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Exercises adapted for the inclusion of pregnant adolescents in the Physical Education class

[*Ejercicios adaptados para la inclusión de adolescentes embarazadas a la clase de Educación Física*]

[*Exercícios adaptados para inclusão de adolescentes grávidas nas aulas de Educação Física*]

Julio Cesar Gallo Castro[1*], *Miguel Jesús Viteri López*[1], *Damaris Hernández Gallardo*[2], *Giceya de la Caridad Maqueira Caraballo*[1]

[1] Bolivarian University of Ecuador. Guayas, Ecuador

[2] Eloy Alfaro Secular University of Manabí. Manta, Ecuador

* Corresponding author: damaris.hernandez@uleam.edu.ec

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ABSTRACT

Introduction: Early pregnancy is a situation faced by educational, health and family systems in the Latin American region and is characterized by not only biological, but also social and economic consequences, including isolation and rejection.

Objective: to propose an adapted physical exercise program that contributes to the process of including pregnant adolescents in the Physical Education class.

Materials and Methods: A qualitative approach research was presented on a population of 18 pregnant adolescents distributed in six educational centers in the city of Guayaquil. The six directors of the centers, the six Physical Education teachers and two obstetricians were also interviewed. Scientific observation and interviews were used to collect information.

Results: The students under study did not practice any physical exercise on a regular and planned basis, they were not integrated into Physical Education classes, they were only oriented to research work during those hours and they felt isolated and rejected by both family and friends. Physical Education teachers have not received orientation and training for working in classes with pregnant women. The proposed program contains activities to contribute to the physical exercise of pregnant women, following the guidelines of physicians, which was validated for its application by expert criteria.

Conclusions: The Adapted Exercises program is suitable for including pregnant students in Physical Education classes and benefiting their health.

Keywords: Physical Education, adapted physical exercises, early pregnancy, inclusion.

RESUMEN

Introducción: el embarazo precoz es una situación que enfrentan los sistemas educativos, de salud y las familias en la región latinoamericana y se caracteriza por sus consecuencias no solo biológicas, sino también sociales y económicas, entre las que se encuentran el aislamiento y el rechazo.

Objetivo: proponer un programa de ejercicios físicos adaptados que contribuyan al proceso de inclusión de adolescentes embarazadas a la clase de Educación Física.

Materiales y métodos: se presentó una investigación de enfoque cualitativo sobre una población de 18 adolescentes embarazadas distribuidas en seis centros educativos de la ciudad de Guayaquil, de los que se entrevistó además a los seis directores de los centros,

los seis docentes de Educación Física y dos médicos obstetras. Para recolección de información se utilizaron la observación científica y la entrevista.

Resultados: las estudiantes objeto de estudio no practicaban ningún ejercicio físico de forma regular y planificada, no se integraron a las clases de Educación Física, solo se les orientan trabajos investigativos en esas horas y se sienten aisladas y rechazadas tanto por familiares como por amigos. Los docentes de Educación Física no han recibido orientaciones y capacitaciones para el trabajo en las clases con embarazadas. El programa propuesto contiene actividades tanto para contribuir a la ejercitación física de la embarazada, siguiendo las orientaciones de médicos, el que quedó validado para su aplicación por criterio de expertos.

Conclusiones: el programa de Ejercicios adaptados es apto para incluir a las estudiantes embarazadas a las clases de Educación Física y beneficiar su salud.

Palabras clave: Educación Física, ejercicios físicos adaptados, embarazo precoz, inclusión.

RESUMO

Introdução: A gravidez precoce é uma situação enfrentada pelos sistemas educativo, de saúde e familiar na região latino-americana e caracteriza-se pelas suas consequências não só biológicas, mas também sociais e económicas, entre as quais o isolamento e a rejeição.

Objetivo: propor um programa de exercícios físicos adaptados que contribua para o processo de inclusão de adolescentes grávidas nas aulas de Educação Física.

Materiais e métodos: foi apresentada uma pesquisa de abordagem qualitativa sobre uma população de 18 adolescentes grávidas distribuídas em seis centros educacionais da cidade de Guayaquil, dos quais os seis diretores dos centros, os seis professores de Educação Física e os dois médicos obstetras. Observação científica e entrevistas foram utilizadas para coletar informações.

Resultados: Os alunos em estudo não praticavam qualquer exercício físico de forma regular e planeada, não participavam nas aulas de Educação Física, apenas eram

ensinados trabalhos investigativos nesses horários e sentiam-se isolados e rejeitados tanto pela família como pelos amigos. Os professores de Educação Física não têm recebido orientação e capacitação para atuarem nas aulas com gestantes. O programa proposto contém atividades para contribuir com o exercício físico da gestante, seguindo as orientações dos médicos, o qual foi validado para sua aplicação por critérios especializados.

