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Psychological factors associated with lifestyle in Venezuelan university students

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Abstract

College brings emotional, cognitive, and physiological changes in students, along with academic stress that can affect their lifestyle and health. The present study aimed to determine the influence of psychological factors associated with the lifestyles of Venezuelan higher education students. This research was a quantitative, non-experimental study that analyzed the relationship between lifestyles, life satisfaction and sense of coherence in 843 students of the Universidad Centroccidental Lisandro Alvarado in Venezuela. An accidental non-probabilistic sampling was used and standardized questionnaires were applied to collect data. The findings showed that sense of coherence is a significant predictor of lifestyle (β= .47; p=.002). The overall model presents acceptable fit indices, explaining 37% of the total variance of lifestyle. This study shows that the sense of coherence and life satisfaction influence healthy lifestyles in Venezuelan higher education students; moreover, the sense of coherence is an important predictor of these lifestyles. Promoting these psychological variables as facilitating resources for healthy behaviors can increase the health and well-being of students.

Keywords: Health behavior; sense of coherence; lifestyles; satisfaction with life; Venezuela.

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Factores psicológicos asociados al estilo de vida en estudiantes universitarios venezolanos

Resumen

La universidad trae cambios emocionales, cognitivos y fisiológicos en los estudiantes, junto con el estrés académico que puede afectar su estilo de vida y salud. El presente estudio se propone determinar la influencia de factores psicológicos asociados a los estilos de vida de estudiantes venezolanos de educación superior. Esta investigación fue un estudio cuantitativo y no experimental que analizó la relación entre los estilos de vida, la satisfacción con la vida y el sentido de coherencia en 843 estudiantes de la Universidad Centrooccidental Lisandro Alvarado. Se utilizó un muestreo no probabilístico accidental y se aplicaron cuestionarios estandarizados para recopilar datos. Los hallazgos mostraron que el sentido de coherencia es un predictor importante del estilo de vida (β= .47; p=.002). El modelo global presenta índices de ajustes aceptable, explicando el 37% de la varianza total del estilo de vida. Este estudio muestra que el sentido de coherencia y la satisfacción con la vida influyen en los estilos de vida saludables en estudiantes venezolanos de educación superior, además, el sentido de coherencia es un predictor importante de estos estilos de vida. Promover estas variables psicológicas como recursos facilitadores de comportamientos saludables puede aumentar la salud y el bienestar de los estudiantes.

Palabras clave: Comportamiento de salud; sentido de coherencia; estilos de vida; satisfacción con la vida; Venezuela.

Introduction

In the Venezuelan university context, school dropout has been identified as the main problem, followed by the low level of preparation and insufficient academic training that students receive from the secondary level (Arias-Gómez & Durán-Aponte, 2017), the limited economic resources to pay for their studies and the high level of stress resulting from the economic and social crisis that has been worsening in recent years (Blanco, 2020).

All these factors have a direct and indirect impact on the academic performance, lifestyles, and general health status of university students (Jadue, 2002; Cendales, Vargas-Trujillo & Barbosa, 2013; Gallegos y Campos, 2019; Duche et al., 2020; Guerrero, Lucena & Espina, 2022; Valero et al., 2022). Regarding the latter, statistics provided by the "Ministerio del Poder Popular para la Salud" (MPPS), point out as main causes of death

in young people and adults to chronic non-communicable diseases, i.e., diseases of the circulatory and respiratory system, neoplasms, diabetes mellitus and accidents of all kinds, which together comprised 54.97% of the deaths registered in the country during 2014 (MPPS, 2018), whose preventable causes are due to the unhealthy or unhealthy lifestyle they have adopted (Zambrano et al., 2021).

In this sense, the importance of conducting this study lies in addressing key issues affecting university students in the Venezuelan context, but under an approach of health protection and promotion, based on positive psychology. This research focused on two psychological variables: the sense of coherence and life satisfaction, therefore, it acquires relevance as it is a novel approach that will examine salutogenic psychological variables as predictors of healthy lifestyles in university students of a Venezuelan public institution.

