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IMPACT OF THE POST PANDEMIC ON COLLEGE STUDENT' LIFESTYLES

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KEYWORDS

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ABSTRACT

The pandemic motivated nutrition and healthy living to maintain a healthy lifestyle. The objective is to analyze and describe the perspectives of post-pandemic lifestyles of university students, using the quantitative cross-sectional method with non-probabilistic sampling and survey that measures the nutritional level and level of physical activities, 1033 university students participated. The results showed that the measurement instrument in the Peruvian context is acceptable and that the level of lifestyle is moderate. In conclusion, nutritional policies and physical activities should be considered in universities so that university students practice a healthy lifestyle and take care of their health.

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1. Introduction

Some of the compounds found in the environment in the form of gas as reactive nitrogen are harmful to human health these compounds and small particles up to 2.5 microns that are suspended in the air are widely recognized as a public health problem that can not be taken lightly (Chakraborty, et al., 2022), avoid voting garbage brings many benefits, both from the social point of view, as environmental and economic, but the most garbage thrown into the environment around the world are cigarette butts, why? Lifestyles such as the consumption of alcohol or tobacco, are associated with a large number of diseases, among these are the famous abnormalities of the oral microbiota in which there is the metabolism of drinkers that are positively and negatively associated with health (Liao et al., 2022), smoking is a negative factor for public health worldwide but despite the existence of laws that contravene or laws that are in favor of consumption, it has not been possible to abandon these bad practices, these bad practices have not been abandoned and only stop doing it when health is very bad or when they want to be part of mobile health that some countries are working hand in hand with ICT, which is achieving lifestyle changes in a personal way (Ellison et al., 2020).

There are diseases that are caused by bad lifestyles, as there are also diseases that manage to interact with centers of peace and harmony to be treated (emotional diabetes), these centers of peace generate great impacts and limits on work and personal well-being, even in some countries limits were established between work and social life to maintain emotional, social and family well-being (Tsai et al., 2022). In developed countries it was possible to incorporate minimum healthy lifestyles for students of educational institutions thinking about cognitive development since it is of utmost importance to work on that point for a better future, thus generating awareness in university students about healthy eating will have positive effects, since to date it has become customary to consume "junk" foods and students are weak to the temptation of these and are carried away by the negative lifestyle (Melnyk et al.,2021; Huamán-Romaní, et al.,2023).

The innovation of retailers is due to the existence of the great relationship between the brand-consumer and also to the different lifestyles of the consumer of natural or processed foods, even fast foods have been detected as a factor that reduce the good healthy lifestyle, but with nutritional intervention could reduce the excess of fats, preservatives and others, (Katz-Shufan, et al., 2022) in addition fast food is considered as a key point for the post Covid-19 economic reactivation of many countries and it is not only about eating well to have a good lifestyle, but also to leave aside the sedentary life and have moderate physical activity with advice from specialists which will allow to have good social relationship because leading a sedentary life as a lifestyle would have health consequences (Valle & Huamán, 2022; Kiema-Junes et al., 2022).

As a consequence of the presence of Covid-19 there were many losses of loved ones, which influenced many lifestyles in young people and adults bringing with it problems of anxiety and depression in university students (Huamán-Romaní et al., 2021), this problem is usually caused by those students who lead an unhealthy lifestyle because they smoke, do not have physical activities and consume alcohol, but it is less frequent in those students who have a healthy lifestyle (Jang et al., 2022), in Covid-19 times the internet was a practice of a sedentary lifestyle, there was even a seizure to online shopping and thanks to the intervention it was possible to avoid chronic diseases and indebtedness because this psychotic disorder is related to the lifestyle of university students (Crouse et al., 2022).

In the human being there are cells that when they are altered they tend to wrinkle and age while, if they have physical activities, good nutrition and other healthy lifestyle, they tend to be healthier and do not develop diseases even having a good social relationship influences the increase or loss of weight in people (Smith et al., 2020, p. 24), the decision to lead a healthy life or not is to prevent many diseases and ailments in the future including the same morbidity and mortality (Mayne et al., 2021). Many of these diseases are associated with different forms of lifestyle, so it is necessary to encourage and advise by professionals to lead a healthy life (Lee et al., 2022) and reduce the suffering of many chronic diseases that despite having a solution people do not dare to lead a healthy and healthy life (Tenbult et al., 2022).