Conclusões: o programa de Exercícios Adaptados é adequado para incluir estudantes grávidas nas aulas de Educação Física e beneficiar sua saúde.

Palavras-chave: Educação Física, exercícios físicos adaptados, gravidez precoce, inclusão.

INTRODUCTION

Adolescence is a stage of the ontogenetic development of the individual in which accelerated physical and psychological changes take place associated with sexual maturation that have an impact on their emotional and social behaviors, which makes it a "convulsive", problematic stage of questions and challenges (Gaete, 2015; Brittany Allen y Helen Waterman, 2019; Silva Diverio *et al.*, 2022). Like all transition stages, its beginning and end are not marked at a specific age and there is no general consensus regarding this, but it is usually evident by the onset of puberty at approximately 10 years of age and concludes when the biological changes and psychological developments reach greater stability at 19 or 24 years of age (Serapio Costa, 2006; Equipo editorial, Etecé. De: Argentina, 2021; Brittany Allen y Helen Waterman, 2019; UNICEF, 2024.; Cortés Alfaro *et al.*, 2021).

In adolescence, sexuality constitutes an important aspect in behavior, attitudes, emotions and values that are expressed in interpersonal relationships at all levels, it is influenced by biopsychosocial factors and regulated by culture, ethics, religion, cultural level and family, where the search for identity, acceptance in the group and the opinion of peers are fundamental elements for the adolescent and make this a critical, vulnerable and

risky stage in terms of their sexual behavior (Gómez Suárez *et al.,* 2019; Calero Yera *et al.,* 2017; Brisa, 2021; Chanamé-Zapata *et al.,* 2021).

The behavior of adolescents today indicates that the beginning of sexual relations is increasingly at younger ages with all the risks that come with, among them are sexually transmitted diseases and early pregnancy (Losa-Castillo y González-Losa, 2018; López Castro *et al.,* 2020; Saavedra Alvarado *et al.,* 2021) in this regard, it is estimated that in the world approximately 1,000,000 adolescents give birth each year and between 60 % and 90 % are unwanted pregnancies and without medical follow-up; approximately 3 million women aged 15 to 19 years undergo abortions in life-threatening conditions, making early pregnancy a global public health problem (Sampayo Espinosa *et al.,* 2019).

Latin America and the Caribbean is considered among the first subregions with the highest rate of pregnant adolescents, only surpassed by Sub-Saharan Africa (Vargas, 2023; OPS. OMS, 2018); 46 births are reported per year for every 1,000 adolescents in the world, and in Latin America and the Caribbean it is 66.5 in age between 15 and 19 years old, with approximately 2 million births annually, in addition to being the only region with an increase in pregnancies in children under 15 years of age (OPS. OMS, 2018). Ecuador is the fourth country in the region with the highest number of pregnancies between 15 and 19 years of age (Cepal. ONU, 2024), the Ecuador Ministry of Health (MSP by its acronym in Spanish) points out that "every day, seven girls between 10- and 14-years old give birth in Ecuador and 41 thousand girls and adolescents become mothers" (La Hora, 2022)

In the particular case of Ecuador, in 2019, 51,711 live births of adolescents between 10 and 19 years old were registered, and of these 1,816 were between the ages of 10 and 14, which is considered alarming, in many cases they are the product of violence and incest. (Veletanga, 2020). The majority of pregnancies in adolescents are considered unwanted, caused by the practice of sexual relations without contraceptive methods and sexual abuse, the same can reach term, resulting in birth or being interrupted, in addition, maternal mortality at these ages is one of the main causes of death in adolescents (OPS. (OMS, 2018; UNFPA, 2020).

Early pregnancy is characterized by its consequences not only biological, but also social and economic; adolescent mothers, in addition to presenting a higher risk of hypertension, anemia, preeclampsia, seizures, intrauterine infections, high risk of neonatal and maternal mortality, "the adolescent pregnant woman and her child run higher risks of morbidity and mortality compared to groups of women aged 20 and 35, especially if the adolescent is under 16 years of age" (Cubillos Romo, 2017), are exposed to poverty, sexual violence, neonatal deaths and student dropout, fundamentally, which makes them vulnerable from a social point of view, (Veletanga, 2020; CARE Ecuador; World Vision; Plan International Ecuador; Programa Mundial de Alimentos, 2021). They are generally forced to abandon the school system "being left with a very low level of education and learning that does not allow them to access sources of decent work and satisfy their needs." (Vera Caiche y Hernández Bazán, 2023).

