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Actividades físicas para mejorar la calidad de vida en estudiantes de bachillerato

Physical activities to improve the quality of life in high school students

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Palabras claves:
Educación física, calidad de vida, estudiante, programa de enseñanza, estilo de vida.

Resumen

Introducción: La relación entre la actividad física y la calidad de vida emerge como un tema crucial en el ámbito de la salud y el bienestar. Más allá de mantener una buena salud física, la actividad física regular influye de manera significativa en aspectos emocionales, sociales y psicológicos de la vida cotidiana. **Objetivos:** El objetivo es mejorar la calidad de vida de los estudiantes de bachillerato a través de un programa de actividades físicas. **Metodología:** Para la investigación, se adoptó un enfoque cuantitativo longitudinal, combinando métodos teóricos y empíricos. Se utilizó la Escala de Satisfacción con la Vida (SWLS) antes y después del programa, junto con pruebas de condición física. **Resultados:** Los resultados revelaron una correlación significativa entre las mediciones de condición física previas y posteriores al programa, evidenciando mejoras coherentes en la condición física relacionadas con la participación en el mismo. Antes del programa, las medias de todas las dimensiones evaluadas se situaban en un rango moderado, pero tras el programa se observó un aumento sustancial en todas las áreas, indicando una mejora significativa en la satisfacción con la vida en general. Concretamente, se destacaron incrementos en el bienestar físico, emocional, autoestima, interacciones sociales y sentido de logro y propósito. **Conclusiones:** Estos resultados subrayan la necesidad de integrar la actividad física en el ámbito educativo para fomentar estilos de vida activos y saludables desde temprana edad, lo que puede generar beneficios en el bienestar general de los individuos. **Área de estudio general:** Entrenamiento deportivo. **Área de estudio específica:** Actividad Física. **Tipo de estudio:** original.

Keywords:
Physical education, quality of life, student, teaching program, lifestyle.

Abstract

Introduction: The relationship between physical activity and quality of life emerges as a crucial issue in the field of health and well-being. Beyond maintaining good physical health, regular physical activity significantly influences emotional, social and psychological aspects of daily life. Goals: The objective is to improve the quality of life of high school students through a physical activity program. Methodology: For the research, a longitudinal quantitative approach was adopted, combining theoretical and empirical methods. The Satisfaction with Life Scale (SWLS) was used before and after the program, along with physical fitness tests. Results: The results

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revealed a significant correlation between pre- and post-program physical fitness measurements, evidencing consistent improvements in physical fitness related to program participation. Before the program, the means of all dimensions evaluated were in a moderate range, but after the program a substantial increase was observed in all areas, indicating a significant improvement in satisfaction with life in general. Specifically, increases in physical and emotional well-being, self-esteem, social interactions, and sense of achievement and purpose were highlighted. Conclusions: These results highlight the need to integrate physical activity into the educational environment to promote active and healthy lifestyles from an early age, which can generate benefits in the general well-being of individuals. General Study Area: Sports Training. Specific study area: Physical Activity. Study type: original.

Introduction

Physical activity is a pillar in the integral development of the person(Parra, 2021). EAt all levels, it is essential for people's well-being, being especially crucial to improve their quality of life.(Mejia, 2022).It has been proven that maintaining constant physical activity contributes to preventing and controlling non-communicable diseases, such as heart disease, stroke, diabetes and various types of cancer, in addition, it plays a role in preventing hypertension, maintaining an adequate body weight, and can have positive effects on mental health, quality of life and general well-being.(Pandey et al. 2017;World Health Organization [WHO, 2022).Studies have shown that exercise reduces stress, eliminates toxins from the body, and activates chemicals related to a feeling of personal satisfaction (Sánchez et al., 2023). In this sense, physical activity is defined as any form of bodily movement that involves muscle contraction and increased energy consumption compared to the resting state (Madaria, 2018; Cañadas, 2021). To achieve the benefits of physical activity mentioned above, it is necessary to include activities such as walking, running, swimming, yoga, or gardening tasks, all of which have physical, mental, and emotional benefits (Guillén et al., 2018; Tebar et al., 2019; Guillamón, 2019).