The health sector performs prevention activities with little or no positive results due to the negative perception of people towards healthy lifestyle (Romero-Rodríguez et al., 2021), as there are also several mobile applications that despite promoting a healthy lifestyle university students ignore even existing a commitment to emotional and physical well-being within the university campus (Virtanen et al., 2022).

Actions to preserve a healthy lifestyle have to be policy of prime necessity to improve health since dietary preferences influence consumers through social networks and media that are received by society and in general by college students (Talegawkar et al., 2020).

Companies currently have a policy of genetic testing of products to determine and prevent bad lifestyles in consumption of certain products and prevent disease (Gudzune et al., 2020) due to the consumption of harmful products that has a direct relationship with consumers, for which the implementation of social networks with informative programs on health and nutrition will help to reduce consumption of these, this factor of consumerism significantly influences the healthy lifestyle and all social factors (Barros-Bastidas & Turpo, 2020; Malin et al., 2020). The labor sector as the center of studies is a key point to motivate and encourage a good healthy lifestyle, whose training by physicians and occupational health nurses will achieve significant effects for the welfare of human health, because food education is of utmost importance since at home food is consumed only by parents in a traditional way and not in a balanced way, for this reason there is obesity at an early age, so the intervention of health professionals is needed to motivate a good lifestyle (Upadhyaya et al., 2020).

When enunciating healthy lifestyles these do not have an impact on the entire population, specialist professionals struggle daily to provide adequate information for their practice and prevent many diseases that directly or emotionally affect families, it is for that reason that in this research aims to know and analyze the perspectives of post-pandemic lifestyles of university students in the province of Sullana, as well as the specific objectives which are:

- To analyze and describe the post pandemic nutritional lifestyles of university students.
- To analyze and describe the post-pandemic physical activity lifestyles of university students.
- To identify the frequency and mean of the students' assessment in relation to the post-pandemic lifestyle of university students.

2. Development of the investigation

The population of the present investigation is university students from the province of Sullana, these students participated in online classes until semester 2022-1 and then returned to the blended classes in semester 2022-2, these students practiced a "healthy" lifestyle at home due to the confinement they had due to the presence of Covid-19, at home the meals changed in style to consume more vegetables, different types of meats and seasonal fruits, but upon returning to the blended classes the university students returned to consume the foods they found in the stores around the university which are not healthy at all (Huamán-Romaní et al., 2023) affecting the healthy lifestyle they practiced until then. The total number of university students who participated in the sample was 1033 students and was made up of female students with 51.9%, male students with 48.1%, with a slight superiority of female participants in the research. The ages of the students participating in the research are represented by 58.9% whose age is [15 to 20] years, 27.2% whose age is [21 to 25] years, 9.4% whose age is [25 to 30] years and a minority of 4.5% whose age is 30 years or more. The students participating in the research have the profile of belonging to the professional areas of science 12%, to the areas of engineering 45.4%, to the areas of letters 22.3%, to the areas of social sciences 5.7% and to the areas of health 14.6%. The university students who returned to the semi-attendance program are students from state universities (56.5%) and students from private universities (43.5%).

The data were collected through the measurement instrument used in Pinillos' research (Pinillos-Patiño et al., 2022), whose name of the original instrument is: Pender's Lifestyle Profile II (PEVP-II), this instrument has been validated by experts and has an acceptable value with a Cronbach's Alpha (0.94) which gives validity to the original research and can be replicated in a different context such as Peru. The measurement instrument analyzes the lifestyles of university students in the province of Sullana, which is made up of two dimensions: the nutritional dimension and the physical activity dimension.

The nutritional dimension is composed of 9 items that ask N1: if the student manages to choose a diet low in fat, saturated fat and cholesterol, N2: if the student manages to limit the use of sugars and foods containing sugar, N3: if the student manages to eat 6 to 11 servings of bread, cereals, rice, or pasta (noodles) every day, N4: if the student manages to eat 2 to 4 servings of fruit every day, N5: if the student manages to eat 3 to 5 servings of vegetables every day, N6: if the student manages to eat 2 to 3 servings of milk, yogurt or cheese every day, N7: if the student manages to eat only 2 to 3 servings of meat, poultry, fish, beans, eggs and nuts every day, N8: if the student reads nutrition labels to identify the fat and sodium content of packaged foods, and N9: if the student eats breakfast and lunch every day.

