilizaram-se estatística descritiva, análise correlacional e um modelo de regressão. **Resultados:** O nível de incerteza foi alto para 93,92% e mostrou correlação com o tempo de hospitalização (sig. 0,050) e com a situação migratória (sig. 0,006). As variáveis que explicam o nível de incerteza foram: dias de hospitalização (sig. 0,004), peso ao nascer (sig. 0,016), idade gestacional (sig. 0,054) e número de controles pré-natais (sig. 0,004). A busca por informações fora do hospital reduziu o nível de incerteza (sig. = 0,059). **Conclusão:** O nível de incerteza é alto nas mães migrantes, e fatores associados indicam a necessidade de oferecer informações claras, especialmente para mães com situação migratória irregular e com neonatos com hospitalizações prolongadas. Nesse contexto, devem-se fornecer orientações sobre o uso de recursos educacionais relevantes.

Palavras-chave (Fonte DeCS)
Incerteza; enfermagem neonatal; migração humana; unidade de terapia intensiva; neonatal; pais.

Introduction

Neonatal hospitalization is a complex and unexpected experience that implies changes in the parents' emotional state (1). Uncertainty is extremely common in these cases because, among other aspects, it triggers concerns about the children's health status and implies the separation due to their admission to a neonatal unit (2). The ability to face changes in the children's health status such as the risk of death or other complications, as well as the limitation to perform the parenting role, can become more complex under vulnerability conditions, as in the case of migrant mothers (3). Uncertainty when facing disease is defined as follows: "a cognitive state in which people cannot understand the meaning of the facts that take place due to a disease, hospitalization and treatment" (4). It is also a complex experience, as it has repercussions on the ability to organize by means of mental processes the aspects associated with hospitalization and disease (4, 5), and largely conditioned by fear of the unknown, ambiguity in the information received, and the complexity of the health situation (6, 7). At the theoretical level, uncertainty is influenced by the pattern of symptoms, the so-called stimulus frame —schooling level, social support and credible authorities, called sources of structure and coping— (4). These aspects were of interest while developing the current research.

Uncertainty among migrant women can manifest more intensely and exert negative effects on the children's health outcomes and on women's emotional well-being due to the fact that they can present deeper vulnerability, marginalization, need for social assistance, and food insecurity (8). Migrant women are exposed to higher risks of facing extreme poverty conditions, lack of social support, and low economic incomes that limit their quality of life (9, 10). In addition, it is important to consider that migrant pregnant women with irregular situations are excluded from the health system and, therefore, they face more significant barriers in prenatal care that jeopardize maternal-neonatal health (8). Under these conditions, it has been described that migrant mothers face a context marked by greater food insecurity, lack of social protection, cultural changes, and higher risks of adverse perinatal outcomes (8, 10, 11). These aspects can increase uncertainty levels and, thus, limit their possibilities in terms of caring for their children and their own well-being.

It is necessary to study the uncertainty phenomenon among migrant mothers of children hospitalized in neonatal units because international migration in Latin America and the Caribbean has doubled in the last 15 years, rising from 7 to 15 million people in this region (11). In 2020, Venezuelans were the second largest cross-border displaced population group in the world: 73 % of all refugees and migrants sought aid in neighboring countries, and Colombia was the nation that most subjects welcomed with more than 1.7 million migrants (11, 12), of which the highest percentage corresponds to women in reproductive age, which has increased health care requirements in the perinatal and maternal care scope (12). In this sense, it is necessary

to acknowledge that social and cultural conditions exert direct impacts on mothers' experiences and on children's short- and long-term health outcomes. These conditions are usually adverse in migration contexts, where social vulnerability is deeper, particularly for women (11). The motherhood experience becomes more complex when children need to be hospitalized in neonatal units, a situation that triggers high uncertainty levels in mothers (8) and limits both their own well-being and that of their newborns.

Migration processes usually intensify the emotional impact and the uncertainty experienced by mothers of neonates with health alterations, as they find themselves in a social and cultural context that differs from the habitual one, have limited family and social networks, and face economic difficulties and health care barriers in many cases (8).