From the same perspective, Cáceres (2022) highlights the importance of participation in physical activity to enhance physical qualities, increase productive capacity and strengthen interpersonal relationships. Additional studies, such as that of Escurra (2020), support the benefits of physical activity in the area of social skills. In addition, research carried out by López (2021), Romero (2019) and Tafur (2021) underlines the connection between physical activity and academic performance. This evidence reiterates the

importance of incorporating physical activity into various aspects of life to promote not only physical health, but also comprehensive and sustainable well-being.

Likewise, research by Fernández et al. (2022) highlights physical activity as a crucial determinant of quality of life. This practice is not only accessible and easy to incorporate, but also has a beneficial impact on the general health of the population. Participation in physical activity is crucial for the development of adolescents, contributing to maintaining a healthy body, reducing stress and preventing future diseases (Rodríguez-Torres et al., 2020).

From a physical perspective, it is evident that young people who engage in physical activities show a notable improvement in their motor skills, which contributes to the performance of various activities, generating greater confidence in their own body and in their being. This aspect is especially relevant given that, during this phase of the evolutionary process, adolescents face assessments in both the internal and social spheres (Franco et al., 2017). The appropriate evolution of physical condition in adolescents, through their participation in physical activities, contributes to perfecting the perception of both the physical and mental construction of each individual. In other words, it reinforces the impression they have about their abilities and physical appearance (Fernández-Álvarez et al., 2020; Zurita et al., 2018).

Quality of life is understood today as a multidimensional concept that encompasses diverse aspects of human existence, beyond physical health, as pointed out by Mastrantonio & Corduras (2020). This holistic analysis, outlined by Ramírez-Coronel et al. (2020), considers physical health, psychological state, independence, social relationships, and interaction with the environment. García & Froment (2018) relate quality of life to the individual's perception of their place in society and personal goals. Redondo & Zapata (2022) highlight its subjective nature, reflecting the global evaluation that people make of their existence. Furthermore, Diener et al. (2020) define it as the satisfaction of individual needs and desires.

Lifestyle and quality of life are intrinsically related, directly influencing overall well-being. Everyday decisions, such as physical activity and diet, impact the perception of a full life. Adopting a healthy lifestyle promotes happiness and emotional well-being. On the other hand, a sedentary lifestyle, according to Garzón Mosquera & Aragón Vargas (2021), leads to health complications and is harmful to the individual and society. An active lifestyle improves quality of life and physical fitness, preserving functional independence. Furthermore, lack of physical activity has become one of the main contributing factors to mortality worldwide, indicating an alarming increase in its frequency in several countries. This can lead to problems such as obesity to leading a sedentary life, which in turn results in serious inconveniences for people. The loss of physical abilities causes a decrease in the quality of life, due to the lack of healthy

habits.(Hernandez-Martinez, 2016)People who have an insufficient level of physical activity have a risk of death that ranges from 20% to 30%, higher than those who manage to maintain a sufficient level of physical activity. Likewise, more than 80% of adolescents worldwide have an insufficient level of physical activity.(WHO, 2022).

At the national level, the government encourages physical activity, however, in the educational area, through plans in educational institutions and curricular grids, certain actions have been implemented in favor of students. Despite this, students face difficulties related to depression and anxiety, and 80% of them consider that the physical activity carried out is insufficient.

The pandemic caused by COVID-19 had a profound impact on educational processes. To maintain the continuity of teaching, mostly virtual modalities were implemented through digital platforms. However, this transition generated challenges for students' physical activities, since many of these activities require a practical environment in the field for their proper execution, so direct interaction with the environment and personalized guidance from the teacher are essential elements in this type of activities (Ortiz & Ramírez 2020).

Specifically, in the second year high school students of the Fiscal Educational Unit "Rocke Cantos Barberán", in the city of Montecristi, it can be seen that there is a lack of motivation on the part of the students to carry out physical activity with greater regularity and effectiveness, causing them to adopt sedentary habits, which contribute to long-term health problems. Most students participate in physical activities with the sole purpose of obtaining a grade that allows them to pass the subject, instead of seeing them as a source of motivation for their personal development. Many do not recognize the importance that these activities have in relation to the quality of life.