In Ecuador, 195,188 children and adolescents will be studying in 2022 and that among the most significant factors is early pregnancy with 9.9 % (La Hora, 2022), pregnant girls and adolescents do not have support from the state (Veletanga, 2020) and in schools they do not participate in Physical Education classes and generally they do not perform any other exercise and although it is reported in the literature that during pregnancy physical inactivity increases between 64.5 % and 91.5 %, the benefits of physical exercise for the mother and fetus in this period are well known (Aguilar Cordero *et al.,* 2014).

Sedentary lifestyle during pregnancy is associated with increased probability of infant admission to neonatal intensive care, preterm labor, low birth weight, intrauterine growth restriction, cesarean section, maternal overweight and high blood pressure (Aguilar Cordero *et al.,* 2014; Pérez Iribar G. *et al.,* 2019).

During adolescence, accelerated anatomical-physiological changes occur, in the same way during pregnancy, where not only the proportion of the limbs and trunk changes, the appearance of secondary sexual characteristics, development of the breasts, widening of the hips, but also "the growth of the uterus causes a change in the center of gravity, which leads to a progressive increase in lumbar hyperlordosis and a rotation of the pelvis with respect to the femur" (Aguilar Cordero *et al.*, 2014, p. 720), cardiovascular

and metabolic changes in pregnancies lead to body weight gain , "the lipid reserve deposit and the amount of proteins increase, carbohydrates are stored in the liver, muscles and placenta, blood lipids and cholesterol are elevated, hormonal changes produce significant fluid retention" (López-Loman *et al.*, 2021, p. 495).

Studies carried out worldwide highlight that physical exercise in pregnant women "prevents excessive weight gain, arterial hypertension and gestational diabetes... the benefit is not only for the mother, but also for the baby, as it reduces the risk of high weight, which could lead to a dystocic labor" (Aguilar Cordero *et al.*, 2014, p. 720), it facilitates natural childbirth by strengthening the muscles, skeletal structures and increase the flexibility of the ligaments that allows increasing the diameter of the opening of the cervix at the time of delivery, increases the production of endorphins, strengthens cardiovascular activity, prevents urinary incontinence, increases cardiorespiratory capacity, decreases lower back pain and allows for a faster recovery (Aguilar Cordero *et al.*, 2014; Pérez Iribar G. *et al.*, 2019; López-Loman *et al.*, 2021).

The Physical Education class must also contribute to the inclusion of pregnant adolescents in the educational process, where physical exercise and sexual education are linked through appropriate and interesting activities for adolescents, managing to awaken in them interest, empathy, responsibility and solidarity and in this way true inclusion is achieved and not just a process of integration, contributing to the development of healthy lifestyle habits and social, emotional and cognitive growth, in all of which the teacher of the subject has a fundamental role and must respond to this great challenge in a creative way.

However, in Ecuador, there are no physical exercises adapted for pregnant adolescents in the Physical Education programs of Middle School and High School, which is why they are excluded from the subject, in which research activities are indicated to them, a situation that was manifested in all the educational institutions visited, which is why we propose as an objective of this research: to propose a program of adapted physical exercises that contribute to the process of inclusion of pregnant adolescents in the Physical Education class.

MATERIALS AND METHODS

The research is a hermeneutical study that responds to the interpretive paradigm, qualitative approach, according to the gnoseological objective it is descriptive, by its context it is field and according to the control of the variables it is non-experimental and cross-sectional.

The study population consisted of 18 pregnant adolescents between the ages of 14 and 19 and knowledge of educational institutions in the 2023-2024 academic period distributed in five schools in the southern sector of the city of Guayaquil (Table 1).

Table 1. *- Study population. Pregnant students reported in educational institutions*

Educational institutions	Registration	Pregnant students
Amaryllis Fuentes School	2,750	2
José María Egas School	1,250	2
Juan Tanca Marengo School	450	0
Francisco Arizaga Luque School	580	4
Blanca Gilbert Intriago School	320	1
Joaquín Gallegos Lara School	714	9

We worked with all pregnant adolescents from these educational institutions, who gave informed consent to participate in the research.

The six directors of the educational institutions and their six Physical Education teachers also participated in the study to verify the planning of physical exercises for pregnant women. Ten other teachers in the area were interviewed to determine what adapted exercises could be developed for the inclusion of pregnant adolescents in Physical Education classes, as well as two obstetricians to learn about the risks of the different types of exercises during pregnancy periods.