The physical activities dimension is made up of 7 items asking F1: if the student follows a planned exercise program, F2: if the student performs vigorous exercise of 20 or more minutes, at least 3 times a week (such as brisk walking, riding a bicycle, aerobic dance, using a climbing machine), F3: if the student takes part in light or moderate physical activities (such as walking continuously for 30 to 40 min, 5 or more times a week), F4: if the student performs exercise to stretch muscles at least 3 times per week, F5: if the student performs daily habitual exercise and/or physical activities (such as walking at lunchtime, using stairs instead of elevator, parking the car far from the destination and walking), F6: if the student examines the pulse when performing exercise, F7: if the student reaches the target heart rate when performing the exercises.

To measure the scores, a 4-point Likert scale was used where 1=Never, 2=Sometimes, 3=Frequently and 4=Routinely; and to measure the level of lifestyle in university students, three levels will be used; the interval whose average is in [1, 2[is considered as the low healthy lifestyle level, the interval whose average is in [2, 3[is considered as the medium healthy lifestyle level and the interval whose average is in [3, 4] is considered as the high healthy lifestyle level.

In addition, the survey collected sociodemographic data such as sex, age, type of university where they study and the area of study according to their major (Sciences (Mathematics, Physics, Chemistry, Biology, etc.), Engineering (Civil, Mining, Systems, etc.), Letters (Law, Administration, Accounting, etc.), Social (Archaeology, Social Service, Education, etc.) and Health (Medicine, Nursing, Psychology, etc.)).

The present measurement instrument was adapted according to the Peruvian reality where first the instrument was translated into the Spanish language with its Peruvian lexicons and dialects with specialists of the Spanish and Peruvian language, and then submitted to validation by experts in the area and tested, in this test 82 students participated, achieving a value of Cronbach's Alpha of 0.89, a valid value to continue and carry out the research work, in the general data after the application for the research resulted in a Cronbach's Alpha of 0. 933, i.e. only 0.007 of the original instrument, we also proceeded to verify the validation and reliability of the instrument with the following statistics: Anova with test for non-additivity of Turkey (Inter subjects 6477,755; inter subjects between items 720, 3950; F=114,856; Sig. 0. 000; non-additivity residual 78, 281; F=189,489 and Sig. 0.000), Hotelling's t-squared test (823,092; F=54,128; Sig. 0.000); the Kaiser-Meyer-Olkin test (0.946); Bartlett's test for sphericity (Chi-squared 10365,233; Sig. 0.000) and the goodness-of-fit test (836,863, Sig. 0.000).

The data processing was carried out with the SPSS program version 25.0, to obtain the data first an online survey was elaborated with the help of the Google Form, where the survey was voluntary, anonymous and a non-probabilistic sampling was carried out in which authorization was communicated and requested to use the answers at the end of the research and to be published once processed, all forms of research ethics were respected such as the Helsinki declarations.

The survey was shared in the province of Sullana among university students of the different universities to which they belong, the online survey began in the month of October (face-to-face academic semester) until the end of December, exclusively for those students who already had face-to-face classes, the survey was configured to be able to respond only once from an institutional and/or personal email.

At the end of the online survey, the results were downloaded from the Google Form in Excel format, for their respective analysis and verification if any question was incomplete or missing, of the 1033 respondents the data were complete and correct, then proceeded to analyze the data with the SPSS program version 25.0, where the analysis of descriptive data such as mean, standard deviation, skewness, kurtosis, variance coefficient were made. We also proceeded to perform statistical tests such as ANOVA, correlation between items, factor analysis of the items, sociodemographic data such as age, sex, type of university and area of the professional career to which it belongs and finally the respective analysis of the tables of the distributions of each dimension with their respective interpretations.