Through preliminary observations and surveys, it has been identified that some second-year high school students show a tendency to spend long hours in sedentary activities, such as excessive use of electronic devices and prolonged study, without devoting enough time to physical activity. This situation can result in an increase in health problems related to sedentary lifestyle, such as obesity, fatigue, lack of concentration and stress. Based on this premise, it was necessary to verify how physical activities influence the quality of life of students.

Methodology

In the present study, theoretical and empirical methods were used from a quantitative research design with a longitudinal approach. The theoretical methods allowed us to specifically delve into the effect of a physical activity program on the quality of life and physical condition of high school students. The Satisfaction with Life Scale (SWLS) was

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administered to students before and after participating in the physical activity program. Students evaluated their degree of agreement with five statements about life satisfaction on a scale of 1 to 7.

Table 1

Scale and Observation

Scale	Observation
1	Strongly disagree
2	Disagree
3	Slightly disagree
4	Neutral
5	Slightly agree
6	OK
7	I totally agree

Regarding the students' physical condition, a pre-test and a post-test were carried out to evaluate the students' physical condition. Variables such as strength in the arms, abdomen, legs, flexibility and resistance were measured using specific tests. To carry out the research, a sample of 35 second-year high school students from the Rocke Cantos Barberán Educational Unit was selected at random. The inclusion criteria were being a second-year high school student and having the consent of their parents or guardians.

Results

Initial diagnosis

The results obtained from the diagnosis carried out at the beginning of the research are reflected in the analysis of the proposed variables related to the physical condition of the participants. In the analysis of the data obtained in the pre-test, the measurements of the variables: arm, abdomen, legs, flexibility and resistance of the second year high school students were examined, where the physical condition is revealed.

Below is an illustration of the results obtained in the diagnostic test.

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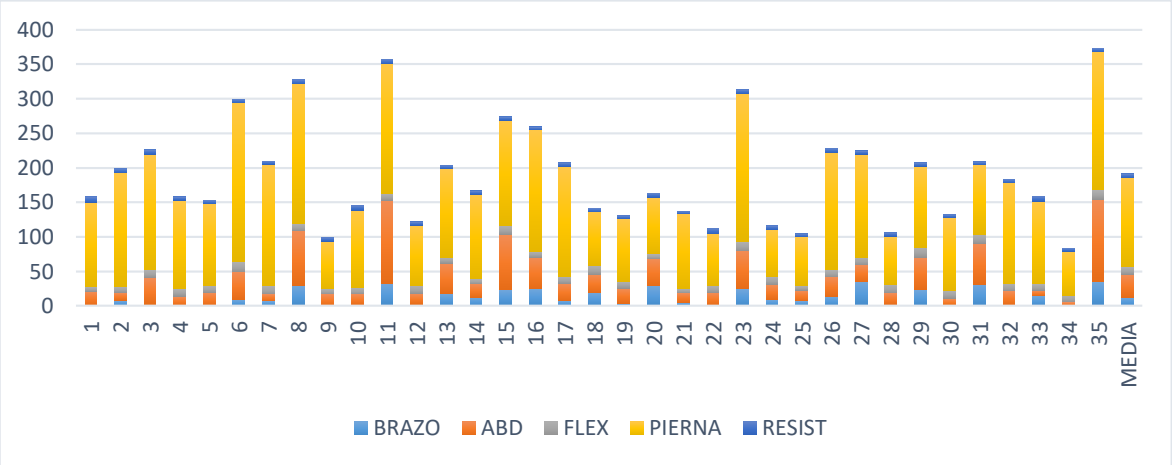
Figure 1

Pre-test



The results reveal significant data on the physical condition of the participants in several dimensions. In terms of strength, the mean obtained for the arms was 12.77, indicating a moderate level in this area while the average abdominal strength was slightly higher, with a mean of 33.28, suggesting a relatively greater strength in this region of the body. On the other hand, the strength in the legs showed a substantially higher mean, reaching 129.31, reflecting a remarkable capacity in this aspect. In terms of flexibility, a mean of 10.42 was observed, indicating an average level of flexibility among the participants. Finally, in terms of endurance, a mean of 5.36 was recorded, suggesting a moderate capacity in terms of physical endurance. These findings provide a detailed insight into the initial physical condition of the participants, highlighting areas of strength and possible areas for improvement.

