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Original article

Influence of a recreational program in reducing anxiety in high school students

Influencia de un programa recreativo en la disminución de la ansiedad en estudiantes de bachillerato

Influência de um programa recreativo sobre a redução da ansiedade nos estudantes do ensino secundário

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ABSTRACT

Recreational activities have numerous positive effects on human behavior, this can favor relevant psychological indicators such as perceived anxiety. In this sense, the purpose of the research was to determine how a recreational program influences the reduction of anxiety levels in high school students. The research is descriptive-explanatory, correlational; 30 high school students are intentionally diagnosed through the Beck *test*, before and after implementing a recreational proposal for eight weeks. The percentages



of anxiety decreased as the intervention proposal was implemented, both in general and in the analysis by gender, as the decrease was significant ($p=0.003$). The present study shows that recreational activities can contribute to the reduction of anxiety in high school adolescents, both for the female gender and for the male gender. Three future actions are recommended: extend the implementation time of the intervention proposal, carry out studies by gender and direct future research at a quasi-experimental level.

Keywords: Recreational activities; Anxiety; High school student.

RESUMEN

Las actividades recreativas poseen numerosos efectos positivos en el comportamiento humano, esto puede favorecer a indicadores psicológicos de relevancia como la ansiedad percibida. En tal sentido, se planteó como propósito de la investigación determinar cómo influye un programa recreativo en la disminución de los niveles de ansiedad en estudiantes de bachillerato. La investigación es descriptiva-explicativa, de orden correlacional; se diagnostican intencionalmente a 30 estudiantes de bachillerato a través del *test* de Beck, antes y después de implementada una propuesta recreativa por ocho semanas. Los porcentajes de ansiedad disminuyeron a medida que se implementa la propuesta de intervención, tanto de forma general como en el análisis por género, al ser significativa la disminución ($p=0.003$). El presente estudio evidencia que las actividades recreativas pueden contribuir a la disminución de la ansiedad en adolescentes de bachiller, tanto para el género femenino como para el masculino. Se recomienda tres acciones a futuro: ampliar el tiempo de implementación de la propuesta de intervención, realizar estudios por género y direccionar la futura investigación a un nivel cuasiexperimental.

Palabras clave: Actividades recreativas; Ansiedad; Bachiller.

RESUMO

As atividades recreativas têm numerosos efeitos positivos no comportamento humano, o que pode favorecer indicadores psicológicos relevantes, tais como a percepção de ansiedade. Neste sentido, o objetivo da investigação era determinar como um programa recreativo influencia a redução dos níveis de ansiedade dos estudantes do ensino secundário. A investigação é descritiva-explicativa, de ordem correlacional; 30 estudantes do ensino secundário foram intencionalmente diagnosticados através do teste Beck, antes e depois da implementação de uma proposta recreativa durante oito semanas. As percentagens de ansiedade diminuíram à medida que a proposta de intervenção foi sendo implementada, tanto em geral como na análise por género, uma vez que a diminuição foi significativa ($p=0,003$). O presente estudo mostra que as atividades recreativas podem contribuir para a redução da ansiedade nos adolescentes do ensino secundário, tanto para raparigas como para rapazes. Três ações futuras são recomendadas: prolongar o tempo de implementação da proposta de intervenção, realizar estudos por género e orientar a investigação futura para um nível quase experimental.

Palavras-chave: Atividades recreativas; Ansiedade; Licenciado do ensino secundário.



INTRODUCTION

Anxiety is a common emotional affectation problem, it is a natural response of the human being as a survival reaction (April, 2020). However, the problem comes when it exceeds normal levels and the person does not know how to control their anxiety. It is at that moment when the person allows him/herself to be dominated by high levels and their various affectations, such as fear, worry; everything that causes a feeling of intense discomfort and a great affectation in the habitual functioning of the person to invade him/her (de Oliveira Pimentel et al., 2020). This emotional state is associated with a degree of alarm with restlessness, indefinite fear, anxiety, high levels of concern and lack of control (Quintanilla et al., 2020).

There are different types of anxiety that affect the student by presenting different levels of related stress (Valdez et al., 2019; Cabeza et al., 2018) ranging from mild, moderate, severe and profound. Among the most common levels that adolescents have are generalized anxiety disorder (GAD), anxiety or panic disorder (TA), separation anxiety disorder (SAD), phobic anxiety disorder (FAD), mixed manic anxiety -depressive, obsessive-compulsive anxiety disorder (OCD) and specific anxiety disorder (SAD) (Feliú, 2014; Santos, Vallín, 2018).

