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Effect of an Educational Intervention on Breastfeeding Knowledge and Attitude in Pregnant Adolescents

Efecto de una intervención educativa en conocimientos y actitudes sobre lactancia materna en adolescentes embarazadas

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ABSTRACT

Introduction: Breastfeeding is the ideal food for the proper development of the child, the decision to breastfeed and its maintenance in a teenage mother is a complex process, the support network and health systems play an important role.
Objective: to determine whether an educational intervention improves knowledge and attitudes regarding breastfeeding in pregnant adolescents.
Methods: Through an intragroup quasi-experimental investigation, the questionnaire was applied to evaluate knowledge and attitude about breastfeeding by Hernández et al. in pregnant adolescents who attended the prenatal control program of a low-level complexity health institution in Cali. Then, an educational intervention on breastfeeding was carried out with a debate among the participants and distribution of a brochure. Four weeks later, the questionnaire was administered again. The non-parametric sign test was used to estimate the effect.
Results: Fifty-six pregnant adolescents were included, with an average age of 18.6 ± 1.8 years. Most had completed secondary education (84%), were single (78.6%), and belonged to the low socioeconomic stratum (57%). The majority were in their first pregnancy (87.5%) and 73% were classified as high obstetric risk because factors like being underweight (23%), being overweight (20%), having an early pregnancy (11%), and having an unwanted pregnancy (9%). Limited knowledge about breastfeeding was found among the participants; however, their attitudes were positive.
Conclusions: Improvement in prior knowledge score, from a median of 3.6 to 4.5, was observed after the educational intervention ($p < 0.001$).

Key Words: Breast feeding; Pregnancy in adolescence; Health education; Social vulnerability; Health pomotion; Pregnancy unwanted

RESUMEN

Introducción: La lactancia materna es el alimento ideal para el adecuado desarrollo del niño. La decisión de amamantar y su mantenimiento en una madre adolescente es un proceso complejo. La red de apoyo y los sistemas de salud juegan un papel importante.

Objetivo: Determinar si una intervención educativa mejora los conocimientos y las actitudes con respecto a la lactancia materna en adolescentes embarazadas.

Métodos: A través de una investigación cuasiexperimental intragrupo, se aplicó el cuestionario para evaluar conocimientos y actitudes sobre la lactancia materna de Hernández et al. en adolescentes embarazadas, que asistieron al programa de control prenatal de una institución de salud de baja complejidad de Cali. Luego, se realizó una intervención educativa sobre lactancia materna con debate entre los participantes y distribución de un folleto. Cuatro semanas después, se volvió a administrar el cuestionario. Para estimar el efecto se utilizó la prueba de signos no paramétrica.

Resultados: Se incluyeron 56 adolescentes embarazadas con una edad promedio de 18,6 ± 1,8 años. La mayoría con estudios de secundaria completos (84%), solteras (78,6%) y del estrato socioeconómico bajo (57%). El 87,5% en su primer embarazo y 73% catalogadas con un alto riesgo obstétrico por estar bajas de peso (23%), con sobrepeso (20%), la edad temprana (11%) y embarazo no deseado (9%). Se encontraron pocos conocimientos sobre lactancia materna, pero actitudes positivas.

Conclusiones: Se obtuvo mejoría en la puntuación de conocimientos previos, de una mediana de 3,6 a una mediana de 4,5, después de la intervención educativa ($p < 0,001$).

Palabras clave: Lactancia materna; Embarazo en adolescencia; Educación en salud; Vulnerabilidad social; Promoción de la salud; Embarazo no deseado.

INTRODUCTION

Breastfeeding is widely acknowledged for its substantial benefits to infant and maternal health. Breast milk is the ideal source of nutrition for newborns, containing all essential nutrients for healthy growth and development [1-6]. Exclusive breastfeeding is sufficient to meet a newborn's nutritional needs for the first 6 months of life, followed by the introduction of nutritionally adequate and safe complementary foods, while continuing breastfeeding for up to 2 years or longer. This practice reduces the incidence and severity of infectious diseases and decreases both infant and maternal morbidity and mortality [1-3,7-10].

