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Conducive Factors of Adolescent Pregnancy in Ecuador through Neutrosophic Statistics

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Abstract. Teenage pregnancy in Ecuador is a problem that continues to increase year after year. This, in addition to violating the rights of all girls and adolescents, perpetuates violence and inequality. Knowing the causes and consequences of teenage pregnancy allows designing action plans to fight them. The analysis of preliminary studies and surveys confirms levels of indeterminacy in the responses obtained for the study. This integration between neutrosophic sets makes it possible to reflect, through the representation of neutrosophic statistics, the level of deterioration of the factors that intervene in the full development from adolescence to adulthood. Consequently, the existing indeterminacy makes it necessary to model each element of the group studied to analyze the levels of deterioration associated with preventing teenage pregnancy in Ecuador.

Keywords: Pregnancy, adolescence, neutrosophy.

1 Introduction

Adolescence is the period in a person's life between the ages of 10 and 19. In some cases, adolescence is interrupted when the young woman becomes pregnant. One in five women in the world has a child before the age of 18 and 16 million teenage births occur every year. In the poorest regions of the planet, one in three women is a mother during adolescence.

Teenage pregnancy greatly limits a woman's opportunities to develop autonomously, both due to emotional and physiological immaturity, which in turn implies changes in affective, social, and economic circumstances that trigger important situational crises, as a result of early pregnancy. For this reason, pregnancy in the adolescent stage has been described as a phenomenon framed within the problem with the highest social and family impact, with many consequences for sexual health [1], reproductive, economic, and family environment for the mother and the child. Pregnant adolescents have certain common sociodemographic characteristics in pregnancy. Among the causes of the highest incidence are the early age of beginning sexual relations, the low educational level, the origin of disintegrated families, and, above all, the low knowledge of contraceptive methods for the prevention of pregnancy. It is therefore considered a difficult event that affects the comprehensive health of adolescent mothers, their children, family members, and the community as a whole.

According to experts, the most appropriate age to become a mother is between 20 and 35 years, since the risk to the health of the mother and child is much lower. Pregnancy in adolescence is considered a high risk and carries more complications [2]. The adolescent is not physically or mentally prepared to have a baby and take on the responsibility of motherhood.

Teenagers who become pregnant present in many cases:

- Poor nutrition, with a lack of essential nutrients for the proper development of the baby [3]
- An increased number of miscarriages
- Premature births, with many adolescent babies being born before 37 weeks of gestation
- Their babies are underweight as their immature body means that their uterus has not fully developed
- Teen moms have children with more health problems and developmental disorders
- In cases of pregnancies of girls under 15 years of age, the baby is more likely to be born with malformations.

Other risks [4]

- Lack of medical attention due to ignorance of the pregnancy [5]

- Risk of pre-eclampsia and eclampsia
- Risk of obstetric fistula, an invisible injury with devastating effects on the lives of thousands of women
- High maternal mortality
- Complications due to clandestine abortions, such as sepsis or severe bleeding
- Pregnancy linked to sexually transmitted diseases
- Psychological complications for the pregnant adolescent

In general, the studies speak of a series of circumstances that teenage mothers go through:

- Fear of being socially rejected
- One of the consequences of adolescence and pregnancy is that the young woman feels criticized by her family and friends and tends to isolate herself from the group.
- Rejection of the baby
- They are still girls and do not want to take on the responsibility, time, and obligations of being a mother. However, this also makes them feel guilty and sad and their self-esteem is lowered.
- Family problems
- Communicating the pregnancy in the family is often a source of conflict and even rejection by their own environment.

Factors that give rise to pregnancy in adolescence [6]

- Sexual relations without the use of contraceptive methods, or erroneous or mistaken use of them
- Teenage marriage and the traditional role that some societies still assign to women
- Dangers of the consumption of drugs and alcoholic beverages and its consequences: disinhibition, lack of reflexivity, impulsiveness, etc.
- Social pressure and idealization of pregnancy in adolescence as ways to achieve acceptance in their close circles (friends and classmates, mainly).
- Lack of information and difficult access to good sexual education, as well as neglect or refusal of parents to talk about these issues openly and naturally [7, 18, 19].