The main objective of this study is to evaluate the influence of psychological factors such as sense of coherence and life satisfaction on healthy lifestyles in Venezuelan university students. The findings could provide valuable information for the design of promotion and prevention programs to encourage healthier habits among higher education students in Venezuela.

1. Theoretical foundation

Young people during their stay at the university must face many sources of stress, for example, long hours of study, high academic expectations, frequency of exams and fear of low performance, financial constraints, methodology used by the teacher and concerns about the future, which can lead the student to the consumption of tobacco, caffeine, soda/energy drinks, psychoactive substances, besides altering their sleep patterns, eating, activity and physical exercise (García et al., 2017; Lara et al., 2019; Molano-Tobar, Vélez-Tobar & Rojas-Galvis, 2019), which after some time constitute risk factors for developing chronic pathologies. Scientific evidence has emphasized the study and intervention of the lifestyles of university students as a measure to mitigate the risk of presenting a chronic disease in the future (Bastías & Stiepovich, 2014; Zambrano et al., 2020).

Lifestyles are a set of behavioral patterns that denote people's way of life, which is closely related to motivational and behavioral aspects, whose effects are multiplicative, cumulative and are evident in the long term (Angelucci, Cañoto & Hernández, 2017). Studying health behaviors in students means taking a major step for university centers, since once the health behaviors of their members have been defined, it will give room for the design of future promotion and prevention programs that stimulate the practice of healthier habits.

Currently, research related to lifestyles in university students has been redirected under a risk approach aimed at demonstrating their relationship with the onset of diseases, forgetting their contribution to health

(Guerrero, Sánchez & López, 2020). Based on this, the present study proposes the application of a health protection and promotion approach aimed at favoring the study of the strengths and potentialities of the human being, thus promoting protective factors.

Positive psychology as an area of study of psychology, proposes the knowledge of individual strengths that allows the person to develop a full and meaningful life, cultivating the best of himself and improving his individual experiences (Peterson & Seligman, 2004).

In this area, measures of personal strengths such as sense of coherence (Escobar-Castellanos, Cid-Henríquez, Sáez et al., 2019; Vega, Frías & Del Pino, 2019) and life satisfaction that can partly explain people's healthy lifestyles are incorporated (Flores et al., 2021; Vázquez, Sánchez-Gutiérrez & Calvo, 2022). Each of the psychological variables is based on a positivist paradigmatic stance (Rivero, 2002), since they interpret reality by making use of theoretical models (e.g., salutogenic model of Antonovsky, 1987) and subjective well-being model (Diener, 1984), facilitating the identification of variables involved in the cause-effect relationship with the aim of predicting the results of healthy lifestyles, giving theoretical and empirical support to the topic in question.

The sense of coherence is defined as a person's orientation characterized by a dominant, enduring, and dynamic feeling of confidence, where it is possible to predict external and internal events, expecting them to develop well (Antonoysky, 1979). For its part, life satisfaction is defined as a personal cognitive judgment about intangible aspects of life, where both good and bad aspects are appreciated and compared with some criterion of the person's choice (Diener et al., 1985). These two variables constitute personal resources that mitigate risk in the person, increasing his or her level of well-being and the implementation of healthier habits for his or her life.

Some research has shown indications that these variables could be directly and

indirectly associated with healthy lifestyles in college students, since they have found that the sense of coherence (Escobar-Castellanos, Juvinyà & Cid-Henríquez, 2018; Guerrero, 2018; Escobar-Castellanos, Cid-Henríquez, Juvinyà et al., 2019; Escobar-Castellanos, Cid-Henríquez, Sáez et al., 2019; Vega et al., 2019) and life satisfaction (Gómez-Acosta, 2018; Kleszczewska et al., 2018), present a positive and significant relationship with healthy lifestyles, so that people have a lower risk of perceiving unfavorable situations or events, as well as stressful ones, insulating them from the harmful effects of stress on health status and increasing patterns of healthier behaviors.