There is strong evidence supporting the protective effects of breastfeeding on child and maternal health concerning 14 diseases: nine pediatric (acute lymphocytic leukemia, acute otitis media, Crohn's disease, ulcerative colitis, gastrointestinal infection, respiratory infections requiring hospitalization, obesity, necrotizing enterocolitis, and sudden infant death syndrome) and five maternal (breast cancer, premenopausal ovarian cancer, hypertension, type 2 diabetes, and myocardial infarction) [2,3,5,6,8,9,11].

Breastfeeding promotes and strengthens the attachment between mother and child, benefiting both emotionally. It increases years of schooling and wages in adulthood, highlighting its socioeconomic benefits. Furthermore, breastfeeding has no carbon footprint, as it is a renewable resource that does not produce pollution, packaging, or waste. Therefore, its universal promotion should be a priority for all healthcare professionals [2-5,8,9,11].

Despite campaigns by the World Health Organization, the United Nations Children's Fund and the Instituciones Amigas de la Mujer y de la Infancia (IAMI) promoting pregnant women to breastfeed, the low prevalence of breastfeeding is a global public health concern [3,7,10,12,13]. The Pan American Health Organization (PAHO) reported

that from 2015–2021 approximately 55% of infants are breastfed within the first hour after birth and only 43% of infants <6 months are exclusively breastfed in Latin America and the Caribbean [2,3,6,7]. The National Survey of the Nutritional Situation (ENSIN) conducted in 2015 showed that only one in three children <6 months of age consumed breast milk exclusively in Colombia [14].

This low exclusive breastfeeding practice can lead to poor nutrition during the early stages of the life cycle that can lead to extensive and irreversible damage to physical growth and brain development [2,7]. Among the various factors influencing breastfeeding, preconceived ideas held by mothers based on sociocultural elements, taboos, beliefs, education, feelings of hypogalactia, and concerns that their child is unsatisfied and hungry have been identified. Additionally, very young maternal ages, such as pregnancies in school-aged girls and adolescents as well as the return of mothers to work are significant factors that influence breastfeeding [4,8,11-13].

Deciding to breastfeed and maintaining breastfeeding is a complex process in which support networks, social structures, previous pregnancy experiences, and healthcare systems play an important role [7,8,10,13]. In particular, pregnant adolescents may face unique challenges that influence their decisions and practices. In the adolescent pregnant population, the decision to breastfeed is often delayed due to their psychological vulnerability. Therefore, it is crucial to implement effective interventions to educate these individuals about breastfeeding, which will help them acquire adequate knowledge and overcome myths and misconceptions, promoting a breastfeeding culture [7].

In 2012, the World Health Assembly endorsed a global nutrition target to increase the rate of exclusive breastfeeding during the first 6 months of age among new born children to at least 50% by 2025 [2,12]. The World Breastfeeding Week is celebrated every year from August 1 to 7 as a campaign to raise awareness and stimulate action on breastfeeding issues, aligned with the United Nations Sustainable Development Goals since 2016 [13].

For the above reasons, this research aimed to determine whether an educational intervention could improve knowledge and attitudes regarding breastfeeding among pregnant adolescents attending a prenatal care program at a low-complexity healthcare institution.

MATERIALS AND METHODS

Design

A quantitative, intragroup quasi-experimental study was conducted by administering a questionnaire on knowledge and attitudes regarding breastfeeding to the same group of pregnant adolescents, before and after an educational intervention.

Study population

A total of 96 pregnant adolescents who attended the prenatal control program of Hospital Joaquín Paz Borrero, ESE Norte in Cali and agreed to participate by signing an informed consent form were included. Participants answered the knowledge and attitude

assessment instrument on breastfeeding and received an educational intervention. There were 56 adolescents who returned four weeks later to answer the instrument again. These adolescents became the definitive sample to evaluate the effect of the intervention. Adolescents who had started the research process and presented pregnancy-related complications that limited their participation were excluded.

Sample and sampling method

All adolescent girls who were enrolled in the program and met the selection criteria were recruited non-probabilistically and by convenience upon their arrival at the hospital.