In addition, on a psychological and social level it is common to find:

- Abandonment of studies, which will depend on the context and socioeconomic level, among other factors.
- The trauma of an induced or spontaneous abortion, as well as the risks of falling into the black market in countries where this practice is not legalized.
- In developed countries, the new family nucleus will often be unstable (adolescent parents or short-term relationships), while in developing countries, it will represent a greater number of children.
- Psychological problems: fear of being rejected, anxiety, stress and family problems, rejection of the baby, or the appearance of serious emotional disorders.
- Maintaining unstable relationships (dysfunctional families) or harmful to women due to economic and emotional needs.

That is why the present investigation intends to identify different factors that influence the increase in the number of pregnant adolescents. Pregnancy during the adolescent stage has a negative impact on its psychological, family, social and personal context. Therefore, there is a need to carry out an analysis to prevent teenage pregnancy in Ecuador

To analyze pregnancy during adolescence, this study defines:

- Problem situation: increase in teenage pregnancy in Ecuador
- Main objective: to analyze the levels of deterioration of the elements associated with preventing pregnancy in adolescence in Ecuador
- Specific objectives:
  - Determine the factors that affect the analyzed variable
  - Carry out the measurement and modeling of the variable

Project potential alternatives in terms of preventing pregnancy in adolescence.

2 Definition

NEUTROSOPHIC STATISTICS

Neutrosophic probabilities and statistics are a generalization of classical and imprecise probabilities and statistics. The Neutrosophic Probability of event E is the probability that event E occurs [8], the probability that event

E does not occur, and the probability of indeterminacy (not knowing whether event E occurs or not). In classical probability nsup≤1, while in neutrosophic probability nsup≤3+.

The function that models the neutrosophic probability of a random variable x is called the neutrosophic distribution:

$$NP(x) = (T(x), I(x), F(x)),$$

Where T(x) represents the probability that value x occurs, F(x) represents the probability that value x does not occur, and I(x) represents the undetermined or unknown probability of value x.

Neutrosophic Statistics is the analysis of neutrosophic events and deals with neutrosophic numbers, neutrosophic probability distribution, neutrosophic estimation, neutrosophic regression, etc. It refers to a set of data, which is formed totally or partially by data with some degree of indeterminacy and to the methods to analyze them.

Neutrosophic statistical methods allow neutrosophic data (data that may be ambiguous, vague, imprecise, incomplete, or even unknown) to be interpreted and organized to reveal underlying patterns [9].

Finally, the Neutrosophic Logic[10], the Neutrosophic Ensembles, and the Neutrosophic Probabilities and Statistics have a wide application in various research fields and constitute a new reference for study in full development.

Neutrosophic Descriptive Statistics comprises all the techniques for summarizing and describing the characteristics of neutrosophic numerical data.

Neutrosophic Numbers are numbers of the form $N = a + bI$ where a and b are real or complex numbers, while "I" is the indeterminacy part of the neutrosophic number N.

The study of neutrosophic statistics refers to a neutrosophic random variable where X_l and $X_u I_N$ represents the lower and correspondingly higher level that the studied variable can reach, in an indeterminate interval $[I_l, I_u]$. Following the neutrosophic mean of the variable $(\bar{x}_N)$ by formulating:

$$X_N = X_l + X_u I_N;\ I_N \in [I_l, I_u] \tag{1}$$

$$\text{Where, } \bar{x}_a = \frac{1}{n_N}\sum_{i=1}^{n_N} X_{il},\quad \bar{x}_b = \frac{1}{n_N}\sum_{i=1}^{n_N} X_{iu},\ n_N \in [n_l, n_u] \tag{2}$$

is a neutrosophic random sample. However, neutral squares (NNS) can be calculated as follows

$$\sum_{i=1}^{n_N}(X_i - \bar{X}_{iN})^2 = \sum_{i=1}^{n_N}\left[\begin{matrix}\min\left(\begin{matrix}(a_i + b_i I_L)(\bar{a} + \bar{b} I_L), (a_i + b_i I_L)(\bar{a} + \bar{b} I_U)\\ (a_i + b_i I_U)(\bar{a} + \bar{b} I_L), (a_i + b_i I_U)(\bar{a} + \bar{b} I_U)\end{matrix}\right)\\ \max\left(\begin{matrix}(a_i + b_i I_L)(\bar{a} + \bar{b} I_L), (a_i + b_i I_L)(\bar{a} + \bar{b} I_U)\\ (a_i + b_i I_U)(\bar{a} + \bar{b} I_L), (a_i + b_i I_U)(\bar{a} + \bar{b} I_U)\end{matrix}\right)\end{matrix}\right], I \epsilon [I_L, I_U] \tag{3}$$