Regarding quality of life, the Satisfaction with Life Scale (SWLS) was applied, with the following dimensions:physical well-being, emotional well-being, self-esteem and self-confidence, social interaction and support, sense of achievement and purpose, with the aim ofassess the quality of life of the participants.

Figure 2 shows the results of the scale applied to the students.

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Figure 2

Quality of life diagnosis

In analyzing the results of the diagnostic scale for quality of life, the mean of each dimension was calculated to obtain an overview of the participants' quality of life. In the dimension of physical well-being, it was observed that the mean is approximately 4.77, suggesting that, in general, the participants have a moderate level of physical well-being. On the other hand, in the dimension of emotional well-being, the mean was around 4.54, indicating a moderate to high level of emotional satisfaction among the participants. However, when analyzing the dimension of self-esteem and self-confidence, it was observed that the mean of this dimension is approximately 3.89, suggesting that there is room for improvement in self-esteem and self-confidence among the participants. Regarding the dimension of social interaction and support, it was found that the mean is around 4.34, indicating that the participants experience moderate levels of satisfaction in this aspect of their life. Finally, in the dimension of sense of achievement and purpose, a mean of approximately 4.11 was identified, suggesting that participants have a moderate level of sense of achievement and purpose in their lives.

Overall, these results indicate that participants have a moderate level of quality of life in the different dimensions assessed. However, there are specific areas, such as self-esteem and self-confidence, where participants may benefit from additional interventions to improve their well-being. These findings were considered for the design of the physical activity program, with the aim of addressing and improving specific aspects of the participants' quality of life.

After the initial diagnosis, the physical activity program was developed with careful planning to ensure its effectiveness and safety. The program established the objectives, materials to be used, organization and development, place, time, duration of the program,

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and activities to strengthen the legs, arms, abdomen, flexibility and resistance. The program was implemented over a two-month period, with three activities per week lasting 60 minutes each, which were carried out at the educational institution.

Below is an example of the activities carried out for one week of the program.

Table 2

Physical Activity Program Week 1

Date	Activity	Aim	Organization and development	Materials	Place	Time
Monday, December 4th	Endurance Endurance racing.	Develop aerobic endurance	Form groups. Perform continuous runs Arm and abdominal strength	Whistle Chronometer	School field	60 minutes
Wednesday, December 6th	Coordination work. Coordination exercises on stairs	Develop coordination	Form groups. Perform coordination exercises inside, outside, sides Arm and abdominal strength	Whistle Chronometer Stairs	School field	60 minutes
Friday, December 8th	Strength work	Develop strength in your legs, arms and abdomen	Perform strength exercises on a box Jumps on one leg, both legs Arm and abdominal strength	Whistle Chronometer Drawers 20cm and 30cm	School field	60 minutes

Final diagnosis

Physical fitness analysis was performed using Pearson correlation to examine the relationship between pre- and post-measurements of the physical activity program. This correlation allows determining whether there is an association between measurements taken at different points in time, which facilitates the assessment of whether the program had a significant impact on the physical fitness of participants. Pearson correlation provides a quantitative measure of the relationship between measurements allowing to establish whether the observed changes are statistically significant. Scores obtained in the pre-test and post-test of physical fitness (strength in arms, abdomen, legs, flexibility and endurance) and scores from the SWLS were evaluated. Correlations were considered significant at a level of 0.05 (bilateral). This allows a better understanding of how the program improved the physical fitness of students and their general perception of satisfaction with life.

