

Original

What factors are related to self-perceived health? The relationship between Sense of Coherence, behaviors and health on Peruvian emerging adults[☆]

¿Qué factores se relacionan con la salud percibida? La relación entre Sentido de Coherencia, conductas y salud en adultos emergentes peruanos

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Abstract

The aim of this study is to assess the relationship between Sense of Coherence (SOC), health behaviors and self-perceived physical and mental health in men and women. 448 undergraduate students participated in this study. The mean age was 21.3 years old ($SD = 1.95$). SOC, leisure time and sleep predicted better mental health in men. Comprehensibility, leisure time, sleep and physical activity predicted physical health in men. Only manageability and meaningfulness predicted mental health in women. In this group, Manageability, leisure time, physical activity and diet predicted physical health. These results can be used to help design strategies to encourage the adoption of healthy behaviors and healthier coping strategies in late adolescents and emerging adults.

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Keywords: Sense of Coherence; Emerging adults; College students; Mental and physical health

Resumen

El objetivo de este estudio fue evaluar la relación entre el sentido de coherencia (SOC), las conductas de salud y la percepción de salud física y mental en varones y mujeres peruanas. Cuatrocientos cuarenta y ocho estudiantes universitarios participaron en este estudio. La media de edad de los estudiantes fue de 21.3 años ($DE = 1.95$), el manejo del tiempo libre y el sueño predijeron mejor la salud mental en los varones. Comprensibilidad, tiempo libre, sueño y actividad física predijeron salud física en los varones. Solo la manejabilidad y la significatividad predijeron la salud mental en las mujeres. En este mismo grupo, la manejabilidad, el tiempo libre, la actividad física y la dieta predijeron la salud física. Estos resultados pueden ser utilizados para diseñar estrategias que promuevan la adopción de conductas y estrategias de afrontamiento más saludables en adolescentes tardíos y adultos emergentes.

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Palabras clave: Sentido de coherencia; Adultos emergentes; Estudiantes universitarios; Conductas de salud y salud mental y física

Many years ago, the American Sociologist Aaron Antonovsky presented the Sense of Coherence concept as a coping skill that would enhance psychological and physical

health (Antonovsky, 1988). Several years have passed since those days and research in Sense of Coherence has dramatically increased. A great variety of findings have argued that there is a strong relationship between mental health and Sense of Coherence (Eriksson & Lidstrom, 2006; Flensburg-Madsen, Ventegodt, & Merrick, 2005; Palacios-Espinosa & Restrepo-Espinosa, 2008). In spite of this, the same results have not been assessed regarding physical health. Studies have presented

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mixed results concerning the relationship of Sense of Coherence and physical health. Some authors argue that there is a strong relationship between physical health and Sense of Coherence, as opposed to other authors that do not find these results and even argue that a new scale should be assessed (Flensburg-Madsen, Ventegodt, & Merrick, 2006).

Antonovsky (1988) defined Sense of Coherence (SOC) as follows:

“a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that: (a) the stimuli deriving from one’s internal and external environments in the course of living are structured, predictable and explicable; (b) the resources are available to one to meet the demands posed by these stimuli; and (c) these demands are challenges, worthy of investment and engagement” (p. 19).

SOC has three components that play an important role as a stress buffer: Comprehensibility, Manageability and Meaningfulness. Comprehensibility is the ability to classify the information from the atmosphere and give a cognitive meaning to stimulus, which derives out of internal and external stimuli. Manageability describes how capable and what resources the person has in order to cope with a difficult setting. Meaningfulness is the ability to give emotional meaning to the environment. This helps people to be motivated and consider highly stressful situations as interesting and challenging (Antonovsky, 1990).

Sense of Coherence has been studied in many different types of populations all around the world (Eriksson & Lindstrom, 2005). In spite of this, it has captivated relatively little attention on young people (Rivera, García-Moya, Moreno, & Ramos, 2012).