Where $a_i = X_l b_i = X_u$. The variance of the neutrosophic sample can be calculated by

$$S_N^2 = \frac{\sum_{i=1}^{n_N}(X_i - \bar{X}_{iN})^2}{n_N};\ S_N^2 \epsilon [S_L^2, S_U^2] \tag{4}$$

The neutrosophic coefficient (NCV) measures the consistency of the variable. The lower the value of the NCV, the more consistent the performance of the factor is than that of the other factors. The NCV can be calculated as follows [11, 12, 13, 14].

$$CV_N = \frac{\sqrt{S_N^2}}{\bar{X}_N} \times 100;\ CV_N \epsilon [CV_L, CV_U] \tag{5}$$

The Neutrosophic Argumentation coefficient evaluates the criteria through Linguistic Terms with SVNN of consensus of justification of the expert opinion, (see Table 1).

Linguistic term	SVNN
No Deterioration (ND)	(1,0.05,0)
Almost No Deterioration (AND)	(0.95,0.12,0.15)
Very Low Deterioration (VLD)	(0.85,0.15,0.25)
Low Deterioration (LD)	(0.75,0.3,0.4)
Slight deterioration (SD)	(0.65,0.35,0.5)
Deteriorated (D)	(0.55,0.45,0.53)
Mildly Deteriorated (MD)	(0.49,0.5,0.55)
Severely Deteriorated (SD)	(0.3,0.75,0.8)
Very Deteriorated (VD)	(0.25,0.8,0.85)

Linguistic term	SVNN
High Deterioration (HD)	(0.15,0.9,0.95)
Extremely Deteriorated (ED)	(0,0.95,1)

Table 1. Linguistic terms representing factor weights

3 Results

Data collection: Statistics allow the analysis of situations in which the random components contribute significantly to the variability of the data obtained. To measure the levels of associated risks in pregnant adolescents, indeterminate random components are presented. The impossibility of measuring some determinants of health status in pregnant women is defined in the variability of responses of the respondents, similar to each other, who participated in the study.

Development of the method: For the neutrosophic statistical modeling, the experts select five factors that prevail in the neutrosophic sets (elements associated with preventing pregnancy in adolescence), based on defining the variable to be studied (Table 2).

Variable	Coding	Sample factor	Scale
Levels of deterioration of the elements associated with preventing pregnancy in adolescence in Ecuador	DPEA	[45;203]	$[0\ ;\ 1], \forall\ F_n$ RCD = 0 (false) RCD = 1 (True) $DCR\ \neq 0.5$(Existing uncertainty in DPEA)

Table 2. Characteristics of the variable

It should be considered that the recommendations are subject to constant updating motivated by advances in sociodemographic research and the contributions of statistical information on pregnancy in adolescence and its risk conditions.

Factor	source elements	Degree	Relation between factor and set	Scale	Element Decision Acceptance Range
F1	Socio-economic status	L	Neutrosophic set: (Malnutrition; level of poverty)	[0; 1]	Subsets: • Malnutrition index (high, medium, low, or none) • Poverty level (high, medium, low, or none)
F2	Adolescent reaction to pregnancy	R	Neutrosophic set: (Emotional state, level of acceptance)	[0; 1]	Subsets: • Emotional state (happiness, fear, sadness, surprise) • Acceptance level (low, medium, high)
F3	Level of sexual education and continuity of studies	N	Neutrosophic set: (Academic level, student improvement)	[0; 1]	Subsets: • Sex education level (low, medium, high) • Continuing studies (yes, maybe, no)
F4	Influence on the family and social environment	I	Neutrosophic set: (Family; society)	[0; 1]	Subsets: • Family; society (strong, medium, or low)
F5	Preparation and responsibility of the adolescent when caring for the son or daughter	P	Neutrosophic set: (Preparation; responsibility)	[0; 1]	Subsets: • Preparation and responsibility (high, medium, low, or none)