For anxiety and its different disorders, there are different treatments, since said affectation has therapy and medications that have been clinically effective. Among the forms of therapies are presented: psychotherapy, psychoeducation, relaxation techniques, attention training, family therapy and meditation and pharmacological treatment (Sartori, Singewald, 2019). The specialist must know which of the different therapies can work, since no treatment is the same for all patients with this condition.

In addition to the aforementioned therapies, various studies propose physical and recreational activities as an alternative therapy or prevention against anxiety, (Mera et al., 2018; Guerra et al., 2017; McDowell et al., 2019) since these activities produce benefits in the psychological and social area (Morales et al., 2016b; Morales et al., 2016a; Ballesteros et al., 2021; Angulo et al., 2020). These constitute an effective therapy, with a strong indicator of prevention; likewise, performing physical and recreational activities help strengthen self-confidence (Dale et al., 2019). This generates a feeling of improvement and cognitive functioning; It produces a positive impact on mental health, quality of life, improves emotional state and self-esteem.

When considering various works published and cited in this work, it can be determined that recreation is carrying out activities that seek human development. These have been carried out in the individual's free time, leading to the creation of new experiences or needs regardless of the individual's physical condition (Torres et al., 2021).

There are thirteen recreation areas: physical-sports area, outdoor area, aquatic area, ludic area, manual area, artistic area, commemorative area, social area, literary area, training and hobbies area, technical area, community and health maintenance area. On this basis, it is proposed that when carrying out an activity plan it must be balanced. It is understood with this that the activities do not saturate all areas so that there is permanent motivation and interest on the part of the participants, for which it is considered very useful to establish previous diagnoses to determine likes and preferences (Obregón et al., 2018).



On the other hand, it is also stated that recreational activities can help hemophiliacs, epileptics, drug addicts and alcoholics as therapy (Guillen *et al.*, 2017) since they have high levels of anxiety. Finally, it is worth mentioning that another of the benefits of recreation is that they help improve the behavior of children and young people (Morales *et al.*, 2016b; Morales *et al.*, 2016a); an aspect that is sometimes related to anxiety.

In the last year, a new virus has been introduced that caused and is causing different havoc around the world. According to a study carried out on the impact of Covid-19, in an age range between 15 and 24 years, it is shown how high levels of anxiety have been experienced due to the health situation. To this are added the restriction measures to contain the spread of the virus, (Hyland *et al.*, 2020). After analyzing 88% of respondents in an average of high and moderate anxiety for 12 %, it was possible to determine that the respondents say they have not felt affected, for which it is a high number of respondents who have presented high levels of anxiety. between 2020 and 2021 (Meza, Delgado, 2021).

However, given the consultation of the primary sources of research, no national studies (Ecuador) that are related to the present field of study, focused on the age range belonging to adolescence, are confirmed. Based on the above, this research aims to determine how a recreational program influences the reduction of anxiety levels in high school students.

MATERIALS AND METHODS

The study that is developed is descriptive-explanatory and correlational. An intentional sampling is applied to 30 people who study at the *Lev Vygotsky Educational Unit*, located in Sangolquí, Republic of Ecuador (both genders). The study is established in an age range between 16 and 18 years, whose selection assumptions additionally include the signing of informed consent and participation in at least 95 % of the physical-recreational classes.

In the study, the Beck *Test* or Beck Anxiety Inventory (BAI) is applied and, for this, the level of anxiety of third-year high school students (16 to 18 years old) is used. The somatic symptoms of anxiety are delimited, both in disorders and in depressive pictures. The survey method is applied through which information is collected such as: age, height, grade, and the level of anxiety that the respondent has through the data collection tool. Scientific observation is used to differentiate the main changes that will occur in students as they carry out recreational activities.

On the other hand, to standardize the study, recreational activities are carried out at the same time (from Monday to Friday during class hours; 08:10 am.). Various activities are implemented, with emphasis on the physical aspect, which are based on a previous diagnosis to determine likes and preferences of the studied sample. The objective of these activities is fundamentally to generate motivation towards the practice of recreation. The application period of the intervention proposal runs in eight weeks.

Given the size of the sample and to know the normal distribution of the data, the Shapiro-Wilk test was used and the non-existence of a normal distribution was demonstrated. In this sense, the correlational statistic to implement is denoted as the Sign Test ($p \leq 0.1$), a statistic used for two related samples. The level of significance was established at 90 % reliability, with a margin of error of 10 %, given that the authors of



this research consider that two months after the proposal was implemented has not been enough to have conclusive results.