For being a feeling strongly related to hospital processes, uncertainty is a topic of particular interest in this context. Although having to cope with taking care of a newborn with health alterations is a complex and highly demanding experience for all mothers, providing care in conditions of dissatisfaction, lack of social protection, and low quality of life supposes an additional risk for migrant mothers. These mothers not only face an uneasy situation given their children's health, the broken expectations about birth and the postpartum, and the postponement of the affective bond, but also have to undergo this complex situation away from their families, with limited economic resources and in the midst of significant sociocultural changes that might increase their uncertainty levels (8, 13). Therefore, mothers whose newborns have been hospitalized in neonatal units can generally perceive this situation as fearful and, consequently, limit their adaptation to this complex circumstance (6).

Uncertainty among mothers in neonatal services has been studied in various contexts (2, 6, 7). In Colombia, a study that applied the Uncertainty Scale to 79 mothers with hospitalized children in neonatal units was identified; the findings show that the uncertainty levels were high in 49.3 % of the participants and that they were associated with factors such as schooling level, not having a partner, and socioeconomic status. In addition, an association was found between high uncertainty levels in parents and the need for ventilatory support and low birth weight in hospitalized children (6).

Likewise, a mixed-methods study conducted in the city of Bucaramanga (7) with a total of 229 mothers detected average and high uncertainty levels in 57 % and 36 % of the cases, respectively. These results were analyzed in light of qualitative categories such as: the tough experience; unpredictability; parental bonding; support/care quality; and spirituality, reasserting that complexity can limit parental bonding and mothers' ability to take care of their children.

At the international scale, the uncertainty levels among 259 mothers of hospitalized newborns were described in Ethiopia, with predominance of high-level (65 %), and a common factor related to ICU hospitalization times of more than 10 days (2). These studies set forth important elements about the factors associated with uncertainty among mothers of hospitalized newborns; however, they have not been conducted with migrant mothers and have not considered other aspects such as age, living conditions, and migratory status; in addition, others that are in fact known tend to generate an intersection that might intensify the complexity of the experience.

This phenomenon can be much more complex in adverse social conditions, reason why migrant women represent a group of special interest. In that sense, it has been described that, when compared to natives, migrant mothers usually face differential contextual situations linked to migration that affect and limit access to health, expose them to deeper lack of social and family protection, and to higher risks of vulnerability (8), gender violence, xenophobia (11), and social isolation, which cause gender inequality conditions (9, 14, 15). These adverse situations can have repercussions on their ability to take care of their children after discharge and on the short- and long-term health outcomes (14).

This topic bears significant importance for the Nursing professionals involved in the care of hospitalized children and their family members, given the current migration context in the country and the region. It is not only necessary to assess uncertainty levels, but also to identify the factors that can exert an influence on their appearance in the migrant population. It is expected that the results might guide more sensible Nursing care closer to reality. The intention is also to clarify the chances for disciplinary theoretical articulation in the phenomenon of interest and to contribute to knowing the emotional needs of Venezuelan mothers in Colombia to aid the design and strengthening of public policies that tend towards their comprehensive assistance and care.

Materials and Methods

Study design: A quantitative, descriptive, cross-sectional and correlational study.

Sample and sampling: A convenience sampling method was applied because the phenomenon is specific, and the number of admissions reported by the institution in previous periods was relatively low and variable; hence, the sample size calculation was not convenient. During data collection, it was not possible to interview 10 % of the mothers who met the criteria, as they had difficulties attending and remaining in the institution while their children were hospitalized.

The sample comprised 181 migrant women aged over 14 years old, whose children were hospitalized in the neonatal unit for at least 24 hours after admission at a perinatal maternal health institution

from the city of Medellin between January and June 2024. The mothers excluded were those with some mental or cognitive condition or any acute health alteration during the postpartum period; this information was verified in the women's medical records.