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Table 3

Correlations

		Pre-arms	Post-arms	Pre-abdomen	Post-abdomen	Pre-legs	Post-legs	Pre-flexibility	Post-flexibility	Pre-resistance	Post-resistance
Pre-arms	Pearson correlation	1	,980**	,759**	,756**	,433**	,439**	,182	,161	-,049	-,045
	Next (bilateral)		<,001	<,001	<,001	,009	,008	,296	,356	,782	,797
	N	35	35	35	35	35	35	35	35	35	35
Post-arms	Pearson correlation	,980**	1	,744**	,740**	,400*	,403*	,196	,193	-,014	-,019
	Next (bilateral)	<,001		<,001	<,001	,017	,016	,259	,266	,939	,914
	N	35	35	35	35	35	35	35	35	35	35
Pre-abdomen	Pearson correlation	,759**	,744**	1	,999**	,549**	,546**	,290	,296	,108	,115
	Next (bilateral)	<,001	<,001		<,001	<,001	<,001	,091	,084	,536	,511
	N	35	35	35	35	35	35	35	35	35	35
Post-abdomen	Pearson correlation	,756**	,740**	,999**	1	,551**	,549**	,291	,296	,115	,122
	Next (bilateral)	<,001	<,001	<,001		<,001	<,001	,090	,085	,511	,487
	N	35	35	35	35	35	35	35	35	35	35
Pre-legs	Pearson correlation	,433**	,400*	,549**	,551**	1	,992**	,294	,354*	,031	,062
	Next (bilateral)	,009	,017	<,001	<,001		<,001	,086	,037	,862	,722
	N	35	35	35	35	35	35	35	35	35	35
Post-legs	Pearson correlation	,439**	,403*	,546**	,549**	,992**	1	,316	,372*	,026	,059
	Next (bilateral)	,008	,016	<,001	<,001	<,001		,064	,028	,882	,734
	N	35	35	35	35	35	35	35	35	35	35
Pre-flexibility	Pearson correlation	,182	,196	,290	,291	,294	,316	1	,923**	-,169	-,152
	Next (bilateral)	,296	,259	,091	,090	,086	,064		<,001	,331	,383
	N	35	35	35	35	35	35	35	35	35	35
Post-flexibility	Pearson correlation	,161	,193	,296	,296	,354*	,372*	,923**	1	-,070	-,048
	Next (bilateral)	,356	,266	,084	,085	,037	,028	<,001		,689	,783
	N	35	35	35	35	35	35	35	35	35	35
Pre-resistance	Pearson correlation	-,049	-,014	,108	,115	,031	,026	-,169	-,070	1	,990**
	Next (bilateral)	,782	,939	,536	,511	,862	,882	,331	,689		<,001
	N	35	35	35	35	35	35	35	35	35	35

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Table 3

Correlations (continued)

		Pre-arms	Post-arms	Pre-abdomen	Post-abdomen	Pre-legs	Post-legs	Pre-flexibility	Post-flexibility	Pre-resistance	Post-resistance
Post-resistance	Pearson correlation	-,045	-,019	,115	,122	,062	,059	-,152	-,048	,990**	1
	Next (bilateral)	,797	,914	,511	,487	,722	,734	,383	,783	<,001	
	N	35	35	35	35	35	35	35	35	35	35

**. The correlation is significant at the 0.01 level (two-tailed).

*. The correlation is significant at the 0.05 level (two-tailed).

The very strong and highly significant positive correlation (r = 0.980) between arm strength measurements before and after the program evidenced a substantial improvement in the strength of this area of the body. This can be attributed to the inclusion of specific arm strengthening exercises in the program.

The very strong and highly significant positive correlation (r = 0.999) between abdominal strength measurements before and after the program indicates a considerable improvement in the strength of this region. This means that the physical activities implemented had a direct impact on strengthening the abdominal muscles.

The very strong and highly significant positive correlation (r = 0.992) between leg strength measurements before and after the program points to a considerable improvement in lower limb strength. This could be attributed to the inclusion of leg exercises such as squats, lunges and weight lifting in the program.

The very strong and highly significant positive correlation (r = 0.923) between flexibility measurements before and after the program indicates that physical activities contributed to improving the participants' range of motion. The improvement of this indicator is the result of the effective stretching and mobility exercises incorporated in the program.

The very strong and highly significant positive correlation (r = 0.990) between pre- and post-program endurance measurements indicates that participants experienced notable improvements in their cardiovascular capacity and overall endurance. This can be attributed to the inclusion of both cardiovascular and resistance exercises in the program.

The results showed that the physical activity program implemented had a positive and significant impact on the physical condition of high school students. Improvements were observed in muscle strength in the arms, abdomen and legs, as well as in flexibility and physical endurance. These improvements are consistent with the expected benefits of regular participation in physical activities.