It is interesting to note that in the world, the vast majority of people are between 15 and 39 years of age (IMF, 2014). In a particular case, in Peru it is projected that in 2015, the vast majority of people will be between 15 and 29 years old which are adolescents and emerging adults (INEI, 2010). Due to economic and demographic reasons competition for a job had become harder, there are more persons economically active and the growth of the working force has increased steadily through the years from 36 095 thousand people in 2002 to 45 942 people in 2013, also more people are starting undergraduate training to get a bachelor. The amount of people studying is increasing throughout the years, for example from 2012 to 2013, there was an increase of 5.6% (60 900 people), from one year to another (INEI, 2014). Chau and Van den Broucke (2005) found out that, late adolescents and emerging adults experienced university and academic life stressors due to the increased responsibility and pressure of achieving good grades.

For several reasons all the challenges late adolescents and emerging adults have to face increases their probability of being at risk, and three of the most important ones are the following. The first reason is on a developmental level; this population has to face difficult tasks as a result of maturation. Physical and emotional changes transform the way they have to relate with peers and family. Moreover, this period is marked by an increase in psychological autonomy that is related to making own inde-

pendent decisions, which could influence on their health (Currie et al., 2010).

Self-perceived health is the subjective perception of how healthy physically and mentally a person feels. The person could feel healthy but when he or she is evaluated by a doctor finds out that is not. Besides, a person could not feel any physical discomfort but regardless of that does not feel healthy (Schwartzmann, 2003).

The second reason, is on a physical and mental symptomatology level, some studies have found out that, anxiety, depression, somatic symptoms, eating disorders, and suicide ideation and suicide attempts among others psychiatric disorders, have also been reported (Caballero, Abello, & Palacio, 2007).

The third reason is on an academic level, heavy workload and responsibilities tend to translate into academic stress and mental health symptoms such as difficulty concentrating, restlessness and anxiety, which might translate for example into nail biting (Barraza & Silerio, 2007). In spite all of these possible symptoms, as a result of age this group tends to overestimate their perception of health and think they have great health or “*health of steel*” (OMS, 2006).

Many late adolescents and emerging adults tend to have a good self perceived health but that does not mean they practice healthy behaviors. Many of them do not practice sufficient physical activity, eat healthy diets or have an appropriate sleep quality (Arrivillaga, Salazar, & Correa, 2003). Similarly, they also tend to suffer from irregular sleeping patterns, 55.1% of them have complained of change in their sleeping patterns and 49.5% have felt tired the majority of the time (SENAJU, 2011). Another study with 5993 people found that 36.18% of them smoked tobacco, 71.7% drank alcohol within the last year and 22.03% had a risky drinking pattern (CAN, 2013).

Findings have also shown that health behaviors have proved to have an impact on subjective well being. It is possible that these conducts could increase the probability of a detriment in academic performance and lead to dropout (Davis & Brantley, 2004).

This situation shows the need to assess variables that could enhance healthier behaviors, diminish stress and increase perception of health. In that regard, Sense of Coherence has proved to be a reliable asset to improve mental health, health state and self-rated health (Eriksson & Lidstrom, 2006), and also increase healthy practices such as healthier diets, less smoking and more physical activity (Wainright et al., 2007). Overall, a strong SOC has a universal positive association with health behaviors and subjective health measures (Savolainen et al., 2009). Therefore, the aim of this study is to assess the relationship between Comprehensibility, Manageability and Meaningfulness, health behaviors and self-perceived physical and mental health in Peruvian men and women.

Method

Participants

A cross-sectional study was carried out with a sample of 448 Peruvian undergraduate students. 262 of the participants

were men (58%) and 186 (42%) were women. Their age ranged between 18 and 29 years old. The mean age was 21.3 years old ($SD = 1.95$). On average, the body mass index of all participants was 23.01 (normal weight) ($SD = 2.93$). 36% of the sample felt ill in the last week while 64% did not. 16% said they were taking pills for any particular illness while 84% did not. Participants studied different undergraduate programs regarding social science and also engineering. All of them were between the third and sixth year of studies. The survey took place in a university from Peru. Even though the sample size was big enough to be representative of the institution the participants were not chosen randomly. Students that were older than 30 years old, pregnant women and exchanged students were excluded from the sample. Written informed consent was given to each participant.