Table 3. Factors that influence the origin of teenage pregnancy

For the development of the neutrosophic statistical study, it is recommended by the experts to analyze the levels of deterioration of the elements associated with preventing pregnancy in adolescence in Ecuador. Studies in risk conditions are associated, based on the statistical bases and the surveys carried out (Table 3).

No	F1	F2	F3	F4	F5
1	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]
2	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]
3	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]
4	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]
5	[(0.15,0.9,0.95);(0.15,0.9,0.95)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]
6	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]
7	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.15,0.9,0.95)]
8	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]
9	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.65,0.35,0.5)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]
10	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]
11	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0,0.95,1);(0.25,0.8,0.85)]
12	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]
13	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0,0.95,1);(0.15,0.9,0.95)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]
14	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
15	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]
16	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
17	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]
18	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(1,0.05,0)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]
19	[(0.15,0.9,0.95);(0.15,0.9,0.95)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0,0.95,1);(0.3,0.75,0.8)]
20	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]
21	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]
22	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]
23	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0.49,0.5,0.55)]
24	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]
25	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0,0.95,1);(0,0.95,1)]	[(0.15,0.9,0.95);(0.15,0.9,0.95)]
26	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]
27	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]
28	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]
29	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.65,0.35,0.5)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]
30	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(1,0.05,0)]
31	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0,0.95,1);(0.15,0.9,0.95)]
32	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]
33	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]
34	[(0.3,0.75,0.8);(0.95,0.12,0.15)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0,0.95,1);(0.15,0.9,0.95)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]
35	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]

36	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0,0.95,1);(0,0.95,1)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]
37	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.65,0.35,0.5)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]
38	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]
39	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0,0.95,1);(0.15,0.9,0.95)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
40	[(0.49,0.5,0.55);(1,0.05,0)]	[(0.49,0.5,0.55);(1,0.05,0)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(1,0.05,0)]
41	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]
42	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.15,0.9,0.95)]
43	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]
44	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]
45	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]
46	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]
47	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.65,0.35,0.5)]
48	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]
49	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]
50	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]
51	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]
52	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0,0.95,1);(0,0.95,1)]	[(0.49,0.5,0.55);(1,0.05,0)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0,0.95,1);(0.49,0.5,0.55)]
53	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0,0.95,1);(0.3,0.75,0.8)]
54	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
55	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]
56	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]
57	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]
58	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(1,0.05,0)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]
59	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]
60	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]
61	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]
62	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]
63	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]
64	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
65	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
66	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]
67	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(1,0.05,0)]
68	[(0,0.95,1);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(1,0.05,0)]	[(0,0.95,1);(0.15,0.9,0.95)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]
69	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]
70	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]
71	[(0.49,0.5,0.55);(1,0.05,0)]	[(0.15,0.9,0.95);(0.15,0.9,0.95)]	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0.25,0.8,0.85);(0.3,0.75,0.8)]
72	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0.15,0.9,0.95);(0.49,0.5,0.55)]	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]
73	[(0.25,0.8,0.85);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0.49,0.5,0.55);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]