Data collection: The information was collected at the health institution, in the neonatal unit, in the Gynecology service, or in Kangaroo care spaces, at a moment considered appropriate for the mothers and ensuring that the process did not interfere with taking care of their children or their interactions with the health personnel. The mothers were empathetically approached at all times, favoring an opportune space to invite them to take part in the study and to undergo the informed consent process.

The Parents/Children version of the Uncertainty Scale (adapted and validated in Colombia in 2018) was applied to establish the uncertainty levels (16). This scale has valid psychometric properties to be used in the Colombian context, and, in its validation process, the authors established content validity based on the opinion of seven experts, where a Content Validity Index (CVI) of 0.94 was obtained. As for construct validity, the authors applied the instrument empirically to 154 mothers. With an exploratory factor analysis, they reached a version with 31 items grouped into three factors: Ambiguity; Unpredictability; and Lack of clarity, which explained 91.5 % of the variance. As for the reliability of the instrument, the authors in charge of the validation study reported a Cronbach's alpha value of 0.86 (18). The scale has Likert-type answer options ranging from 1 to 5, representing from Totally false to Totally true, and minimum and maximum scores of 31 and 155, respectively. As for its dimensions, the Ambiguity, Lack of clarity and Unpredictability scores vary from 13 to 65, 5 to 25, and 4 to 20 points, respectively. The cutoff values for ordinal assessment of the scale are low uncertainty level, below 61; average uncertainty level, between 61 and 89; and high uncertainty level, over 89 points (16).

To collect the information about other variables of interest, survey-type questionnaires were devised where the participants were asked about their sociodemographic conditions, aspects related to the neonates' health, characteristics of the migration process, uncertainty history, and social support and coping measures resorted to by the mothers when facing their children's hospitalization.

The instruments were applied in suitable spaces and times, in a respectful and trustful environment. The participants' intimacy was safeguarded, and privacy was guaranteed during the procedures. The mothers' informed consent data were not related to the survey reports, ensuring confidentiality of all personal information. Participation was autonomous and confidential, only after signing the informed consent form. The research activities did not interfere with the institutional assistance and care processes.

Neonates' data such as, weight, gender, and gestational age, were confirmed by checking their electronic medical records.

Data analysis: The information was stored and analyzed in SPSS, version 29, licensed to Universidad de Antioquia. Central tendency, dispersion, and position measures were calculated for the quantitative variables according to their distribution. The qualitative variables were described by means of absolute and relative frequencies.

After analyzing the distribution of the quantitative variables using the Kolmogorov-Smirnov test and identifying that they did not follow a normal distribution, the Spearman's correlation coefficient was applied. Mann-Whitney's U test was used to explore possible differences between dichotomous qualitative variables and the uncertainty levels, and to evaluate the influence at the multivariate level exerted by sociodemographic variables, migratory status, neonates' mental state, and uncertainty levels. For the purposes of the viability corresponding to this analysis, the variables were re-categorized, grouping them into two sets according to the answers. Finally, multiple-stepped linear regression models were performed; the variables lacking significance for the model ($p>0.10$) were removed at each level until reaching a model where all the variables contributed to it.

Ethical considerations: The current study met the guidelines set forth in Resolution No. 008430 of October 1993 by the Colombian Ministry of Health, which establishes the scientific, technical, and administrative norms for health research in the country (17). The mothers included were those aged over 14 years old, considered as having due cognitive ability to decide to autonomously take part in the research (18, 19); the survey was applied in the presence of a responsible adult, and due assent was requested. All the mothers met the implicit requirements as for their ability to understand both the information and the risks and benefits (17). The study was approved by the Ethics Committee of the Research Center at the Nursing School belonging to Universidad de Antioquia, Minute No. 62 CEIFE 2023, and by the Research Committee of the institution where the study was conducted, under code 6_10082023.