2. Methodology

Quantitative, non-experimental, explanatory, cross-sectional study. The population consisted of students belonging to a Venezuelan public university (Universidad Centrooccidental Lisandro Alvarado) located in the central western part of the country. This university was chosen because of its experience and focus on the specific field of study we are investigating, in addition to having outstanding academics and specialized resources that allow us to obtain relevant data and perspectives for the present study.

A purposive sample of 843 students from the different professional careers corresponding to the seven deanships of the university was formed. The inclusion criteria established were: 1) to be a regular student at the university, 2) to show physical disposition and willingness to fill out the battery of instruments, 3) to have filled out the informed consent form and their parents the informed consent form in the case of minors. It should be noted that participants who presented any chronic pathology at the time of the application were excluded.

Table 1 shows the distribution of the sociodemographic data of the participants, 301 men (35.7%) and 542 women (64.3%), aged between 15 and 27 years (18.28 ± 2.091). Among the participants, 79% were studying between the first and third cycle, 52.8% were enrolled in the morning shift, 68.2% reside in the municipality where the university is established, 72.4% do not work simultaneously with their studies, the predominant socioeconomic stratum was medium-high (37.5%) and medium (33%).

Table 1

Sociodemographic data of the study sample

Variables	Categories	Af (n)	Rf (%)
Sex	**Male**	**301**	**35.7**
	Female	**542**	64.3
Shift	Morning	**445**	**52.8**
	Afternoon	**74**	**8.8**
	Night	**237**	**28.1**
	NR	**87**	**10.3**
Academic path	**1st to 3rd.**	**666**	**79**
	4th to 6th.	**48**	**5.7**
	7th to 10th.	**66**	**7.8**
	NR	**63**	7.5
Provenance	Municipality where the university is located	**575**	**68.2**
	Nearby municipalities	**175**	**20.8**
	Other states	**87**	**10.3**
	NR	**6**	0.7

Cont... Table 1

Working	No	610	72.4
	YES	**224**	**26.6**
	NR	**9**	1.0
Socioeconomic Status	Stratum I	**30**	**3.6**
	Stratum II	**316**	**37.5**
	Stratum III	**278**	**33**
	Stratum IV	**198**	**23.5**
	Stratum V	**21**	**2.4**

Note: NR: No Response

Source: Own elaboration, 2023.

For data collection, a battery of instruments was used, consisting of three psychological tests and a sociodemographic data sheet, which included variables necessary for the description of the sample: sex, age, shift, academic path, origin, work, socioeconomic stratum.

To measure healthy lifestyles, we used the questionnaire of practices and beliefs about lifestyles in its behavioral component, developed by Arrivillaga, Salazar & Gómez (2002), adapted to the Venezuelan context, which consists of 60 items distributed in six dimensions: diet, physical activity, preventive behaviors, sleep, drug use control and medical checkup.

The scale implemented is a Likert-type scale with a four-option response format: "Never" (0), "Sometimes" (1), "Frequently" (2), "Always" (3). The total sum of the instrument, as well as for each of its dimensions, indicates that a higher score is interpreted as healthier habits. This instrument has been used in several investigations in Venezuela and Latin America, reporting a multidimensional factorial structure and reliability higher than α= .80.

The sense of coherence was measured with the Sense of Coherence Scale (SOC-11), validated for the present research. It consists of 11 items and two dimensions: manageability and comprehensibility/significance. The responses of the instrument are obtained according to a seven-point semantic differential scale (1-7). The factor structure consisted of two dimensions, with factor loadings ranging from 0.558 to 0.836. The confirmatory factor analysis yielded an adequate fit of the data (X2 = 131.621; gl= 53; p= 0.000; CFI= 0.909; GFI= 0.950; RMSEA= 0.066; RMR= 0.666). Reliability yielded a Cronbach's alpha coefficient of α= .81 for the overall scale.