However, a more sensitive statistic was applied as a reinforcement test for two related samples, denoted as the Wilcoxon Signed Ranks test ($p \leq 0.05$), where a reliability index of 95 % is expected.

RESULTS AND DISCUSSION

Table 1 shows the levels of anxiety detected with the Beck Test, at two moments after the recreational proposal was implemented; the different levels of anxiety are delimited with colors to nuance their differences (Table 1).

Table 1. - Anxiety levels collected by Beck Test

	Pre-test		Post test	
	Punctuation		Punctuation	
1	50	severe	9	Low
2	25	moderate	9	Low
3	37	severe	6	Low
4	19	moderate	9	Low
5	15	low	7	Low
6	6	low	6	Low
7	19	low	6	Low
8	20	low	28	moderate
9	11	low	13	Low
10	20	low	16	Low
11	26	moderate	10	Low
12	13	low	0	Low
13	9	low	10	Low
14		moderate	19	Low
15	25	moderate	31	moderate
16	26	moderate	10	Low
17	46	severe	17	Low
18	7	low	8	Low
19	9	low	12	Low
20	31	moderate		moderate
21	29	moderate	12	Low



22	45	severe	9	Low
	31	moderate	28	moderate
24	6	low	6	Low
25	2	low	two	Low
26	12	low	5	Low
27	12	low	10	Low
28	16	low	28	moderate
29	6	low	10	Low
30	4	low	one	Low

Table 1 shows the results achieved at the two times when the assessment test was applied (test of Beck); in which, by score, it is observed to which range each value belongs from 0 to 21 (low anxiety). On the other hand, the range from 22 to 35 (moderate anxiety) and more than 36 (severe anxiety) is shown. Figure 1 illustrates the means from a visual point of view, while Table 4 specifies the mean values quantitatively, with gender specification.

As part of the pretest, eight adolescents with *Moderate anxiety* (26.66 %), four with *Severe anxiety* (13.33 %), and the rest with *Low anxiety* (18 adolescents: 60 %) were determined. On the other hand, as part of the post -test, 5 adolescents with *Moderate anxiety* (16.66%), 0 with *Severe anxiety* (00.00 %), and the rest with *Low anxiety* (83.33 adolescents: 60 %) were determined (Figure 1).

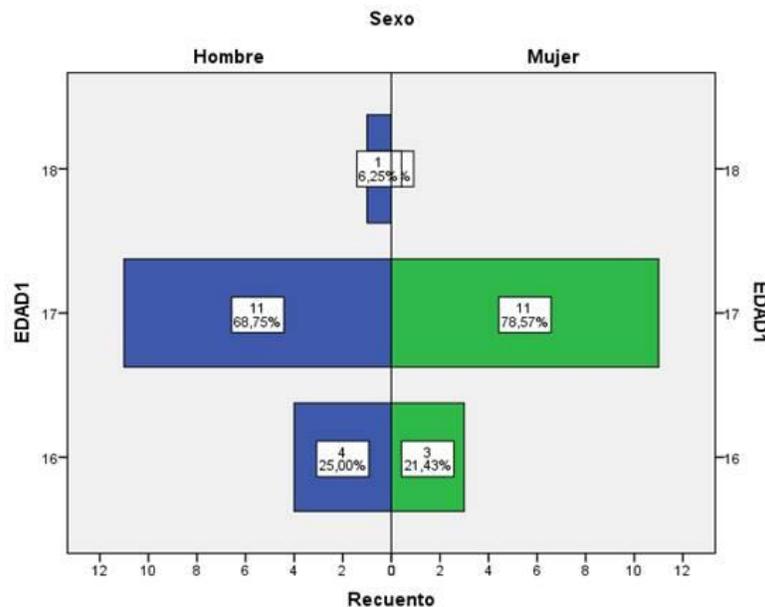


Fig. 1. - Population pyramid of the study sample according to gender and age



The study involved 30 people between the ages of 16 and 18, 78.57 % of the women are 17 years old and 68.75 % of the men. The study subjects also comprise the same age, in a lesser proportion men and women of 16 and 18 years respectively participated.

The results of the descriptive statistics determined that the effects on anxiety in the 30 study participants, before the implementation of the recreational program, the mean of the dependent variable *anxiety* was 20 points, with a standard deviation of 12.89 points. In contrast, at the end of the implementation stage of the intervention proposal, anxiety levels were reduced by obtaining a mean of 12 points with a standard deviation of 8.29 points in the instrument for measuring the dependent variable *anxiety*.