Instrument for assessing knowledge and attitude regarding breastfeeding in adolescents

The instrument to assess knowledge and attitudes toward breastfeeding in adolescents was validated by Hernández et al. [15,16] in a sample of 263 adolescents of both sexes, aged 13–18 years, from two schools—one located in an urban area and the other in a rural area of the Canary Islands, Spain. This research was presented and published in the proceedings of the IV Spanish Breastfeeding Congress, Ergon, Tenerife, 2006. A short questionnaire with 11 closed-ended questions was used, as it was considered necessary to complete the task quickly to ensure applicability and student collaboration. The questions were selected based on recommendations from literature and were evaluated in advance by teachers and breastfeeding experts. The appropriateness, relevance, representativeness, and clarity of the questions for the students' age group were also checked.

The questionnaire included eight questions on breastfeeding knowledge, awarding one point for each correct response and zero for each incorrect answer. A total score was derived from the sum of these scores, supported by the fact that the corresponding Cronbach's Alpha coefficient reached a high value (0.68). The questions were as follows: Do all women produce breast milk after giving birth?; Is the breast milk of all women suitable for consumption by a newborn?; Is it convenient to give a bottle of milk after breastfeeding to satisfy a newborn's hunger?; Up to what age can a child drink breast milk?; In addition to being a source of nourishment, do you believe that breast milk offers other benefits?; How often should a newborn be breastfed during the day?; How often should a newborn be breastfed at night?; and What do you think is the most important thing when a child is born?

Additionally, three questions on attitudes toward breastfeeding were included, which showed high heterogeneity (Cronbach's Alpha coefficient was only 0.32). Therefore, it was recommended to analyze the responses separately rather than together. Those who answered affirmatively to the question "Do you think it is acceptable for a mother to breastfeed in public?", those who believed that breastfeeding does not harm the breast, and those who considered breastfeeding easier for the mother than bottle feeding were considered to have a positive attitude toward breastfeeding. Other variables to characterize the adolescents included in the study were sociodemographic factors, such as age, education level, marital status, ethnicity, socioeconomic status, occupation, neighborhood, social security system, and healthcare provider. Additionally, clinical variables, such as gestational age, weeks of pregnancy, number of prenatal visits, and obstetric risk, were considered.

Methodology

Preintervention Phase: permission was obtained from the authors to use this instrument. Once all pregnant adolescents were informed about the study objective and procedures as well as the freedom to participate, they were asked to read the informed consent form, given time to ask questions, and were asked to provide their consent by signing the form. Subsequently, they were given the questionnaire on knowledge and attitudes regarding breastfeeding by Hernández et al., which contained eight questions on knowledge and three on attitudes toward breastfeeding. This allowed for the establishment of the baseline prior to the application of the educational strategy.

Intervention Phase: this activity took place in two stages: The adolescents attended a 40-minute interactive session, initially emphasizing the nutritional, immunological, and psychological benefits of exclusive breastfeeding up to 6 months, with continued breastfeeding up to 2 years. The session also addressed the importance of initiating breastfeeding immediately postpartum, debunked myths that could lead mothers to stop breastfeeding prematurely, clarified that complementary foods should not replace breastfeeding, and emphasized the importance of maintaining breastfeeding for the internationally recommended duration. This was reinforced through reciting anecdotes. Subsequently, a decision-making exercise was conducted where participants discussed whether to breastfeed. This was followed by a debate to address participants' questions and the distribution of an informative brochure on breastfeeding.

Postintervention Phase: four weeks after the educational intervention, the same questionnaire by Hernández et al. was readministered to the participants.

Data Analysis

Data was entered daily into a database created in Microsoft Office Excel 2007, with missing or erroneous data flagged for immediate correction. A descriptive analysis of the qualitative variables was conducted using absolute and relative frequencies, while quantitative variables were analyzed using measures of central tendency (median or mean) and measures of dispersion (interquartile range or standard deviation), depending on the distribution of each variable, using the SPSS 29.0.0.0 statistical software for Windows.