Results

The study participants were 181 Venezuelan migrant mothers with a mean age of 24 years old (SD: 6.26): the youngest was 15, and the oldest was 42, and only 9.9 % (n=18) were underage. Of the total, 75.1 % (n=136) were housewives, 13.3 % (n=24) had some formal job, and 8.8 % (n=16) had informal jobs. As for marital status, 77.9 % (n=141) had a partner in the free union modality, 15.5 % (n=28) were single, and 6.1 % (n=11) were married.

The predominant schooling level was High School with 67.9 % (n=123), followed by Elementary School with 12.1 % (n=22), university studies

with 9.3 % (n=17), technical level with 8.8 (n=16), and no formal schooling with 1.6 % (n=2). In all, 58 % (n=98) of the mothers had a temporary Protection Permit (PPT, for its initials in Spanish), an important document for migrant women because it allows them to inhabit the Colombian territory in compliance with the due regulations and access formal employment and health/education services for a 10-year period. On the other hand, 42 % (n=76) had not legalized their migratory status, and 46.41 % (n=84) were formally registered in the Colombian health system, whereas 53.5 % (n=97) had no type of affiliation.

Regarding the newborns' characteristics, 49.7 % (n=90) and 48.6 % (n=88) were female and male, respectively. Their mean birth weight was 2,416.7 g (SD: 627.2 g) and the mean gestational age was 36 weeks (SD: 2.95 weeks). Of all newborns, 63.5 % (n=115) presented low birth weight, and 47.5 % (n=86) were premature; in turn, 29.2 % (n=53) of the neonates presented both conditions. Of all the women, 56.9 % (n=103) stated not having planned their pregnancies, and, of this percentage, 65.2 % (n=67) pointed out having had difficulties accessing family planning programs.

Results showed that 96.1 % (n=174) attended prenatal control appointments and that, of this percentage, 71.5 % (n=130) attended at least 5 control instances, and 27.4 % (n=49) underwent fewer controls. Of all participants, 61.9 % (n=112) stated having found barriers in accessing prenatal controls in the Colombian territory. As for health during pregnancy, 12 % (n=22) were classified as pregnant women at high obstetric risk. Regarding social support, 89.5 % (n=162) stated having received support from the newborn's father, who is reported as the main breadwinner in 64.64 % (n=117) of the cases.

These mothers reported a positive perception regarding support from the health personnel in 61 % (n=164) of the cases, whereas 3.87 % (n=17) had a negative perception. Of these women, 61.9 % (n=112) reported feeling more at ease speaking with the Nursing personnel; in turn, 38.1 % (n=69) did not share that sensation. From the total, 53 % (n=96) stated having received emotional support during their children's hospitalization, whereas 47 % (n=85) did not perceive that support.

When asking about the strategies the mothers used to face and understand the circumstances they were undergoing, it was identified that 46.4 % (n=84) sought information about their children's situation in other sources, such as the Internet or asking other mothers in similar situations, whereas 53.6 % (n=97) limited themselves to the information provided by the health personnel. On the other hand, 75.7 % (n=137) professed no religion; however, 25 % (n=44) prayed according to their religious beliefs at moments marked by anguish. Of all the mothers, 51.7 % (n=94) reported that talking to other mothers about their chil-

dren's situation was soothing, but it was not so for 48.3 % (n=87), and 65 % (n=117) of the participants stated that the information they were provided by the Nursing personnel helped them mitigate their uncertainty, in opposition to those for whom it did not represent any relief in that sense (35 % [n=64]).

As for the uncertainty levels, the global value was high in 93.92 % (n=170), average in 5.52 % (n=10), and low in 0.55 % (n=1) of the cases. Regarding the overall mean uncertainty score, it was 78.58 (SD: 12.14). The mean values by dimensions can be seen in Table 1.

Table 1. Overall Uncertainty Levels among the Mothers by Dimensions (n=181)

Dimension	Mean	SE
Overall uncertainty	78.58	12.14
Ambiguity	50.42	9.62
Lack of clarity	20.52	3.0
Unpredictability	14.59	2.94

Source: Prepared by the authors.