74	[(0.25,0.8,0.85);(0.3,0.75,0.8)]	[(0,0.95,1);(0,0.95,1)]	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]	[(0,0.95,1);(0.3,0.75,0.8)]
75	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.65,0.35,0.5)]
76	[(0,0.95,1);(0.25,0.8,0.85)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.75,0.3,0.4)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]
77	[(0.25,0.8,0.85);(0.65,0.35,0.5)]	[(0.15,0.9,0.95);(0.3,0.75,0.8)]	[(0.3,0.75,0.8);(0.75,0.3,0.4)]	[(0.15,0.9,0.95);(0.25,0.8,0.85)]	[(0.25,0.8,0.85);(0.75,0.3,0.4)]
78	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0.25,0.8,0.85);(0.49,0.5,0.55)]	[(0.49,0.5,0.55);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0,0.95,1);(0.3,0.75,0.8)]
79	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0,0.95,1);(0,0.95,1)]	[(0.3,0.75,0.8);(0.95,0.12,0.15)]	[(0.3,0.75,0.8);(0.3,0.75,0.8)]	[(0.49,0.5,0.55);(1,0.05,0)]
80	[(0,0.95,1);(0.3,0.75,0.8)]	[(0,0.95,1);(0.3,0.75,0.8)]	[(0,0.95,1);(0.49,0.5,0.55)]	[(0.3,0.75,0.8);(0.49,0.5,0.55)]	[(0,0.95,1);(0.15,0.9,0.95)]
1-80	**[(0.3,0.75,0.8);(0.49,0.5,0.55)]**	**[(0.25,0.8,0.85);(0.3,0.75,0.8)]**	**[(0.3,0.75,0.8);(0.55,0.45,0.53)]**	**[(0.25,0.8,0.85);(0.49,0.5,0.55)]**	**[(0.3,0.75,0.8);(0.55,0.45,0.53)]**

Table 4. Neutrosophic frequency of DCR.

For the development of the statistical study, the neutrosophic frequencies of the factors are analyzed to determine the level of deterioration of the element that affects pregnancy in adolescence in Ecuador, associated with risk conditions. For each factor, a sample of the elements associated with the surrounding environment of the pregnant adolescent is analyzed by the specialists. The analysis of the sample that makes up the groups analyzed in the study with respect to determining the relationship between the deterioration of the elements and the associated risk condition (Table 3).

For the modeling, it is decided to take each term to a neutrosophic number according to equation (1). Table 3 analyzes the level of DPEA for a sample of [45;80] pregnant adolescents in Ecuador for each factor analyzed. Of the neutrosophic frequencies, it can be observed with a level of response in the weight of the factors, from the neutrosophic linguistic terms represented between $[0;\ 1]$. For each risk condition reviewed with a total indeterminacy level of $L = 19.7, R = 18.7, N = 22.6, I = 20.1, P = 22.3$, and with a representativeness level of $[49.21\%;\ 51.86\%]$, on the days that adolescent pregnant women affected by more than one risk condition are evaluated. [20, 21]

The preliminary screening results have an indeterminacy level close to 0.5 per analyzed factor, in all factors, except for F2. The result diagnoses the deterioration of each factor that affects the appearance of pregnant adolescents according to the analyzed sample:

- For the malnutrition index, it is very slightly moderate, while the level of poverty is medium for the interaction of the analyzed subsets.
- The emotional state is a state of fear in the face of a low level of acceptance at that stage of life.
- The academic level is low with some indeterminacy to continuing studies
- The impact on the family is very bad with a slight influence on society
- The preparation is very low for the new environment that surrounds them, while there is a certain indeterminacy in the responsibility of future teenage mothers.

Given the existing levels of indeterminacy, the use of classical statistics is not possible, so the use of neutrosophic statistics is necessary for a better understanding of interrelated neutrosophic sets.

Neutrosophic Statistical Analysis: The modeling of the data on the level of deterioration existing in the factors associated with the origin of pregnancy in adolescents shows that factors 3 and 5 require studies with a level of depth. To determine the level of incidence between the causes and the risk conditions in pregnancy, it is necessary to analyze the means (Table 4). To understand what factor implies a representative mean $\bar{x} = \in [\bar{x}_L; \bar{x}_U]$, the values of the neutrosophic means are calculated for the study of the variations of the affectations, and the values of the standard neutrosophic deviation $S_N \in [S_L; S_U]$. To determine which factor requires a higher level of accuracy at the time of diagnosing each subset, therefore, the values of $CV_N \in [CV_L\ ;\ CV_U]$ are calculated.