Satisfaction with life was measured with the Satisfaction with Life Scale (SWLS), adapted in Venezuela by Guzmán & Lugli (2009). It presents a unidimensional structure composed of five items and a Likert response scale with five alternatives ranging from "Definitely disagree" (1) to "Definitely agree" (5). The score is obtained from the sum of all items, where high scores indicate elevated levels of life satisfaction. The items explain 88.3% of the total explained variance of the overall life satisfaction judgment, with factor loadings above 0.90 and Cronbach's Alpha reliability of 0.97.

The instrument battery was provided to the participants once the necessary permissions were obtained, sending them through the Google form where the objective of the study and the ethical considerations to be considered by the authors were indicated, they were asked to answer the assent and/or informed consent and the instruments individually, with sincerity and how they would feel in the situations mentioned. It should be noted that this research was reviewed and approved by the Coordination of the master's degree in psychology of the Universidad Simón Bolívar (Caracas-Venezuela), and the ethical principles for research with humans proposed

in the Declaration of Helsinki and the Code of Ethics of the Psychologist in Venezuela were rigorously complied with.

Once the instruments had been completed, the data were entered into the SPSS 25 statistical program for subsequent analysis. The following statistical procedure was used to analyze the data: a) univariate analysis, using descriptive statistics including measures such as mean, standard deviation, minimum and maximum values, skewness, and kurtosis coefficients (± 1.5), reliability indexes (Cronbach's alpha and McDonald's omega) and correlation coefficients between the variables included in the model. The analyses were performed in the SPSS v.25 and Amos 24 statistical programs.

First, the study data were tested for common variance bias using Harman's single factor test. Next, a path analysis was carried out to examine the effect of life satisfaction and sense of coherence on the lifestyle of university students. The following absolute and relative model fits were taken into consideration: chi-square ($\chi 2$) and relative chi-square ($\chi 2$ /df); Root-Mean-Squared Error of Approximation (RMSEA<0.08); Incremental Fit Index (IFI>0.95); Comparative Fit Index (CFI>.95); and Standardized Root Mean

Residual (SRMR<0.08). Also, because the $\chi 2$ is sensitive to sample size, a value of less than five for the $\chi 2$/gl is acceptable (Schreiber et al., 2006; Aldao, Nolen-Hoeksema & Schweizer, 2010).

3. Results and discussion

3.1. Descriptive analysis, reliability, and correlations between variables.

Descriptive statistics were calculated to identify the levels of each of the variables included in the research. Table 2 shows that the sample of university students is characterized by elevated levels of sense of coherence and satisfaction with life and moderate levels of healthy lifestyles. The internal consistency statistics using Cronbach's alpha were adequate for all the variables included in the model. However, this statistic has received criticism regarding its usefulness, which is why McDonald's omega statistic was used (Sijtsma, 2009). On the other hand, the correlation matrix showed significant relationships between the study variables.

Table 2
Descriptive statistics of the variables included in the study

	M-M	M	SD	As	K	α	Ω	1	2	3
1. Healthy lifestyles	72-160	108.04	15.83	.584	.744	.83	.82		.335**	.340**
2.Satisfaction with life	8-25	20.66	3.52	-.852	.186	.77	.78			.409**
3. Sense of coherence	33-65	51.12	7.32	-.270	-.633	.81	.83			

Note: ** p-value<0.01. M-M: Minimum and maximum values; SD: Standard deviation; As: Skewness; Ku: Kurtosis; α= Cronbach's alpha; Ω= McDonald's omega.
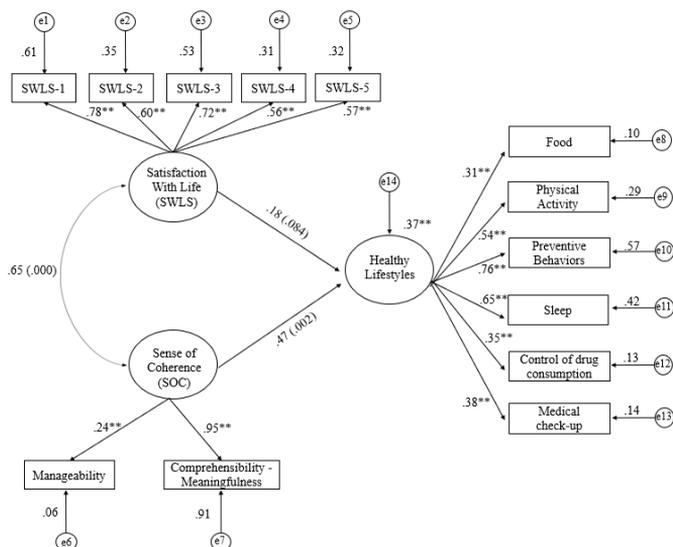
Source: Own elaboration, 2023.