When analyzing these values and considering the scores by dimensions (Ambiguity from 13 to 65 points, Lack of clarity from 5 to 25 points, and Unpredictability from 4 to 20 points), higher-risk was identified for the "Lack of clarity" factor, as it reached the closest mean to the maximum possible value in the dimension.

To explore the existing correlations, a bivariate analysis was initially performed between uncertainty and the other variables of interest. After analyzing the distribution of the quantitative variables and identifying that they did not follow a normal distribution, Spearman's correlation coefficient was applied. The results of this analysis are presented in Table 2.

Table 2. Correlations between the Variables of Interest and Uncertainty

Variables	Newborn's Birth Weight	Mother's Age	No. of Children Born	No. of Prenatal Control Appointments Attended by the Mother	No. of Days the Child Was Hospitalized	Gestational Age at Birth
Overall uncertainty	0.135 Sig. 0.070	0.032 Sig. 0.665	0.110 Sig. 0.142	0.153 Sig. 0.040	0.151 Sig. 0.050	0.094 Sig. 0.210
Ambiguity	0.125 Sig. 0.093	0.065 Sig. 0.384	0.067 Sig. 0.373	0.138 Sig. 0.066	0.176 Sig. 0.030	0.090 Sig. 0.231
Lack of clarity	0.106 Sig. 0.154	-0.010 Sig. 0.896	0.164 Sig. 0.027	0.129 Sig. 0.085	0.266 Sig. 0.001	0.041 Sig. 0.583
Unpredictability	0.080 Sig. 0.284	-0.030 Sig. 0.691	0.104 Sig. 0.165	0.044 Sig. 0.555	0.230 Sig. 0.004	-0.006 Sig. 0.935

Sig.=Statistical significance

Source: Prepared by the authors.

From the bivariate analysis perspective, the possible differences between the uncertainty levels and other variables of a qualitative nature were explored by means of Mann-Whitney's U test. The results corresponding to some of the variables explored in this analysis can be seen in Table 3.

Table 3. Differences between Uncertainty Levels and Other Variables of Interest

Variables	Overall Uncertainty		Statistical Value	Sig.
	Me	IQR		
Child's gender				
Male	127	21	3,008.500	0.006
Female	119	20		
Migratory status				
Regular	122	22	1,302.500	0.006
Irregular	123	25		
Seeks information in other sources				
Yes	119	17	2,881.500	0.005
No	125	32		
Schooling level				
Up to High School	121	24	2,272.500	0.533
Technical Level or Higher Education	127	20		
Marital status				
Single	116	19	1,783.500	0.159
Free union or married	123	21		
Professes some religion				
Yes	125	23	2,502.000	0.404
No	122	22		
Attended prenatal control appointments				
Yes	122	22	562.000	0.729
No	126	23		
Health problems during pregnancy				
Yes	120	23	3,290.000	0.074
No	128	19		
Premature child				
Yes	121	24	3,764.000	0.352
No	123	22		
Planned pregnancy				
Yes	123	22	3,709.000	0.377
No	122	23		
Has been rejected				
Yes	122	26	2,808.000	0.126
No	123	21		
Has family support				
Yes	123	22	1,304.000	0.538
No	119	18		

Me=Median. IQR: Interquartile Range. Sig: Statistical significance

Source: Prepared by the authors.

Table 4 presents the final model after the iterative process of discarding non-significant variables. This model presents an adjusted R^2 value of 0.116 and evidences that the variables that exert a positive influence at the multivariate level in predicting uncertainty levels are hospitalization days, birth weight, gestational age, and number of prenatal control appointments. This model highlights that the uncertainty levels are lower when the mothers seek information outside the hospital (see the standardized coefficients in Table 4).

Table 4. Multiple Linear Regression Coefficients to Predict the Uncertainty Levels

Variables	B	SE	β	T	Sig.
(Constant)	66.329	18.373	—	3.61	<0.001
Hospitalization days	0.763	0.261	0.251	2.922	0.004
Birth weight (g)	0.006	0.002	0.207	2.443	0.016
Seeks information outside the hospital	-5.377	2.825	-0.15	-1.904	0.059
Gestational age at birth (weeks)	0.958	0.493	0.166	1.942	0.054
Number of prenatal control appointments attended	0.738	0.428	0.137	1.725	0.087

β: Coefficients**, SE**: Standard Error, **β:**Standardized coefficients**, T:** Test statistical value.