These differences in anxiety levels are demonstrated through the Signs Test (Table 2); the existence of significant differences is evidenced ($p=0.054$) for a significance level of 90 % reliability.

Although 95 % reliability ($p\leq 0.05$) is normally accepted in the social sciences, in the case of using this indicator, the objective of the research would not be fulfilled. The foregoing is justified by the short time since the recreational proposal was implemented (eight weeks) to make the recommendation a fundamental tool in the continuity of the research; this is directly related to the increase in the implementation time of the intervention proposal. In this way, the data obtained are corroborated at a more optimal level of significance.

The Signs test, determined 19 adolescents with negative differences; anxiety rates improve 63.33 %, while 8 positive ranges were recorded (they increased their anxiety) and three ties (they presented the same level) (Table 2) and (Table 3).

Table 2. - Test of Signs

Frequencies		N
Anxiety. Posttest -	Negative differences ^a	19
Anxiety. pre-test	Positive differences ^b	8
	Ties ^c	3
	Total	30

a. Anxiety.Posttest < Anxiety.Pretest.

b. Anxiety.Posttest > Anxiety. pre-test.

c. Anxiety.Posttest = Anxiety. pre-test.



Table 3 - Test Statistics^a

Anxiety. Posttest - Anxiety. pre- test	
Z	-1,925
Sig. Asymptotic (bilateral)	.054
a. sign test	

On the other hand, the statistic used in table 3 does show significant differences in favor of the post-test ($p=0.003$), with the Wilcoxon Test showing a higher average range (16.55) in the negative ranges than that established in the positive ranges (7.94). This is evidenced, given that the anxiety mean scores before and after the implementation of the physical activity program showed changes towards a decrease in anxiety; a mean of -8 points prevails between pre and post implementation, with a standard deviation of 12.94 (Table 4), (Table 5) and (Table 6).

Table 4.- Wilcoxon Signed Rank Test

		ranks		
		N	average range	sum of ranks
Anxiety. Posttest - Anxiety. Pretest	Negative rangos	19 ^{to}	16.55	314.50
	Positive ranges	8 ^b	7.94	63.50
	Ties	3 ^c		
	Total	30		

- a. Anxiety.Posttest < Anxiety.Pretest.
- b. Anxiety.Posttest > Anxiety.Pretest.
- c. Anxiety.Posttest = Anxiety.Pretest

Table 5. - Test statistics^a

Anxiety. Posttest - Anxiety. Pre-test	
Z	-3,017 ^b
Asymptotic sig.(bilateral)	.003

- a. Wilcoxon signed rank test.
- b. It is based on positive ranges.



Table 6. - Percentage of anxiety before the implementation of the recreational program, according to gender

			Sex		Total
			Men	Women	
Anxiety	low	Count	10	7	17
		% of the total	33.3%	23.3%	56.7%
	moderate	Count	6	3	9
		% of the total	20.0%	10.0%	30.0%
	severe	Count	0	4	4
		% of the total	0.0%	13.3%	13.3%
Total	Count	16	14	30	
	% of the total	53.3%	46.7%	100.0%	

Before the implementation of the recreational program, there were severe, moderate and low levels of anxiety. The 33.3 % of the men presented low anxiety (Table 6), 20 % moderate. On the other hand, 13.3% of women presented severe anxiety, 10 % moderate anxiety and 23.3 % low anxiety. On this aspect, an additional recommendation should be written, involving studies by gender, where anxiety levels and the effects of a scientifically based physical-recreational program are compared.

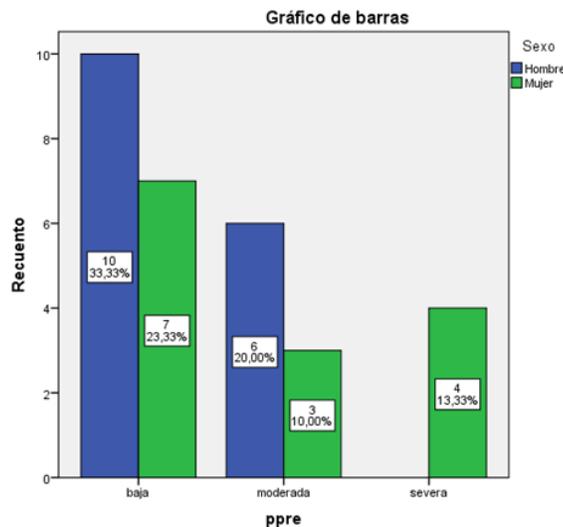


Fig. 2 - Percentage of anxiety before the implementation of the recreational program by gender



In the bar graph (Figure 2), it can be seen the percentages of anxiety levels, prior to the implementation of the physical activity program in men and women. Only women, 13.3 % presented severe anxiety, moderate anxiety was more prevalent in men with 20 % and in women 10 %, and low levels of anxiety were represented in 33.33 % of men vs. 23.33 % of women.