To assess the effect of the educational intervention on knowledge and attitudes regarding breastfeeding, a nonparametric sign test was used to compare the median scores from the preintervention questionnaire with those from the postintervention questionnaire. A significance level of 95% was applied. No difference between the two medians was considered as the null hypothesis, whereas a difference between the medians after the educational intervention was considered as the alternative hypothesis. Additionally, the symmetry coefficient was calculated for the scores obtained from the questionnaire to assess the data's symmetry.

Ethical aspects

The preliminary project for this research was reviewed and approved by the Research Ethics Committee of the Faculty of Health at the Universidad Santiago de Cali, as documented in the records dated April 16, 2021, and by the Ethics Committee of the

healthcare institution ESE Norte in Cali, as documented in record no. 05 dated April 30, 2021. The principle of beneficence was ensured as the adolescents did not face any risks when answering the questionnaire; in fact, the educational intervention provided a benefit by improving their knowledge and attitudes about breastfeeding. To uphold the principles of respect and autonomy, adequate communication about the project was provided to the participants, ensuring their anonymity and confidentiality. Informed and parental consent forms were read, time was allowed for answering questions, and participation was voluntary, with participants signing a form to indicate their agreement to participate.

RESULTS

Fifty-six pregnant adolescents were recruited, with an average age of 18.6 ± 1.8 years, ranging from 14 to 22 years. Table 1 shows that most participants had completed secondary school (84%) and were single (78.6%). Regarding their social security system, 51 (91%) of the participants were enrolled in the subsidized healthcare system, which provides healthcare services via subsides to those who cannot afford to pay. The remaining five adolescents were unaffiliated with the subsidized system and received healthcare services through the municipal public health department. Half of the adolescents were classified as mestizo, 57% were from the low socioeconomic stratum (stratum 2/6), and 52% had no defined occupation.

Table 1: Sociodemographic characteristics of pregnant adolescents. Hospital Joaquín Paz Borrero, Cali.

Features	**n**	**%**
Ethnicity		
Afrodescendant	5	8.9
Mestizo	28	50
Other	23	41.1
Marital status		
Single	44	78.6
Free union	12	21.4
Education		
Incomplete elementary school	5	9
Primary school	4	7
High school	47	84
Socioeconomic stratum		
Low-low (1)	5	9
Low (2)	32	57
Medium-low (3)	19	34
Social security		
Subsidized	51	91
Not linked	5	9
Occupation		
Housewife	12	21
Student	15	27
No occupation	29	52

Source: Own elaboration

Table 2 shows the clinical variables: 87.5% of the adolescents were in their first pregnancy, 54% in their third trimester, and 45% in their second trimester. The number of pregnancy controls was in accordance with the trimester of pregnancy: between one and two controls for the only pregnant participant in the first trimester, nine controls for the one in the second trimester and four controls for the one in the third trimester. Between three and five controls there were 16 pregnant women in the second trimester and 13 pregnant women in the third trimester. Between six and eight controls there were 13 pregnant women in their third trimester.

Table 2: Clinical features of pregnant adolescents. Hospital Joaquín Paz Borrero, Cali.

Features	**n**	**%**
Pregnancy		
First pregnancy	49	87.5
Second pregnancy	7	12.5
Trimester of pregnancy		
First	1	2
Second	25	45
Third	30	54

Source: Own elaboration

Table 3 shows that 73% of these pregnant adolescents were classified as having a high obstetric risk, the main reasons being: underweight (23%), overweight (20%), young age (11%) and unwanted pregnancy (9%). Of the seven adolescents who were in their second pregnancy, one reported a vaginal delivery and another an abortion.

Table 3: Obstetric risk of pregnant adolescents. Hospital Joaquín Paz Borrero, Cali.

Obstetric risk	**n**	**%**
High obstetric risk	41	73
Abortion	3	5
Low weight	13	23
Early age	6	11
Unwanted pregnancy	5	9
Other conditions	1	2
No support network	1	2
Overweight	11	20
Tuberculosis	1	2
Low obstetric risk	15	27

Source: Own elaboration

Table 4 shows that the score obtained by the adolescent pregnant women when answering the eight breastfeeding knowledge questions was low prior to the educational intervention, with a median of 3.6 with a range between 0.9 and 5. Six questions showed low knowledge with percentages of correct answers <70%. In four of these six questions, less than half of the participants had adequate knowledge (<50%). The worst answered question was the recommended duration of breastfeeding up to 2 years (33.9%).