Source: Prepared by the authors.

Discussion

The results about the participants' sociodemographic characteristics indicate they are a group of young women, with a mean reproductive age of 24 years old, and mainly housewives. This finding is similar to the one reported in the study by Bautista et al., where the uncertainty levels among mothers of hospitalized children were studied, and in which it was found that the mean age was 28.8 years old, although with a lower percentage of housewives (30.1 %) (7). Likewise, this can be contrasted with the reports from (2) conducted in Ethiopia, where the uncertainty levels among mothers was studied in a neonatal intensive care unit, finding that 71.9 % of the sample was aged between 25 and 35 years old and that 41.3 % of the mothers were housewives and reported a statistically significant association with uncertainty (β=6.51, 95 %CI: from 1.83 to 12.19) (2). Although the current study did not detect any statistical association between 'housewife chores' and uncertainty levels, it is important to acknowledge that migrant women are usually more economically dependent than native women, a phenomenon that, when studied in different contexts and latitudes, reasserts that migrant women are more vulnerabe.

In that sense, the National Planning Department reported an unemployment rate of 29.2 % among migrant women in Colombia. Likewise, it has been pointed out that 52.3 % of the mothers coming from Venezuela have difficulties finding a job (20), which reasserts the high economic dependence inherent to this population.

As for schooling levels, it was possible to identify that High School prevails; this indicates that, in general, the mothers' schooling level eases communication and understanding regarding informative and health education processes. These results are in opposition to those from the research study by Bolivar Montes and Montalvo Prieto conducted in Colombia, where the uncertainty levels among mothers of premature children were assessed, reporting that 39.2 % of the native mothers had a high school education level, with predominance of mothers with an elementary school (29.1 %) education level (6). Regarding this topic, the study conducted in Ethiopia (which also reviewed uncertainty levels in mothers) reported a negative association with uncertainty among parents with university or higher-level degrees (β=−14.15; 95 %CI: from −22.94 to −5.34) (2), a relationship that was not identified in the current study. However, it is important to consider that globally, it has been identified that high levels of schooling favor communication and inter-relations with the health personnel to access any and all information that allows improving the uncertainty perceived (21, 22).

Predominance of free unions (77.9 %) was also identified, a situation that is similar to the one reported in the studies that assessed uncertainty levels among mothers of neonates in Colombia (6, 7). In addition, it was found that 49.7 % of the women were registered in the system through the subsidized regime, in opposition to the results from the study conducted by Fernandez-Niño et al., where only 3.7 % of the mothers were affiliated to the health system (14), in contrast with the report by Bolivar Montes and Motalvo Prieto, as the percentage of affiliation to the subsidized system among Colombian mothers is significantly higher, around 77.2 % (6). This reflects the barriers to accessing care perceived by the migrant population included in the study and represents a risk factor for perinatal maternal health, associated with discontinuing prenatal control appointments (14, 23).

As an interesting fact, it was identified that an important percentage of these migrant women's pregnancies were not planned and that more than half of them indicated having had difficulties accessing family planning programs (12, 15, 23), a situation that exerts an effect on public health. It is for this reason that the World Health Organization and the Pan American Health Organization emphasize the importance of ensuring access to perinatal assistance, reducing administrative barriers and enhancing local support networks, informing about the rights for the care of pregnant women, in addition to recommending strengthening the care network (24, 15, 11), thus mitigating adverse neonatal outcomes (24-27).

A recent report on health and migration in the Americas recounted 72 perinatal and neonatal late mortality cases among Venezuelan migrants for 2024 in Colombia (28), underscoring the importance of working on providing good-quality care and assistance to this group of mothers.