On the other hand, Table 6 shows the percentage of anxiety after the implementation of the recreational program, by gender (Table 7).

Table 7. - Percentage of anxiety after the implementation of the recreational program, according to gender

		Sex		Total	
		Men	Women		
Anxiety	Low	Count	14	eleven	25
		% of the total	46.7%	36.7%	83.3%
	moderate	Count	two	3	5
		% of the total	6.7%	10.0%	16.7%
Total		Count	16	14	30
		% of the total	53.3%	46.7%	100.0%

Anxiety levels decreased after implementation of the gender-based recreational program; there were severe, moderate and low levels of anxiety. 33.3 % of the men presented low anxiety (Table 6), 20 % moderate. On the other hand, 13.3 % of women presented severe anxiety, 10 % moderate anxiety and 23.3 % low anxiety. In this sense, figure 3 graphically shows the percentage of anxiety after the implementation of the recreational program, according to gender.



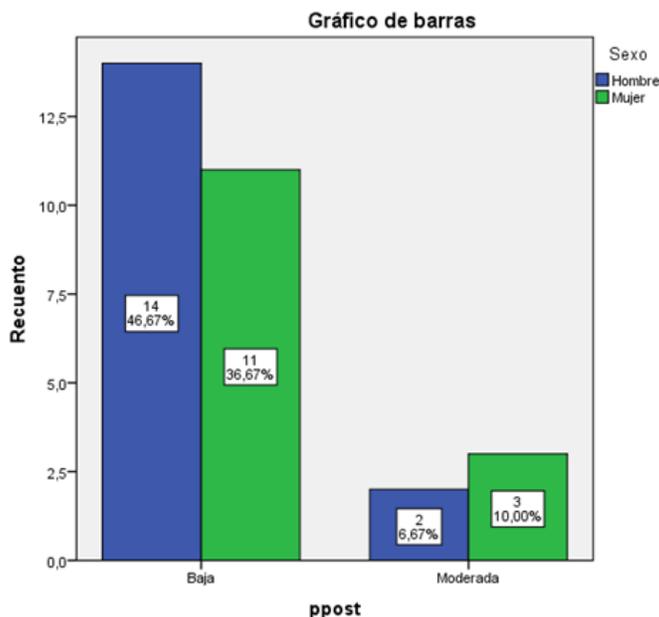


Fig. 3. - Percentage of anxiety after the implementation of the recreational program, according to gender

After the intervention proposal was implemented, the bar graph shows that the percentages of anxiety levels decreased to only low and moderate anxiety. Moderate anxiety was more prevalent in women with 10 % and in men with 6.67 %; for low anxiety, 46.67 % of men presented a level of anxiety vs. 36.67 % of women.

In the opinion of the authors of this research, it is considered that the effects caused by the recreational health intervention proposal have been satisfactory, despite the fact that the research was carried out in eight weeks. However, in order to have a better control of anxiety levels and observe what effects recreation has in the medium and long term, it is recommended to extend the intervention study to 6-12 months, where high school students or other types of populations should participate in a greater number of weekly activities, (not just one recreation area) and vary each week with a different area.

Another aspect to take into account is that the present research was carried out during a pandemic, an aspect to take into account in future research, given the particularities generated by the aforementioned case, an aspect that enables notable changes in psychological behavior (Hyland *et al.*, 2020; Meza, Delgado, 2021) being an aspect that can cause significant differences in various studies.

CONCLUSIONS

The present study demonstrates that recreational activities can contribute to the reduction of anxiety in high school adolescents in the "Lev Vygotsky" Educational Unit, located in Sangolquí, both for the female and male gender. Three future actions are recommended, extend the time of implementation of the intervention proposal, carry



out studies by gender, and direct future research at a quasi-experimental level.

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Conflict of interests:

Los autores declaran no tener conflictos de intereses.

Authors' contribution:

The authors have participated in the writing of the work and analysis of the documents.



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