Measurements

Sense of Coherence was measured using the Spanish version of the SOC-13. The SOC-13 scale has three components Comprehensibility, Manageability and Meaningfulness. SOC scores range from 13 to 91 (Antonovsky, 1988). A study showed that the Spanish version of the SOC scale did not have a good model fit for a one-dimensional scale. Confirmatory factor analysis showed a reasonable model fit for a three-factor solution. CFI = .92, RMSEA = .06, SRMR = .049, therefore three separate components should be used in order to assess SOC (Saravia, Iberico, & Yearwood, 2014). In the case of this study reliability for the overall scale was adequate ($\alpha = .80$). Comprehensibility subscale had a .63 reliability coefficient; meanwhile Manageability had a .59 and Meaningfulness .61.

Self-perceived health was measured using the SF-36 scale, which has 36 items and 8 scales organized into 2 big components, Physical Health and Mental Health. Higher scores indicate better physical and mental health (Ware, Snow, Kosinski, & Gandek, 1993). Salazar and Bernabé (2012) adapted the SF-36 scale for Peru and reached an internal consistency of .88. Reliability for the overall scale for this study was also adequate ($\alpha = .88$). Mental ($\alpha = .85$) and physical health ($\alpha = .83$) also had good internal consistency.

Finally, health behaviors were assessed by using the “Questionnaire of life styles un university students” CEVJU (Arrivillaga, Salazar, & Correa, 2003). This questionnaire comprises 69 items and 5 sub scales: Physical activity, Leisure time, Self-care, Diet, Drugs and alcohol consumption and Sleep quality. Reliability and validity was tested for this Peruvian group of university students. After assessing the psychometric properties of this scale, a 33 item questionnaire was used for this study. Internal consistency for all scales ranged from 0.61 to 0.72.

Procedure

Informed consent, the short form SOC scale, demographics form, SF-36 questionnaire and CEVJU scale were voluntarily completed during class time. The survey process took approximately 25 min. Instruments were administered anonymously and all questionnaires were maintained in a protected location.

Table 1
SOC, health behaviors, physical and mental health.

Variables	Cronbach α	Coding (*)	<i>M</i>	<i>SD</i>	Possible range
<i>Mental health</i>	.85	+	65.43	17.17	0–100
<i>Physical health</i>	.83	+	79.94	12.97	0–100
<i>Comprehensibility</i>	.63	+	21.31	5.21	5–35
<i>Manageability</i>	.59	+	18.00	4.23	4–28
<i>Meaningfulness</i>	.61	+	20.44	4.04	4–28
<i>Health behaviors</i>					
Physical activity	.71	+	6.85	2.1	3–12
Leisure time	.68	+	8.33	1.87	3–12
Self-care	.70	+	20.07	4.28	8–32
Diet	.72	+	12.82	2.7	5–20
Alcohol and drugs	.70	–	17.6	2.08	10–40
Sleep	.61	+	9.74	2.23	4–16

+ = the higher, the healthier, – = the lower, the healthier.

Data analyses

T-student was assessed to see if there were difference in mental and physical health between men and women. Finally, multiple Linear Regression analysis was used to analyze the different variables. Separate models for physical and mental health were done. Analyses were performed using PASW 20 software.

Results

We situate for each scale the mean score on the possible range of scores; we see the following pattern (Table 1):

Mental health scores are just above the midpoint (50). Meanwhile, in Physical health the mean scores are much higher than the midpoint (50). That is rather positive.