Table 4: Percentage of correct answers to the questions on breastfeeding knowledge and scale score before and 4 weeks after the intervention. Hospital Joaquín Paz Borrero, Cali.

Knowledge questions	% of correct answers before the intervention	% of correct answers after the intervention
1. Do all women produce breast milk after giving birth? (Yes/No)	69.6	98.2
2. Is the breast milk of all women suitable for consumption by a newborn? (Yes/No)	82.1	92.8
3. Is it convenient to give a bottle of milk after breastfeeding to satisfy a newborn's hunger? (Yes/No)	**48.2**	82.1
4. Up to what age can a child drink breast milk? (6 months/up to 2 years old or older/until teething)	**33.9**	**73.2**
5. In addition to being a source of nourishment, do you believe that breast milk offers other benefits? (Yes/No)	78.5	100
6. How often should a newborn be breastfed during the day? (4 times a day/every 3 hours/whenever the baby wants to)	**51.7**	89.2
7. How often should a newborn be breastfed at night? (every 3 hours/every time the baby wants to)	69.6	83.9
8. What do you think is the most important thing when a child is born? (Bathing/bottle feeding/contact with their mother/being in a crib)		98.2

Knowledge score	Median (range) before the intervention	Median (range) after the intervention	p value
Number of correct answers	3.6 (0.9–5)	4.5 (2.7–5)	<0.001

Source: Own elaboration

Table 5 shows that the answers given by the pregnant women to the three questions related to breastfeeding attitudes were >80% of the correct answers prior to the educational intervention.

Table 5: Percentages of correct answers to the questions on attitudes toward breastfeeding before and 4 weeks after the intervention. Hospital Joaquín Paz Borrero, Cali.

Attitude questions	% of correct answers before the intervention	% of correct answers after the intervention
1. Do you think it is acceptable for a mother to breastfeed in public? (Yes/No)	91	100
2. Do you think breastfeeding harms the breast? (Yes/No)	80.3	92.8
3. Which is easier for the mother? (breastfeeding/bottle feeding)	89.2	100

Source: Own elaboration

The score obtained by the adolescents when answering the eight knowledge questions after the educational intervention improved, showing a median of 4.5 with a range between 2.7 and 5. With the exception of the question on the recommended duration of breastfeeding (73.2%), all of them had >80% correct answers above. Table 4. The answers given by the pregnant women to the three questions related to attitudes improved, with >90% correct answers after the intervention.

The nonparametric sign test showed a positive effect of the educational intervention on breastfeeding knowledge by showing statistically significant differences between the median pre- and postintervention scores. The knowledge scores of 46 adolescents increased (improved), six remained the same, and four decreased from preintervention scores. The percentage of positive attitudes toward breastfeeding was high before and after the intervention.

DISCUSSION

The first finding of this study was the low level of knowledge about breastfeeding in the study population (aged range: 14–22 years), with majority experiencing their first pregnancy (87.5%). The initial score obtained from the Hernández et al. [15] questionnaire, which included eight knowledge questions showed a low median of 3.6, with six questions out of eight, and a percentage of correct answers <70% among the participants.

These six questions (topics on breastfeeding) should be taken into account in educational talks in all prenatal control programs for pregnant women. The question on the recommended duration of breastfeeding up to 2 years of age was the one that showed the greatest lack of knowledge among the participants, as only 19 (33.9%) mothers answered correctly. Additionally, there was a lack of knowledge on the number of times a newborn should receive breastfeeding during the day and at night; half (51.5%) and less than half (44.6%) of the participants, respectively, answered correctly. Likewise, more than half (51.8%) of the participants did not know whether it is convenient to give a bottle of milk after breastfeeding to satisfy a newborn's hunger. The percentage of correct answers was close to 70% in the following two questions: "Do all women produce breast milk after giving birth?" and "What do you think is the most important thing when a child is born?" (69.6%). This findings are similar to those in the second study of Hernández et al. [16], where, in the preintervention phase,