Importantly, the correlation between pre- and post-program fitness measures was very high and highly significant in all cases, indicating a strong and consistent relationship

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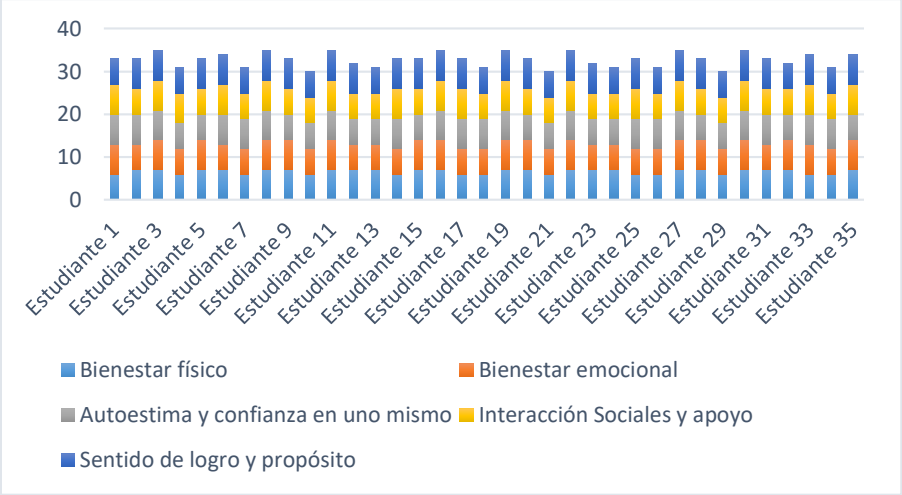
between measurements taken at different times. This suggests that the observed improvements in fitness were not random, but were related to participation in the physical activity program.

For the analysis of the quality of life variable, Figure 3 is presented below, which shows the dimensions used to evaluate quality of life satisfaction after the physical activity program. The means for each dimension were calculated, comparing the means obtained before and after the program to determine if there was any significant change in life satisfaction in each dimension.

Figure 3

Quality of life satisfaction



The results reveal a significant change in the students' perception of quality of life before and after the physical activity program. Before the program, the means in all the dimensions evaluated were in a moderate range, with values around 4 on a scale of 1 to 7. However, after participating in the program, a considerable increase was observed in all areas, with means ranging between 6 and 7.

This change indicates a significant improvement in the students' overall life satisfaction. Specifically, a notable increase was observed in physical and emotional well-being, self-esteem, social interactions, and sense of achievement and purpose. These results demonstrated that the physical activity program not only had a positive impact on the participants' physical health, but also positively influenced their emotional well-being, self-concept, and social relationships.

The findings of the present study highlight the importance of integrating physical activity into educational and wellness programs. The evidence supports the idea that regular physical activity not only benefits physical health, but also improves quality of life in

multiple dimensions. Furthermore, the program appears to have provided an enabling environment for strengthening social relationships and a sense of achievement among participants.

Conclusions

- The theoretical foundations of the study have highlighted the close relationship between physical activity and quality of life. The reviewed studies suggest that regular physical activity not only contributes to maintaining good physical health, but also has a significant impact on emotional, social and psychological aspects of people's lives. The literature highlights how physical activity can improve physical and emotional well-being, increase self-esteem, promote positive social interactions and provide a sense of achievement and purpose in life.
- The results highlight the importance of integrating physical activity as an integral part of the educational environment. It is not only about promoting physical health, but also about fostering students' emotional, social and psychological development. Evidence suggests that physical activity programmes can play a crucial role in promoting active and healthy lifestyles from an early age, which can have long-term benefits in terms of overall well-being. Furthermore, these results point to the need to address health and well-being holistically in educational settings. This involves designing programmes that do not only focus on physical exercise, but also include components that address emotional, social and psychological aspects of well-being.
- The study also highlights the potential for future research and program development. Further studies are needed to better understand the exact mechanisms through which physical activity influences students' quality of life, as well as to evaluate the long-term effectiveness of these programs. This will allow for further refinement and adaptation of interventions to meet the specific needs of students.

Conflict of interest

There is no conflict of interest in relation to the submitted article.

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