The methods used in the research were scientific observation and interviews, the former to determine the participation of pregnant women in Physical Education classes and the latter to know their future permanence in the educational system and the performance

of physical exercises during pregnancy. Physical Education directors and teachers were interviewed to find out the level of inclusion of pregnant students in Physical Education classes and the exercises they perform. For the analysis of the data, the assignment of categories, typification and determination of levels of coincidence in the answers given were used. For the analysis of the interviews, we used ATLAS.ti23.

In addition, the theoretical evaluation of the research is carried out using expert criteria with the application of the DELPHY technique.

Preparatory phase:

- Expert selection
- Determination of objectives and development of the questionnaire

Consultation phase:

- Sending the questionnaire to the selected experts
- Analysis of the responses and determination of points of agreement and disagreements.
- Feedback on the results of response processing
- (This phase is repeated as many times as the researcher has determined or is necessary)

Results phase:

- Determination of consensus
- Results report

For this purpose, the competence coefficient (k) of the expert in the topic under investigation was determined by means of a self-assessment and the formula (k= ½ (kc + ka) was used, where (kc) is the Knowledge or Information Coefficient and it was calculated using the formula is Kc = n (0.1) and ka is Argumentation Coefficient and was determined by the formula Ka =a ni = (n1 + n2 + n3 + n4 + n5 + n6).

RESULTS AND DISCUSSION

Validation is carried out by expert criteria, for which three fundamental phases are designed: (Hurtado de Mendoza Fernández, 2012; Pérez Iribar *et al.,* 2017). As a result of the interview with the pregnant adolescents, it was found that their pregnancy stages varied between 1, 2, 3, 4, 5, 6, and 8 months of gestation (Table 2), and all of them claimed that they do receive medical care, except for one low-income student (Table 2).

Table 2. *- Distribution of the study population by the different trimesters of pregnancy*

First Trimester	Second Trimester	Third Trimester
6	7	5

In the analysis of the interviews with the pregnant women under study, the frequency of words used is reflected in the following cloud (Figure 1), where, seen in context, the following stand out: need for guidance in the performing physical exercises and the use of contraceptives methods and in the same aspect lack of knowledge of the importance of both, as well as the need for inclusion in Physical Education classes and among the exercises they wish to develop are swimming and walking fundamentally, and that although they are pregnant they have the right to practice physical exercises and sport.

Fig. 1. *- Word cloud*

A need for orientation and real integration to the school group is reflected; all of them report carrying out research activities in Physical Education classes, although pregnant students are not actively included in these, but they have the knowledge and inclination to participate in them. It is noteworthy that the majority of adolescent girls live with their parents, particularly if they are abandoned by their partners, receiving in most cases support and encouragement to continue their studies and overcome the experience of failure, although the cases of families disappointed and frustrated by their daughters pregnant at a young age are not excluded and they argue that it would be better for them to work to support the baby. In this situation they suffer psychological frustration at seeing themselves without support and home protection.

The condition of pregnancy in adolescence constitutes a social experience that does not have a rewarding nature for pregnant adolescents, regularly the response to the cause of the fact is to have made a mistake due to lack of knowledge, which generates a repudiated act and punished by the rejection of friends and families for being a bad example for their daughters, to which is added the uncertainty, both economic and sentimental, and the loss of dreams for a future full of already unattainable goals, they say they feel lonely and sad. Personally, they blame themselves for having disappointed the family, and they hide in their own home to escape everyone's gaze and rejection at an early age.

Although it is recognized that the situation described above is not the only response of the family and friends, there is also the understanding for the so-called error of the act, which after the initial displeasure leads to overprotection and even blessing and joy for the new being that is gestated and future increase of the home group. They even stimulate and demand the execution of special physical exercises for the moment they are going through and express the need for a proactive action on the part of the physical education teachers that exceeds in the educational institutions the traditionalism of the orientation of research tasks and taking roll call of their classmates to which they were subjected in their school years.

Codes were assigned and interrelated according to the analysis of the interviews, corroborating what was obtained in the word cloud, the need for inclusion in Physical Education classes, the lack of knowledge of the benefits of activity in pregnancy, the use of contraceptive methods and based on this, the need for guidance and in terms of feelings, some feel guilty, isolated and rejected (Figure 2).