Factors	$\bar{\mathbf{x}}_{\mathbf{N}}$	$\mathbf{Y_N}$	$\mathbf{CV_N}$
Socio-economic status	0.254 + 0.5I	0.015 + 0.315 I	0.059 + 0.63 I
Adolescent reaction to pregnancy	0.241 + 0.475 I	0.013 + 0.315 I	0.054 + 0.663 I
Level of sexual education and continuity of studies	0.258 + 0.54 I	0.018 + 0.324 I	0.07 + 0.6 I

Factors	$\bar{x}_N$	Y_N	CV_N
Influence on the family and social environment	0.239 + 0.49 I	0.016 + 0.334 I	0.067 + 0.682 I
Preparation and responsibility of the adolescent when caring for the son or daughter	0.259 + 0.538 I	0.014 + 0.326 I	0.054 + 0.606 I

Table 5. Neutrosophic statistical analysis of DPEA level. Source: own elaboration.

Table 4 shows the factors that affect the risk conditions in pregnant adolescents and the associated level of indeterminacy. So, it is necessary to analyze the current state of adolescents and propose solutions to mitigate their impact on society. This means that the level of risk associated with this risk situation is more common and easier to detect, but there are levels of uncertainty to analyze. On the other hand, the CV_{ND} analysis of these factors is lower for the *preparation and responsibility factors of the adolescent in caring for the son or daughter* and *the adolescent's reaction to the pregnancy*.

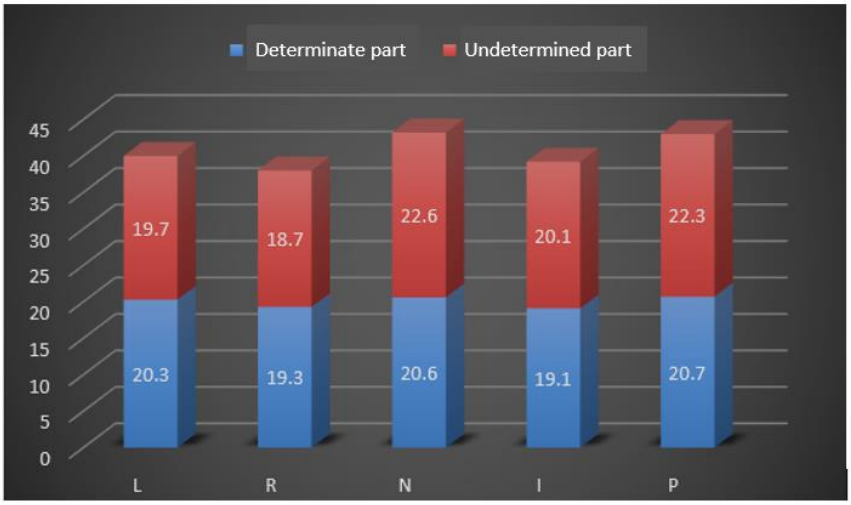

Figure. 1. Neutrosophic bar graph of the DPEA. Source: own elaboration.

The neutrosophic set for the *level of sexual education and continuity of studies* derives with a greater frequency from the analyzed studies. While the set *preparation and responsibility of the adolescent to care for the son or daughter* coexists a direct relationship between sets. It is visualized that low levels of sexual education lead to an increase in adolescent pregnancy, where preparation and responsibility are defined in a contradictory way, and the risk conditions in pregnancy increase (Figure 1).

Comparative analysis: To determine the associated referent indeterminacy measure for $\bar{x} = \in [\bar{x}_L; \bar{x}_U], S_N \in [S_L; S_U]$ and $CV_N \in [CV_L ; CV_U]$ to the form of neutrosophic numbers (Table 5). In the results obtained, it is observed that for the values of CV_N range from 0.054 to 0.07 with the measure of indeterminacy of [0.6;0.682] generated by a sample of [100; 203] questionnaires and statistical information, obtained from 80 pregnant adolescents. From the results expected by the neutrosophic study, it can be seen that:

- The prevalence of low socio-economic status in the family causes a low level of malnutrition and poverty in 19.7% of the respondents. The status of the factor analyzed in pregnant adolescents is between severely deteriorated and moderately deteriorated for a frequency of [20.3; 40].
- The adolescent's reaction to pregnancy is visualized with an emotional state of fear and a low level of acceptance for 18.7% of pregnant adolescents. The state of impairment of the factor is between very impaired and severely impaired for a frequency of [19.3; 38].
- The level of sexual education and the continuity of studies in pregnant adolescents is present in only 21.2% of those surveyed. The low educational level on sexuality is severely deteriorated and deteriorated with a level of indeterminacy of 88.3% for a frequency of [20.6; 43.2].
- The influence of the family and social environment is present in 19.3% of pregnant adolescents. The continuous effect caused in society is due to the low level that influences families in preparing adolescents for sexual life. This fact means that the factor is found on a scale between moderately impaired and highly impaired for a frequency of [19.1; 39.2].