3. Results

In the analysis of the descriptive data, Table 1 shows that in the nutrition dimension, the lowest mean corresponds to N3 (2.153), which is: if the student manages to eat 6 to 11 portions of bread, cereals, rice, or pasta (noodles) every day. 153) which is: if the student manages to eat 6 to 11 portions of bread, cereals, rice, or pasta (noodles) every day; that is, the university student does not manage to eat well for various reasons such as lack of money to buy this type of food, without mentioning that private universities do not have a university canteen, while state universities do provide healthy food, but only

to a lower percentage of 40% to 50% of the total number of students. While the highest mean corresponds to N9 (3.133) which is: if the student has breakfast and lunch every day, it is clear that they do, but not in a healthy way because having sugar water for breakfast or eating a fruit is not breakfast, nor eating a hamburger, or having a soda or drink is not lunch.

While in the dimension (2) of physical activities, the lowest mean corresponds to F6 (2.232) which is: if the student examines his pulse when he is exercising; that is, he does not measure his pulse because he does not know how to do it or simply does not take it into account because he stops exercising simply because he feels tired and not because he should rest due to the effect of his pulse. And the highest mean refers to F5 (2,505) which is: if the student performs exercises and/or daily habitual physical activities (such as walking at lunchtime, using stairs instead of elevator, parking the car far from the destination and walking), that is, the student does not do it simply for those reasons, he does it because he must walk because there are circumstances that force him, such as the classroom is far, he has to the laboratory that is far from the classrooms, the exit door is far, he cannot find mobility to return home or he does not have enough money to get on the mobility and other factors that force him to walk.

Table 1. Distribution of the means of the elements of the lifestyles of university students

	ME	DE	V	As	Cu
N1	2,453	,8468	,717	,109	-,587
N2	2,511	,8627	,744	,070	-,657
N3	2,153	,9286	,862	,325	-,821
N4	2,561	,8214	,675	,039	-,551
N5	2,471	,8138	,662	,141	-,486
N6	2,409	,8246	,680	,208	-,472
N7	2,642	,8174	,668	-,024	-,566
N8	2,460	,9352	,875	,049	-,871
N9	3,133	,8864	,786	-,655	-,551
F1	2,309	,9393	,882	,222	-,839
F2	2,366	,9074	,823	,196	-,739
F3	2,501	,8872	,787	,108	-,729
F4	2,443	,9005	,811	,086	-,759
F5	2,505	,9012	,812	,048	-,773
F6	2,232	,9504	,903	,234	-,918
F7	2,336	,9278	,861	,110	-,872

Note: Me: mean, SD: standard deviation, V: variance, As: skewness and Cu: kurtosis.

Figure 1 shows the distribution of the nutritional dimension where it is observed that the students' responses to nutrition have a mean of 125 that responded to the option "never", a mean of 390 responded to the option "sometimes", a mean of 357 responded to the option "frequently" and a mean of 159 responded to the option "routinely". Resulting that the university student of Sullana province has the nutritional lifestyle perspective in the medium level scale with the value of 2.533 as the mean of the values (2.453; 2.511; 2.153; 2.561; 2.471; 2.409; 2.642; 2.460; 3.133). As can be seen in Figure 1, in N9 we have a drastic change with respect to the other questions and it is the only item that there is a greater number of responses on whether they have breakfast or lunch or eat some food routinely, so that the food in the university canteens should be implemented in the number of servings to avoid any type of illness in university students.