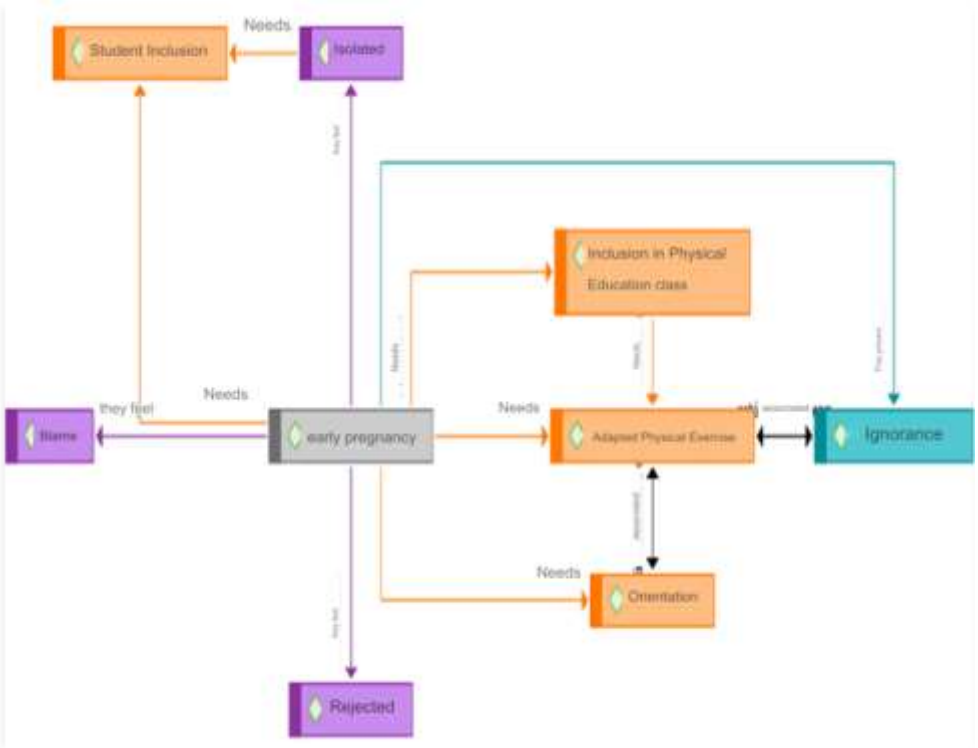

Fig. 2. *- Relationship between codes*

In addition, they state that they receive medical care from gynecologists in the sub-centers of the Ministry of Public Health. The majority of pregnant adolescents live with their parents and some receive their support to continue with their studies, but in other cases the parents tell them that they must work to support their babies because they have been abandoned by their partners.

Regarding physical exercises, in some cases they only do walks, other sometimes do squats behind the chair and others claim that they have ever gone swimming, but none of them have an adequate or systematic order of physical activities for pregnant women

nor do they participate in Physical Education classes, they do not know of centers specialized in physical activities for pregnant women, they only limit themselves to the doctor's instructions and do not know about the benefits of physical exercises for pregnant women.

A total of six Physical Education classes were observed in the courses where pregnant students were enrolled in each of the educational institutions under study, and in no case did the students participate in them.

The interview with the directors showed that pregnant students are not included in the Physical Education classes, but they know that they should carry out the activities passively, and this is the responsibility of the teacher of the subject, but that they generally carry out research activities. Pregnant students at the institution are referred to the Student Counseling Service (SCS) which provides them with the corresponding follow-up, orientation on family planning, the responsibility of caring for the child and the importance of completing their studies, but does not offer them the possibility of performing physical exercises and it is emphasized that students rarely share physical activity with their classmates.

The interview with the Physical Education teachers of the pregnant students corroborates what was obtained in the observation carried out and the interviews with directors do not included pregnant adolescents in the Physical Education classes; they are only sent research work to be carried out during class time and the evaluation of the subject depends on it. Furthermore, they allege that it would be advisable for them to perform physical exercises during the gestation period, but they do not explain which ones.

There is no general consensus in their responses about whether pregnant adolescents should be included in Physical Education classes, and they state that everything depends on the doctors' recommendations and that they should only do gymnastics and swimming, but that there should be specialized centers in this area. As for the basic exercises that they recommend, they point out walking, joint stretching, exercises with

music and medicine balls, strength exercises with small weights or a water bottle with sand and basic aerobics, after the first three months in a gentle, static and coordinated way, exclusively and also yoga exercises. However, there is agreement that physical activity should be performed between 3 and 7 months of gestation. And the pregnant students who have had a baby in their schools have not participated in the activities of the Physical Education classes.

The interview with obstetricians indicates that pregnant adolescents should be included in Physical Education classes only with the supervision of a professional and mainly in the second trimester of pregnancy and exercises are suggested with implements such as balls, bars, chairs, medicine balls and especially walking and breathing exercises, and always supervising the activity.