In addition, it is important to note that migrant women face difficulties accessing pre-conception care due to multifactorial inequalities (12, 14, 20, 29) ranging from lack of information about sexual and reproductive rights (11, 20) to the use of contraceptive methods and the prevention of sexually transmitted infections (14, 30, 31).

Regarding the newborns' characteristics, a high percentage of premature children with low birth weight was found. This coincides with Fernandez-Niño et al., who identified high prematurity chances among neonates born to irregular migrant women in Colombia (OR=1.14 [95 %CI: from 1.07 to 1.23]), as well as low birth weight (OR=1.30 [95 %CI: from 1.18 to 1.42]), when compared to neonates born to Colombian mothers (14). These findings and trends are described in subsequent studies conducted in several Latin American countries (25-27), which report higher frailty and morbidity levels among children born to migrant women, which intensifies the need to strengthen the assistance provided to the migrant population in the territory.

As for the uncertainty levels among migrant women, high values were observed when compared to those reported in other studies conducted with mothers of premature newborns (2, 6). However, the population included in those studies was not migrant, which confers a differential element to the current paper, as it recognizes factors that surround the social context of Venezuelan migrant mothers, which affect their emotional state during the neonatal period. These women face situations that cause emotional pain, stress, anguish, and fear when facing hospitalization, derived from unawareness of the environment in the units (2, 4, 5) and added to the changes related to motherhood and lack of support (4, 5, 23, 32). The global uncertainty level presented a statistical correlation with hospitalization time (sig. 0.050), which is in line with the study by (2), where it was identified that neonates' hospitalizations over 10 days increase uncertainty (β=14.64; 95 %CI: from 8.71 to 20.56), influenced by abrupt parent-newborn separation (1, 3, 5), by their health status (22) and by having to face the care of a breastfeeding child with differential needs, increasing feelings of anguish and fear (1, 3, 21).

A relationship was also found with migratory status (sig. 0.006), in line with an important percentage of irregular migration cases that can be linked to unawareness of the health system, the procedures, and the rights regarding care (8, 20). In addition, migrant women are exposed to cultural barriers, which might intensify lack of clarity (4, 5), separation from the family, and lack of instrumental support, increasing the mothers' care burden and triggering feelings of loneliness and isolation during hospitalization (1, 12). It is not uncommon for them to face factors such as restrictions in economic and food resources, limiting their quality (9, 20).

Likewise, a statistical relationship was reported with the newborns' birth weight (sig. 0.016). This situation was reported in the study

by (6), which describes uncertainty in cases of newborns weighing less than 1,500 g (OR=1.9) due to the emotional impact and the mothers' fear of having a small and frail child, as well as the risk of complications associated with this factor (7, 12, 23, 24). Uncertainty was also associated with gestational age in the migrant women included in this study (sig. 0.054). The research conducted by (2) found differences between mothers with gestational ages of more than 34 weeks and those with shorter gestational ages (β=–7.47; 95 %CI: from –11.42 to –3.52), which implies greater fear when facing health conditions, prognoses, and treatments in the hospital setting. These situations faced by the mothers are a complex reality and are marked by high vulnerability and by risks that can compromise their children's health and well-being, which represent greater challenges in their care (1, 33). Another relationship found is the one with the number of prenatal control appointments attended (sig. 0.004). In this bivariate model, seeking information outside the hospital reduces uncertainty in the mothers, in the presence of the other variables mentioned. This finding is not only in line with Merle Mishel's theory (4, 5) but also proposes that providing information when facing a health situation reduces uncertainty (2, 3, 34), reasserting the importance of offering guidelines about pertinent educational resources to the mothers for them to be able to access clear and precise information about their children's health and hospitalization process, as well as allowing interaction and socialization among mothers, which might improve their well-being (1, 4, 5). These results contribute new guiding elements regarding the value of perinatal controls, such as educational and informative spaces that may help identify and mitigate uncertainty among migrant mothers. Therefore, it is important to work not only on reducing barriers to accessing control appointments but also on their quality, as a way of preparing the mothers for the neonatal period (14, 24, 29).