Next, Harman's single factor test was performed to assess common method bias, showing a total common variance extracted of 26.92% (threshold below the recommended 50%) and fit indices below what is recommended in the literature: $\chi 2$ (62) = 582.918; $\chi 2$ /gl=9.402; IFI=.794; CFI=.792;

RMSEA [CI95%] = .100 [.093 - .107]; SRMR= 1.170. These values suggest that the common variance bias does not affect the study data and, therefore, may be associated with the constructs assessed and not the method of assessment.

3.2. Structural equation modeling analysis

Life satisfaction, sense of coherence and healthy lifestyle were represented as latent variables in the structural model. According to Figure I, life satisfaction includes five indicators that correspond to the items of the unidimensional scale, sense of coherence includes two indicators that correspond to the two dimensions of the construct (manageability and comprehensibility/ significance), while healthy lifestyle includes six indicators that correspond to the dimensions of the construct (nutrition, physical activity, preventive behaviors, sleep, drug use control, medical check-up).

Source: Own elaboration, 2023.
Figure I: **Resulting structural equation model.**

The fit of the proposed structural model is adequate, obtaining indexes in the values recommended in the literature: $\chi 2$ (62) = 281.653; $\chi 2$ /gl=4.543; IFI= 0.913; CFI= 0.912; RMSEA [CI95%] = 0.065 [0.057 - 0.073]; SRMR= 0.050. Likewise, a significant effect is observed between the sense of coherence and healthy lifestyles (β=. 47; p= 0.002), as well as in the covariance between sense of coherence and life satisfaction (β=.65; p= 0.000), with the variables explaining 37% of the lifestyle of university students, with a median effect size $f2 = 0.59$ (Cohen, 1977).

The present research aimed to determine the influence of psychological variables such as sense of coherence and life satisfaction on healthy lifestyles in Venezuelan university students. The main findings reveal that students report moderately healthy lifestyles and elevated levels of sense of coherence and satisfaction with life. In a study conducted in another Venezuelan university, comparable results were found regarding lifestyles, with students reporting low drug use, sleep-related problems, inadequate nutrition, poor physical activity, and little medical check-up (Angelucci et al., 2017).

In addition, evidence shows comparable results with students reporting elevated levels of sense of coherence (Escobar-Castellanos,

Cid-Henríquez, Juvinyà et al., 2019; Escobar-Castellanos, Cid-Henríquez, Sáez et al., 2019; Vega et al., 2019) and life satisfaction (Machul et al., 2020).

On the other hand, the results shown in the structural model indicate that the sense of coherence was a significant predictor of healthy lifestyle. This indicates that a high sense of coherence was associated with better lifestyles, being consistent with what has been reported in the literature (Guerrero, 2018; Escobar-Castellanos, Cid-Henríquez, Juvinyà et al., 2019; Escobar-Castellanos, Cid-Henríquez, Sáez et al., 2019; Vega et al., 2019). Authors such as Wainwright et al. (2007), refer that the sense of coherence as a theoretical construct allows representing the belief that life events can be perceived as comprehensible, manageable, and meaningful.