The results obtained are similar to those reported by Pérez Iribar, Cartaya Olivares, Castillo Chávez and Sornoza Pin (2019) by stating the lack of knowledge of pregnant adolescents in school about the benefits of physical exercise on their well-being and health both in the gestation period and during labor, also the need for planning and execution of exercises adapted for these purposes.

As well as those achieved by Caraguay Gonzaga, Martínez Camacho, & Vivanco Lapo (2020) where the need for guidance regarding pregnancy prevention and the need for family and school support to present feelings of guilt, rejection and isolation are evident, all of which can become depressive states that affect the well-being of the adolescent.

In correspondence to what was stated by the teachers in the area of Physical Education, the interviews with the obstetricians and the exhaustive review of the literature, a program of adapted exercise is proposed for the inclusion of pregnant adolescents in Physical Education classes. With the objective of including pregnant adolescents in Physical Education classes through adapted physical control activities, and pedagogical knowledge that contributes to their health and that of the newborn.

The program provides complete security and confidence to pregnant adolescents and basic knowledge about the importance of carrying them out during the gestation period, which also enables their inclusion in the activities of Physical Education classes as it is for pedagogical and social use, participatory and inclusive according to the laws that govern the constitution of Ecuador as an area of student protection in rejection of their discrimination and educational vulnerability, which also allows students to experience this new adaptive activity as a method of preparation, care and strengthening of diverse structures of the osteomyoarticular system in this important physiological state of life. It also provides guidance and knowledge about the subject to the other students, since in each exercise the benefits are clearly explained and based on this, activities are developed for the rest of the students such as preparing talks, preparing brochures and making outlines on the topic, which leads to true inclusion and not only integration.

Regarding the performance of physical exercises in pregnant women, the American College of Obstetricians and Gynecologists points out the "performance of the minimum physical activity recommendations for the healthy population (at least 5 days a week, 30 minutes of moderate-intensity physical activity). This level of physical activity presents little risk to maternal and fetal health" (Mata et al., 2010, p. 76). In addition, many evidences and scientific studies on the practice of physical activity during pregnancy and its benefits for the mother and fetus highlight aquatic, strength, flexibility and aerobic activities, in particular, and the American College of Obstetricians and Gynecologists establishes a combination of several work sessions, which are: warm-up and stretching exercises, aerobic session, strength exercises and return to calm, which should not exceed 50 to 60 minutes per sessions and three times a week. (Mata *et al.*, 2010; Alonso Morante *et al.*, 2021).

Unlike other adapted physical activity programs, this one prepares adolescents, whether pregnant or not, to take care of their emotional, family, social, and physical state, while waiting for a new being, through an infinite number of physical, logistical, musical and adventure where activities where their educational and social benefit always prevails, with an order of exercises exclusively oriented towards them, which will provide support and opportunity for their personal and professional development.

The program is adapted to the various blocks of the education system's curriculum, such as the block of natural movements, expressive movement, games, and gymnastic movement, taking into account a sequence of activities according to the period of pregnancy.

The systematic program is made up of low-intensity and low-impact exercises according to your needs, you will be able to develop cognitive, motor, participatory and socio-affective capacities, promoting a safe, active and pleasant participation without feeling discriminated against or excluded because of your pregnant state, and enjoy better health during your pregnancy.

The program describes a theoretical (cognitive) part aimed at the orientation and inclusion that accompanies the practice. For this, each parallel is divided into teams and the activities to be developed are drawn, among which are:

- Elaboration and exhibition of brochures on Sex Education and the use of contraceptive methods.
- Exposure of the causes and consequences of adolescent pregnancy.
- Dramatization about the consequences of rejection and social isolation of pregnant adolescents.
- Dramatization about the importance of physical exercise during pregnancy.
- Preparation of triptychs on the physical exercises recommended for the different periods of pregnancy and their explanation

These theoretical level activities are the beginning of the Physical Education classes, to which we dedicate about ten minutes.