Migratory status emerges as an aspect of interest in the analysis performed. Slightly more than half of the mothers had their regular status granted by the Temporary Protection Permit (PPT). This fact indicates that some women still lack the possibility of accessing formal employment and have limited chances of accessing other services. This aspect contrasts with another study conducted with migrant women in Colombia, where 87.3 % (8) of the women were under no regulation. Another aspect related to the context has to do with social support, which, according to Merle Mishel's Uncertainty theory, exerts impacts on the mothers' uncertainty levels (2, 6, 7, 35) and is limited in the case of the participating women, added to their short permanence time in the country, which can restrict cultural and contextual adaptation.

The results of the current study contribute new elements in understanding the needs of migrant women in Colombia, particu-

larly those with premature newborns, a situation that becomes more complex in a migration context, generating high uncertainty levels with repercussions on women's and newborns' well-being alike. New studies are required to detect causal relationships in the factors related to uncertainty that were identified in the study. The study sample size and sampling method can be mentioned as limitations.

Conclusions

The uncertainty levels among migrant women are predominantly high, and the associated factors point to the need to get closer to their reality and promote care actions to prevent and mitigate uncertainty. Specifically, women with irregular migratory status, premature and low-weight children, and prolonged hospitalization times who attended few prenatal control appointments represent an important challenge. It was identified that providing mothers with educational and informative resources is a convenient strategy to enhance information about their children's health and reduce uncertainty.

Strengths

This research is a pioneer in studying uncertainty among migrant women in Colombia; it contributes descriptive information of interest because the migratory flows in the country are increasing, hence its importance for Nursing.

What is known about the phenomenon was expanded from a disciplinary theoretical approach and applying an empirical indicator validated in the country, which contributes to the discipline and to the profession.

The results allow guiding the care and assistance provided to migrant women, which ensures knowledge transfer to the practice. Although the study scope is descriptive, the correlations explored allow setting forth hypotheses for future surveys.

Limitations

Due to the study population characteristics, a convenience and non-probability sampling method was applied.

Unexpected situations arose during the data collection phase, associated with an institutional crisis that implied momentarily closing the Neonatal Intensive Care Unit, which reduced the number of maternal and newborn admissions to the health institution where the research was developed.

There were two infectious outbreaks in the neonatal unit during data collection; this fact also exerted an effect on sample size.

Recommendations

For the Practice

Furthering educational and training processes for migrant women with hospitalized newborns, adapted to their contextual situation and specific health needs, so that adherence to newborn care is eased, both in the institution and at discharge.
Devising emotional and psychological support strategies for the migrant population on the part of the nursing personnel and early differing , favoring the expression of overwhelming emotions around the newborns' diseases and enhancing not only these mothers' trust in Nursing but also their perception of comprehensive well-being.

Favoring spaces that ease interaction among peers, both in rest areas and in the neonatal unit that allow sharing experiences regarding neonatal care outcomes in the mothers and their families, as well as expressing feelings as a coping mechanism.

For Research

It is recommended to conduct research studies on educational processes targeted at the migrant population and focused on understanding relevant aspects about the lack of clarity in the information, which generates high uncertainty levels among women in hospital environments.

Favoring collaboration and intersectoral research processes to broaden the scope of the results and regarding their application to the practice and the health care provided to the migrant population.

Developing study programs that address the phenomena about the migrant population in Colombia (which has increased in the last few years), with the objective of fostering social integration and empathy, and avoiding rejection or xenophobia perceptions.

For Training

Fostering interest in conducting research processes from Nursing undergraduate courses and in using theoretical frameworks that increase disciplinary contributions and care derived from their results.

Fostering respect and empathy in treating the migrant population, acknowledging this current social phenomenon as a reality in the country, based on developing cultural care competency.

Encouraging companies and health/educational institutions, among others, to increase inclusion of the migrant population; this will improve dignified job opportunities with adequate economic remuneration.

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