- The preparation and responsibility of the adolescent when caring for the son or daughter responds to 20.7% of the pregnant women surveyed. It is defined that a deterioration of the factor between severely impaired and impaired, leads to a low level of responsibility towards the son or daughter of the adolescent, for a frequency of [20.7; 43].
- For the risk conditions in adolescent pregnant women, they increase with the deterioration of the analyzed factors. For these clinical pictures, deeper studies are required to track down the potential causes, such as the mitigation of the consequences that affect health. It is vital, for the analysis of statistical studies referring to the subject where the contradictions and indeterminacies are diversified in various degrees of weight in neutrosophic terms, to obtain a level of consensus of the specialists within the analyzed element of the neutrosophic set. [15, 16, 17]

Factors	$\bar{x}_N$	S_N	CV_N
F1	0.254 + 0.5II;I ∈ [0,0.492,0]	0.015 + 0.315 I;I ∈ [0,0.952,0]	0.059 + 0.63 I;I ∈ [0,0.906,0]
F2	0.241 + 0.475I;I ∈ [0,0.493,0]	0.013 + 0.315I;I ∈ [0,0.959,0]	0.054 + 0.663 I;I ∈ [0,0.919,0]
F3	0.258 + 0.54I;I ∈ [0,0.522,0]	0.018 + 0.324I;I ∈ [0,0.954,0]	0.07 + 0.6I;I ∈ [0,0.883,0]
F4	0.239 + 0.49 I;I ∈ [0,0.512,0]	0.016 + 0.334 I;I ∈ [0,0.952,0]	0.067 + 0.682 I;I ∈ [0,0.902,0]
F5	0.259 + 0.538 I;I ∈ [0,0.519,0]	0.014 + 0.326I;I ∈ [0,0.957,0]	0.054 + 0.606 I;I ∈ [0,0.911,0]

Table 6. Neutrosophic forms with measure of indeterminacy

From the results obtained in the study, it is proposed to promote alternatives based on the existing situation of pregnant adolescents. The variants presented allows the actions to be taken based on the level of indeterminacy and acceptance of the levels in each range and for the screening of health problems in pregnant women. Therefore, it is expected to:

- Implement promotional preventive programs with greater emphasis on pregnancy in adolescence, causes, and consequences based on the risk conditions present in the stage.
- Encourage interaction between parents and children to discuss sexual education issues.
- Work together with governing bodies to visualize strategies to mitigate the risks associated with pregnancy in adolescence and the impact caused in society.
- Create educational policies, campaigns, and awareness that lead to the use of contraceptive resources and the flow of information in society for the prevention of pregnancy in adolescence

Conclusion

Teenage pregnancies are considered a social problem that occurs and in turn, generates poverty and inequality. It is also considered an obstacle in the social and personal development of adolescents. In most cases, pregnancy at this stage of life occurs due to determinants of different social, personal, and socioeconomic levels, without considering the risks of early pregnancy for both the future mother and the fetus.

The modeling of neutrosophic statistics defines as the best prevention that young people have a good sexual education from within the family. Inform about the risks and complications of pregnancy in adolescence and all the changes that will occur from the moment the adolescent becomes pregnant. Guidance should be given to the level of responsibility required to be a mother.

Communication in the family is essential, therefore, there must be an open and transparent dialogue so that young people have all the information at their fingertips. Adolescents must have universal access to comprehensive sex education, for free decision-making, through the full exercise of sexual and reproductive rights for a life free of violence. Therefore, it is up to the governing bodies to use strategies so that adolescents go to health centers and thus promote an active sexual life with responsibility and without the risk of early pregnancy.

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