Examples of adapted exercises in Physical Education classes for pregnant women. Although several activities are proposed for the class, it will always depend on the condition and actual recovery of the pregnant woman. (Tables 3 and 4)

Table 3. *- Example #1 of class activities. Posture: Standing (works upper and lower body) 40-minute classes*

Initial Part. Greetings are given, the activity is welcomed and the objectives of the class are explained, as well as the skills to be developed for the whole class and for the pregnant adolescents. The theoretical (cognitive) activity prepared by the students, according to the corresponding team, is executed. (10')						
	Low-impact activity	Time	Series	Resting	Muscles working	Exercise materials
INITIAL	Circular motion of the Hip	6'	1	2	gluteus maximus and gluteus minimus	Sticks Weights Bottles Ribbons Hulas-hoops Radio CD Pen drive
	90º knee lift				Quadriceps, glutes, calves and hip flexors.	
	Arm stretching with lateral extensions.				Deltoid, upper trapezius, and supraspinatus	
MAIN-	Exercises with small weights in flexion and extension of arms. Frontal, horizontal, upward and circular.	4	3-6	2	Biceps – triceps Brachialis and pectorals	
	Squats with partner support.	4	23	2 2	Quadriceps, gluteus maximus, hamstrings	
	Leg exercises with jogging advance, at a distance of four meters.	4`	3-10		Calves, abdominal glutes, calves	
	Pelvis and back exercises, sitting posture with hands behind.	3	3- 10		Trapezius, rhomboid, latissimus dorsi, serratus posterior and anterior	
FINAL – SITTING	Yoga posture for meditation (Sukhasana)	3	1-10	3	Pelvis, cervical spine, glutes, dorsal ankle flexors Lungs	cushion Floor mats Mats
	Breathing exercises resting your hands on your chest and abdomen					

	Abdominal massage for feeling the baby					
	Relaxation posture with open arms and circular frontal rotation				Pectorals, trapezius, latissimus dorsi, deltoids	
	Circular torso exercise with baby support				Dorsal and lumbar	
Weekly time distribution for pregnant adolescents: 10 minutes of theoretical work and between 15 and 30 minutes of daily work of adapted exercises. The time dedicated to physical exercise will depend on the organism's adaptive response to it and the variants of the exercises will be implemented according to their preferences and assimilation of the load, controlled by a personalized attention from the teacher.						

Table 4. *- Physical activity table # 2. Posture: Sitting on a chair (works the upper body) 40-minute classes*

Greetings are given, the activity is welcomed and the objectives of the class are explained, as well as the skills to be developed for the whole class and for the pregnant adolescents. The theoretical (cognitive) activity prepared by the students, according to the corresponding team, is executed. (10')						
	Low-impact activity	Time	Series	Resting	Muscles working	Exercise materials
INITIAL	Push-ups and front arm extensions	8`	2-10	2`	Biceps, triceps and brachial	Chair Bottles Ribbons Balls Resistance bands Batons Pennants Ropes Radio cd Pen drive
	Horizontal push-ups and arm extensions		6-10		Pectorals, deltoids, Trapezius, dorsal and scapular area	
	Trunk twists		2-10		Back and lumbar area	
	Arm rotations forward and backward		2-6		Rotators, round, major and minor, radial and ulnar flexor	
MAIN	Exercises with spirals ribbons, undulations, serpentines, eight whirlwind	15`	2- 6	3`	all	Chair Artistic gymnastics

	Hands-free exercises with breathing and relaxation bases	5`	2-10	2	Lungs, intercostal diaphragms, ribs	Chair Artistic gymnastics Tai Chi
FINAL	Passive stretching exercises standing posture	2`	1-10	--	Muscle stretching Arms – legs and body	
Weekly time distribution for pregnant adolescents: 10 minutes of theoretical work and between 15 and 30 minutes of daily work of adapted exercises. The time dedicated to physical exercise will depend on the organism's adaptive response to it and the variants of the exercises will be implemented according to their preferences and assimilation of the load, controlled by a personalized attention from the teacher.						

The program is also based on the following principles:

1. Adaptation: Medical recommendations are very important due to the health status of each of the pregnant women, assuming the individual characteristics, since the exercises will be adapted to their level of physical condition and gestation period.
2. Variety: To work in an integral way the body and the mind. The exercises have different types of movement such as warm-up, stretching, strength, balance, resistance, coordination and relaxation.
3. Safety: at this point each of the exercises must be performed with great caution, dispensing with unpleasant movements, such as jumps, turns, impacts or abdominal pressure, without forgetting to use appropriate and safe materials. The heart rate, breathing, hydration and well-being of the pregnant students are constantly monitored.
4. Participation: The exercises are performed as a group, without forcing or pressuring her to carry out activities that she does not want or that are uncomfortable for her, promoting interaction, cooperation, respect and solidarity between pregnant students and the rest of the class, respecting the rhythm and will of each of the pregnant students.
5. Pleasure: Each exercise that is proposed to be an opportunity to rejoice with each movement, thus seeking to make the activities fun, motivating and creative that

form positive emotions and sensations and improve the self-esteem and confidence of each of the pregnant students as well as to the rest of the class. (Pérez Iribar G. *er al.,* 2019).