Around this, evidence has shown that a greater sense of coherence is associated with a high level of physical exercise (Binkowska-Bury & Januszewicz, 2010; Kuuppelomäki & Tuomi, 2003), better preventive behaviors (Binkowska-Bury & Januszewicz, 2010; Senjam & Singh, 2012; Elyasi et al., 2015; Peker, Booth & Güney, 2021), increased medical screening (Senjam & Singh, 2012), better sleep habits (Binkowska-Bury & Januszewicz, 2010), lower consumption of substances such as alcohol and tobacco (Peker et al., 2021), healthier food choices (Binkowska-Bury & Januszewicz, 2010; Chu et al., 2017; Peker et al., 2021)**,** and an overall healthy lifestyle (Lindmark et al., 2005; Wainwright et al., 2007).

Thus, a high sense of coherence will enable students to identify and use the psychological, physical, material, and social resources available to them to develop and maintain a healthy lifestyle. Therefore, this can be an important variable that helps to modify and maintain healthy lifestyles within the university context.

Regarding life satisfaction, the results show that it has a non-significant effect with the healthy lifestyle in the structural model; however, in the correlation matrix it did show a relationship (Barrantes-Brais & Ureña-

Bonilla, 2015). For these authors, to the extent that they experience greater satisfaction and gratitude with life, it is more likely that they can seek emotional and social support as a means of coping and employ positive strategies that allow them to face situations and problems instead of avoiding them, hence students manage to have healthy lifestyles.

As is known, in Latin America and specifically in Venezuela, there are few studies that have taken into consideration variables such as the sense of coherence and satisfaction with life, and even more where they highlight their relationship with healthy behaviors. On the other hand, students as a vulnerable population face multiple demands, challenges, and challenges increasingly growing, this demand greater physical and psychological resources that often do not have, hence the importance of universities to promote efficient and effective strategies that promote greater welfare and quality of life in students.

The present study opens the way for future lines of research, as it is one of the first in Venezuela to address this topic. From this perspective, future researchers are encouraged to continue applying this protective and health-promoting approach, which favors the study of conditions and processes related to the optimal development of people.

This study is not free of limitations, in relation to the research design being of cross-sectional nature, it does not allow to see the development of healthy practices of students during the academic path. It is recommended to incorporate studies of longitudinal scope, which allow observing the development and maintenance of healthy behavioral patterns in university students throughout the academic journey and to see the influence of protective variables on this. On the other hand, about the characteristics of the students, 79% are studying in the first academic path (first to third cycle of study), which makes it difficult to generalize to the rest of the student population.

For future studies, it is recommended to incorporate similar numbers of university students from different academic cycles, as well as to extend the study to other Venezuelan

universities. For years there has been a growing interest in turning Latin American universities into healthy institutions, promoting health in all their members; however, this seems more of a utopia than a reality in the Venezuelan context, due to the multiple deficiencies in which it has been submerged in recent years because of the economic and social crisis it is experiencing. It is a challenge that even in a context of crisis it is possible to design and implement university policies aimed at promoting healthy habits in all members of the Venezuelan university community.

Conclusions

This study examined the influence of sense of coherence and life satisfaction on the healthy lifestyles of Venezuelan university students. The results showed that students reported moderately healthy levels of lifestyles, as well as elevated levels of sense of coherence and life satisfaction. Sense of coherence was identified as a significant predictor of healthy lifestyles, suggesting that having a greater sense of coherence is associated with better lifestyle practices. Although life satisfaction did not show a significant effect in the structural model, there was a relationship observed in the correlation matrix, indicating a connection between life satisfaction and healthy lifestyles.

However, the study has limitations, since its cross-sectional design does not allow observing changes over time and the sample was limited to students in the first cycle of studies, which makes it difficult to generalize the results. It is recommended that longitudinal studies be carried out and that the sample be expanded in future research. It is important that Venezuelan universities implement strategies to promote healthy lifestyles in students, despite the challenges derived from the country's economic and social crisis. Future researchers are encouraged to continue exploring this topic and to develop protective and health-promoting approaches in the university setting, in the hope that this study will contribute to the development of university policies that promote healthy habits in the Venezuelan student community.

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