Figure 1. Distribution of nutritional lifestyles

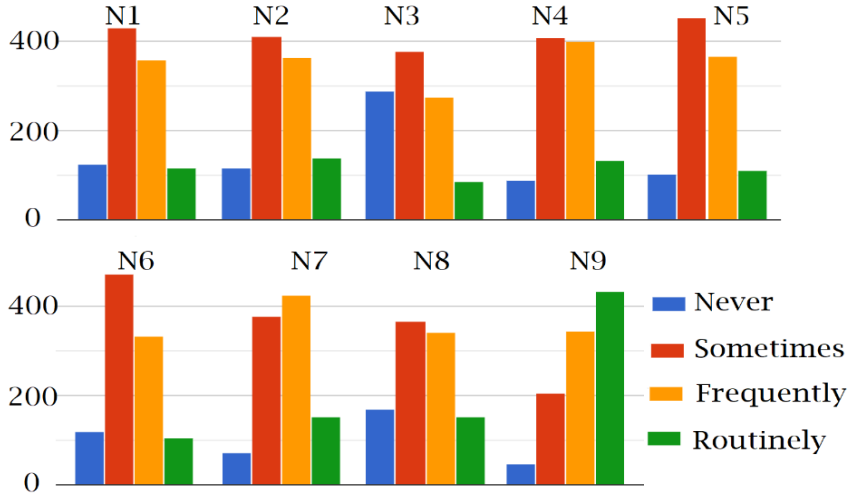

Figure 2 shows the distribution of the dimension of physical activities where it is observed that the students' responses to physical activities have a mean of 186.1 that responded to the option of "never", a mean of 393 responded to the option of "sometimes", a mean of 324.1 responded to the option of "frequently" and a mean of 129.7 responded to the option of "routinely". Resulting that the university student of Sullana province has the lifestyle perspective of physical activity in the medium level scale with the value of 2.385 as the mean of the values (2.309, 2.366, 2.501, 2.443, 2.505, 2.232, 2.336). As can be seen in Figure 2, the behavior of physical activities in university students remains the same with no alteration or modification, but even so the university should have policies of change in lifestyle because practicing sports is good for health for which it is necessary that universities have more sports places and implemented with basic equipment at the beginning, all for the good of the university student.

Figure 2. Distribution of nutritional lifestyles

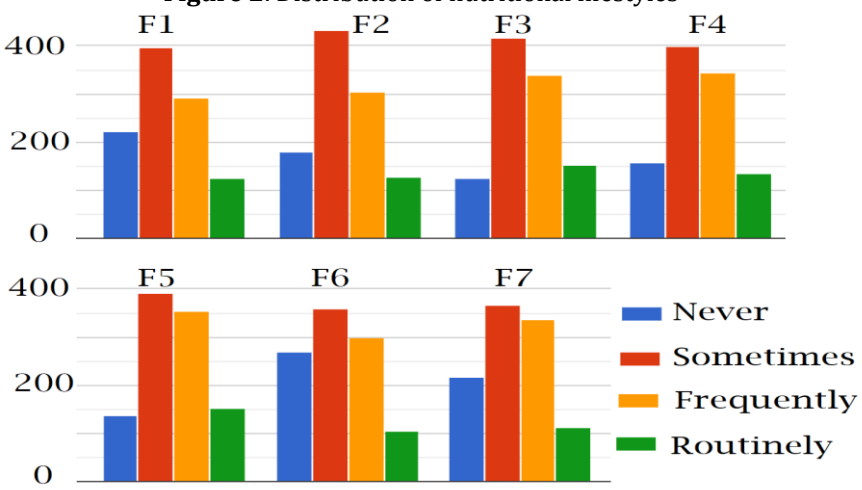

Table 2 shows the correlation between elements of the two dimensions investigated, resulting in a significant effect between elements of positive values.

Table 2. Correlation between elements of the lifestyle of university students

	N1	N2	N3	N4	N5	N6	N7	N8	N9	F1	F2	F3	F4	F5	F6	F7
N1																
N2	,680															
N3	,401	,370														
N4	,548	,503	,409													
N5	,569	,548	,433	,630												
N6	,490	,455	,527	,559	,558											
N7	,446	,428	,343	,496	,496	,497										
N8	,475	,440	,317	,536	,526	,496	,440									
N9	,265	,248	,098	,290	,314	,265	,399	,269								
F1	,551	,511	,380	,456	,505	,423	,322	,449	,165							
F2	,514	,507	,352	,459	,505	,413	,382	,442	,219	,746						
F3	,512	,503	,351	,523	,547	,445	,411	,486	,233	,687	,683					
F4	,506	,464	,328	,471	,509	,383	,384	,435	,229	,699	,738	,689				
F5	,496	,478	,341	,478	,498	,428	,417	,453	,242	,601	,683	,717	,693			
F6	,459	,434	,398	,467	,460	,424	,316	,473	,091	,634	,609	,583	,631	,561		
F7	,473	,473	,380	,486	,497	,448	,325	,473	,151	,631	,664	,662	,654	,675	,783	

4. Conclusions

Since ancient times we were taught that the nitrogen footprint is a metric that helps to estimate and communicate the impact of personal lifestyles and consumption choices (Chakraborty et al., 2022), this is how we know about the healthy eating that our ancestors had and in these times it is being neglected due to the existence of many products that are generated from raw materials that are not suitable for human consumption, but even so, several studies show that people of lower socioeconomic status are those who lead a very low lifestyle and people belonging to racial/ethnic minorities are those who experience more frequent exposure to micro particles due to the large environmental pollution that exists in the surroundings of the cities.