significant lack of knowledge was found on the same topics regarding breastfeeding among 970 adolescents from Tenerife, Spain. Specifically, only 15.3% answered correctly regarding the recommended duration of breastfeeding until 2 years, and only 25.2% correctly answered the question about the frequency of breastfeeding during the day and night. Thus, it is crucial to emphasize on the numerous benefits of breastfeeding to women in prenatal care and the newborn. In addition to the strong evidence on the protective effect in relation to 14 diseases in the mother–child binomial, the reduction of the weight gained during pregnancy to preconceptional weight is a benefit of prolonged breastfeeding that can have a positive impact on pregnant and postpartum women, and this should be highlighted [5,8-10].

This weight loss will benefit the mother's physical and mental health. [5,8-10,17] Starting pregnancy while being overweight or obese or having excessive weight gain during pregnancy is associated with pre-eclampsia, gestational diabetes, postpartum weight retention, and the risk of noncommunicable diseases. For the baby it is associated with being born large for gestational age, overweight, with hypertension and with an inflammatory metabolic profile from childhood to adolescence [2,3,5,7,9,18,19]. Body image influences thoughts, emotions, and behavior. Additionally, adolescence is a period of identification, and when seeking identification, misbelief about what the body should be can lead to body dissatisfaction and eating disorders [17].

It is also important to clarify the physiology of breastfeeding: placing the baby at the breast as often as needed, during the day and at night, to increase milk production, exclusively breastfeeding during the first 6 months, not offering formula during this period, and introducing complementary feeding at 6 months. This can allow breastfeeding to continue for up to 2 years or longer. All this should be explained so that ignorance does not lead to actions that hinder breastfeeding and increase the risk of early weaning [1-3,8,12].

Another benefit that can positively impact pregnant and postpartum women in favor of breastfeeding is that it enhances the intelligence of babies. The PAHO reports that adults who were breastfed as children score 3.4 points higher on cognitive development indicators, which correlates with more years of schooling and higher income in adulthood. It also states that breastfeeding could save 302 billion dollars annually worldwide through the increase in IQ across the population [2]. It further recommends that breastfeeding be made an imperative public health policy:

"If there were a new vaccine that could prevent 1 million or more infant deaths each year, and which was cheap, safe, orally administered, and did not require a cold chain, it would be a public health imperative. Breastfeeding can achieve this and more." [2,3,13]

Improved child development and reduced healthcare costs from breastfeeding generate economic benefits for families and countries. Additionally, companies that support breastfeeding in the workplace report higher employee retention, performance, loyalty, productivity, and team spirit [2].

All of this highlights how providing adequate education for mothers to succeed in extended breastfeeding offers health benefits for the mother and baby as well as emotional, affective, and socioeconomic benefits for their future. It is important to consider the large populations in our country and around the world that face economic

hardship, such as the group of pregnant adolescents in this study, who showed a high percentage of social risk—78.6% were single, 66% came from low socioeconomic backgrounds (stratum 1 and 2/6), 52% had no defined occupation, and 84% had completed secondary education, but none had pursued university studies. A study by Zabaraín and Fernández [20] on sociodemographic indicators, sexuality, and pregnancy in 88 adolescents showed similar findings: only 30 had completed high school, and none had started university studies. These factors, as part of the social determinants of health, could impact these adolescents' decisions regarding their sexual and reproductive health.

Ballesta-Castillejos et al. studied factors influencing prenatal decisions to breastfeed in Spain and found that having prior positive breastfeeding experience (OR 6.99, 95% CI 3.46–14.10) and receiving maternal education that included breastfeeding information (OR 2.10, 95% CI 1.32-3.34) were decisive and had a positive influence. [7] This aligns with other studies, such as the one conducted by Lutsiv et al., who found higher formula-feeding rates among mothers who did not receive prenatal maternal education. [21] Ballesta-Castillejos et al. also recommended combining online actions with more traditional methods, such as maternal education led by healthcare professionals, to improve breastfeeding outcomes. During International Breastfeeding Week, they recommended using technology to improve breastfeeding outcomes in terms of reducing costs and overcoming geographic limitations [13].