Validation of the proposal.

Phase 1.

Expert selection

The general criteria for the selection of the experts, were a fourth level degree and experience in the area of knowledge, following the criteria detailed below:

1. Master´s Degree in Physical Culture Sciences (branches that integrate it) Physical Education, Sports.
2. Trajectory in education research
3. Experience in the area of Education and sports.
4. Willingness to participate in research

A total of 7 experts between 10 and 26 years of work experience in the area of Physical Education and Sports were selected and the competence coefficient K, the Knowledge or Information Coefficient (kc) and the argumentation coefficient were determined. , the results (Table 5).

Table 5. *- Behavior of the experts' coefficient of competence*

Experts	kc	ka	K	Assessment
Expert 1	0.8	1	0.9	high
Expert 2	1	1	1	high
Expert 3	0.8	0.8	0.8	high
Expert 4	0.8	0.9	0.85	high
Expert 5	0.9	1	0.95	high
Expert 6	0.8	0.8	0.8	high
Expert 7	0.9	1	0.95	high

The questionnaire to be applied to the experts was prepared, which included 6 questions in two aspects: relevance of exercises for pregnant adolescents and activities suitable for inclusion.

Phase 2.

The questionnaire was sent to the experts by e-mail, the results are shown in Table 6, where the relevance, pertinence, clarity and agreement of the experts were analyzed (Table 6).

*T**able 6**. - Results of the expert evaluation of the adapted exercise program for the inclusion of pregnant adolescents in Physical Education classes*

Indicators	**Expert Scores**							
	1	2	3	4	5	6	7	Media
The proposed physical exercise program is appropriate to apply to pregnant adolescents with an adequate state of health.	5	5	5	5	5	5	5	5
The proposed physical exercise program is easy to execute for pregnant adolescents.	5	5	5	5	5	5	5	5
The proposed physical exercise program benefits the health of the pregnant woman.	5	4	4	4	4	5	5	4.4
The proposed physical exercise program helps in labor.	5	5	5	4	4	5	5	4.71
The proposed physical exercise program is valid for execution in pregnant adolescents.	5	5	5	5	5	5	5	5
The proposed physical exercise program complies with the recommendations and indications of the American College of Obstetricians and Gynecologists.	5	5	5	5	5	5	5	5
The activities and physical exercises proposed in the program encourage the inclusion of pregnant students in Physical Education classes.	5	5	5	5	5	5	5	5
The activities and physical exercises proposed in the program fully contribute to the objective of the program.	5	5	5	5	5	4	5	4.86
It is feasible to apply the proposal to pregnant adolescent students in Physical Education classes.	5	5	5	5	5	5	5	5

The activities and exercises proposed in the program are easy for students to understand.	5	5	5	5	5	5	5	5	
The proposal of an adapted exercise program for the inclusion of pregnant adolescents in physical education classes is validated.									4.89

Table 2 shows that the average of the values issued by the experts in the different items established for the evaluation of effectiveness is 4.89, which indicates that the proposal entitled "Exercise program adapted for the inclusion of pregnant adolescents in Physical Education classes" is applicable for the achievement of the proposed objective. The agreement according to Aiken's V determined in all cases provided values above 0.80, qualifying the proposal as valid.

The item that was rated with the lowest score corresponds to item three: the proposed physical exercises benefit the health of the pregnant woman (relevance) with an average score of 4.4, it is fundamentally alleged that once a week is not enough to improve the health of pregnant women and that they should also be applied at other times, outside of Physical Education classes. However, the concordance indicates that it is valid.

CONCLUSIONS

Early pregnancy is an issue of constant concern in the educational and health systems of Latin America and Ecuador, due to its repercussions on the socioeconomic and personal life of both the mother and the child. The pregnant adolescents under study do not perform physical exercises in a systematic, planned and controlled manner, they do not participate in Physical Education classes, nor are they aware of the existence of centers that provide these services, nor do the teachers and directors provide them with opportunities for inclusion in these classes, carrying out research work during those class hours.

A program of physical exercises adapted for the inclusion of pregnant adolescents in Physical Education classes is proposed, based on the theoretical-practical relationship so that while they exercise with personalized attention, in a planned and controlled manner following the recommendations of obstetricians and the American College of Obstetricians and Gynecologists, the entire student population is involve and oriented as to the use of contraceptive methods, the benefits of physical exercise during pregnancy, and a true inclusion is achieved.

The program of exercise adapted for the inclusion of pregnant adolescents in Physical Education classes was theoretically validated by expert criteria, who considered it adequate for its application and the achievement of the proposed objective.

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