The relationships and factors influencing consumer behavior and consumption styles have been studied extensively, in which more research is needed to explore the logic behind the sustainable lifestyle and consumption of consumers in general (Liao et al., 2022), why being homebound they managed to consume healthy food, whereas if they are away from home they consume whatever they find, even knowing that it is not good for health and this they do it just to satisfy their craving needs, the results indicate that people who consume alcohol for example have more tendency to develop abnormalities in their oral microbiota than people who do not consume alcohol so it is recommended to select food well and lead a healthy lifestyle.

Due to the practice of bad lifestyles, it is suggested that there should be very radical changes in the policies of consumerism (Ellison et al., 2020) and these should be raised from the same institution and correct the bad habits that students may have with propaedeutic training and health control to improve the lifestyle of the university student, thanks to ICT that are hand in hand with lifestyle experiments that sometimes have limitations due to coverage or places (Tsai et al., 2022) where the signal does not reach but still manage to get the results, it is for this reason that there are results that meditation helps the various lifestyles to maintain and control some diseases of emotional types, which can be incorporated into extracurricular courses.

Healthy lifestyles in professionals are depleting because of the increase in work, since there is no policy to maintain an emotional well-being in the workplace, requiring shared responsibility of employees and employers to maintain a healthy lifestyle (Melnyk et al., 2021) and this panic is exploited by commercial brands because they comply with innovating their products to attract the consumer otherwise they would reach a routine and lose customers. The modification of many recipes with healthy and balanced food would lead to a healthier lifestyle and lower social cost, for which it is required to implement nutritional health policies (Huamán-Romaní et al., 2023), but there is much difference in lifestyles between men and women so that the treatment for both cases is performed personally according to sex and encourages the practice of healthy lifestyles (Jang et al., 2020).

Having a healthy lifestyle is to prevent any kind of disease, even the participants of a study revealed that they do know the consequences of bad lifestyles, but still they fail to practice it as it should be and regret after the medical results (Mayne et al., 2021), and lately the factors of environmental pollution

are being incorporated to the bad lifestyles having the need to have public health education to determine the causes and seek a solution (Lee et al., 2022).

There is little awareness among university students and adults of the consumption and practice of healthy food consumption to lead a healthy lifestyle (Romero-Rodríguez et al., 2021), so it was motivated to investigate the knowledge of food, physical activities, eating habits, consumption of drugs and alcohol, emotional health, sexuality, technology, and finally, food habits, drug and alcohol consumption, emotional health; sexuality, technology and finally social relations with study instruments to measure the perceptions of university students on the various lifestyles which will serve to pay attention to university policies on nutritional issues and physical activities, as well as requesting support from society to maintain a healthy lifestyle in their respective homes (Talegawkar et al., 2020).

Social networks whose means of communication reaches every university student can help by having communication policies to motivate healthy lifestyles and thus achieve the guarantees of maintaining some quality standards in the products offered to customers with the sole purpose of preventing diseases that affect health [36] and it is necessary and of utmost importance food education in parents so that they practice at home good nutrition and the child can learn to lead a healthier lifestyle (Upadhyaya et al., 2020).

The level of the student's lifestyle is at a medium level, which means that he consumes food for the sake of consuming and does not do it in a more scientific way despite knowing the effects that will arise in the future, and the other question is: What does the World Health Organization say about these unbalanced foods that cause malignant effects to human health, then a research work on food health policies in each country should be proposed to know closely why these foods are sold and why they are allowed to be consumed by human beings.

The perspectives that university students have about the lifestyle they have is below the expected, but being a population that most students and their families belong to a "poor" social stratum, such perspective cannot be better, the university authorities must find a way to implement student canteens for all or a large percentage of them and provide healthy food as well as recreational centers for physical activities.

And not only the university authorities, but also the local, regional and state authorities should invest in recreational centers to practice physical activities for university students and not only for them, but also for children and manage food in educational institutions for the entire educational population.

There is an average valuation with respect to the lifestyle of university students due to the lack of training of specialists who should watch over the nutritional health and physical health of university students, so that these two dimensions achieve a significant correlation for the lifestyles of university students.

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