Several authors have shown that breastfeeding-friendly environments, such as acceptance of breastfeeding by cohabiting family members and the availability of breastfeeding rooms in public places, is associated with a higher likelihood of exclusive breastfeeding until 6 months [10,12,13]. In July 2023, the Colombian presidency passed Law 2306 of 2023, which creates incentives and regulations for the construction of areas in public spaces that allow breastfeeding without discrimination or restriction to protect and support motherhood and early childhood [22].

In addition to the high social risk, this group of 56 adolescent pregnant women who were intervened also faced high obstetric risks because of being <20 years of age. Additionally, 23% were underweight, 20% were overweight, and nine had an unwanted pregnancy. Adolescents are more likely to experience complications during childbirth, not only because of physiological conditions, such as underdeveloped pelvic anatomy, which increases the incidence of cephalopelvic disproportion, but also due to sociocultural variables and the level of care they receive. Because adolescent pregnancies are often unplanned and unwanted, it typically leads to insufficient and delayed prenatal care. In the study by Bendezú et al. [23] 60% of adolescents were overweight and obese. Marrero et al. found that adolescent mothers had the highest risk of abandonment and nonadherence to breastfeeding. [24] Several authors have reported that conditions like overweight, obesity, hypertension, or gestational diabetes decrease the likelihood of successful breastfeeding [6,7,9,10,18,19,21,23].

Another finding in this study was the improvement in breastfeeding knowledge in 46 of the 56 pregnant adolescents after the educational intervention. Correct responses increased by >80% for all eight knowledge questions, except for the question related to the recommended duration of breastfeeding up to 2 years or more. This question was the least correctly answered before the intervention, with only 33.9% of participants answering correctly. However, after the intervention, it improved to 73.2%. The statistical test also showed significant differences between pre- and

postintervention medians, with values of 3.6 (0.9–5) and 4.5 (2.7–5), respectively, with a p value <0.001. In the two studies by Hernández et al. conducted in 2006 [15] and 2008 [16] in Spain as well as in the study by Marrero et al. [24], wherein educational interventions on breastfeeding knowledge and attitude were conducted with pregnant adolescents, a notable improvement in mothers' knowledge was also found. In the second study by Hernández et al. [16], the percentage of correct answers regarding the recommended duration of breastfeeding rose to 70.4%, and the frequency of daytime and nighttime breastfeeding increased to 83.6%. Regarding the three questions on attitudes toward breastfeeding among adolescent pregnant women, positive attitudes were found before the educational intervention, with appropriate responses >80%, and >90% after the intervention. The first study by Hernández et al. [15] showed an increase in the acceptance of breastfeeding in public places from 72.1% to 88.3%, and an improvement in responses to the question of whether it is easier for women to breastfeed than to bottle-feed, which rose from 27.9% to 51.4% after the educational intervention. In the second study by Hernández et al. [16] also showed improvements in acceptance of breastfeeding in public (from 73.1% to 84.8%), easier breastfeeding compared to bottle feeding (from 43.3% to 64.3%), and the belief that breastfeeding does not harm the breast (from 35.1% to 50.1%) after the educational intervention. Hernández et al. [16] emphasized the importance of promoting the image of breastfeeding women, normalizing breastfeeding, and reinstating the nutritional function of the breast among the school-going population and adolescents, as they will be the parents in the future.

In the present study, the limitation of not being able to contact all of the initial 96 adolescent pregnant women for their return four weeks after the educational intervention was a limitation, reducing the final number to 56.

CONCLUSIONS

A low level of knowledge about breastfeeding was found in this group of 56 adolescent pregnant women attending high social and at risk of obstetric. After applying an educational strategy focused on breastfeeding knowledge and attitude, an improvement in their knowledge was achieved. The three questions related to attitude toward breastfeeding received favorable responses.

It is expected that this improvement in knowledge will lead to successful and prolonged breastfeeding among these adolescents, with all the known benefits for the mother and baby.

In the educational talks given to pregnant women in prenatal care programs, we recommend considering the five questions that revealed limited knowledge about breastfeeding among the adolescent pregnant women in this study to enhance the educational strategy and address this gap.

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