Sense of Coherence: the Comprehensibility means score is somewhat above the midpoint of 20. The same can be said for mean scores of Manageability and Meaningfulness mean scores, which were above the midpoint of the scales (16).

For Health behaviors we find the following:

Physical activity: the mean score is below the midpoint 7.5 of the scale. Leisure time: the mean score is above the midpoint 7.5 of the scale. Self-care: the mean score is on the midpoint 20 of the scale. Diet: the mean score is very slightly above the midpoint 12.5 of the scale. Alcohol and drug consumption: the mean score is very much below the midpoint 25 of the scale. Sleep: the mean score is slightly below the midpoint 10 of the scale.

T-student analyses were performed to measure difference in mental and physical health between men and women. Men scored higher in mental health ($u = 67.73$), than women ($u = 62.19$), $t(446) = 3.41$, $p < .001$. A similar case happened for physical activity, men scored higher ($u = 81.77$) than women ($u = 77.37$), $t(446) = 3.59$, $p < .001$.

As a result to this, we decided on doing separate regression models for men and women.

Table 2
Multiple regression analysis for mental and physical health for men.

	Variable	B (coeff)	SE B	β	t	p
Mental health	Comprehensibility	1.07	0.21	.35	5.15	<.001
	Leisure time	1.49	0.46	.17	3.22	<.01
	Manageability	0.58	0.26	.15	2.10	<.05
	Sleep	0.89	0.39	.12	2.31	<.05
	Meaningfulness	0.48	0.23	.12	2.10	<.05
Physical health	Comprehensibility	0.54	0.14	.23	4.01	<.001
	Leisure time	1.24	0.41	.18	3.06	<.01
	Sleep	0.82	0.33	.15	2.50	<.01
	Physical activity	0.79	0.33	.14	2.40	<.05

Note. $R^2 = 0.39$ ($N = 448$, $p < .001$), Adjusted $R^2 = 0.38$ ($N = 448$, $p < .001$), Mental health.
Note. $R^2 = 0.20$ ($N = 448$, $p < .001$), Adjusted $R^2 = 0.19$ ($N = 448$, $p < .001$), Physical health.

Table 3
Multiple regression analysis for mental and physical health for women.

	Variable	B (coeff)	SE B	β	t	p
Mental health	Manageability	1.82	0.27	.43	6.74	<.001
	Meaningfulness	1.32	0.28	.31	4.75	<.001
Physical health	Leisure time	2.01	0.45	.29	4.51	<.001
	Manageability	0.80	0.20	.25	3.67	<.001
	Physical activity	1.71	0.47	.23	3.67	<.001
	Diet	0.74	0.30	.15	2.47	<.01

Note. $R^2 = 0.40$ ($N = 448$, $p < .001$), Adjusted $R^2 = 0.39$ ($N = 448$, $p < .001$), Mental health.
Note. $R^2 = 0.33$ ($N = 448$, $p < .001$), Adjusted $R^2 = 0.31$ ($N = 448$, $p < .001$), Physical health.

Models for predicting adaptation on university, health behaviors, perceived general health, Stress and Coping

Regression models to estimate Mental and Physical health for men and women were performed (See Tables 2 and 3).

According to our results, a SOC component was the best predictor of health in both models in men and women with the exception of women’s physical health. The three SOC components were present in men’s mental health but not for women’s. Comprehensibility was the strongest predictor for mental and physical health in men but was not significant for women. Meanwhile, Manageability was the strongest SOC component that predicted mental and physical health in women.

Between models comparison showed that Manageability (1.82) and Meaningfulness (1.32) better predicted mental health in women than in men.

Models between men and women comparison showed that leisure time was the health behavior that had the strongest relationship with physical health in men and in women. This variable was a stronger predictor for women than for men. Moreover, in both genders, physical activity was the health behavior that had a significant relationship with a better physical health. Similarly to the previous case, physical activity stronger predicted health in women than in men.

On the other hand, difference between men and women, showed that leisure time and sleep were related to mental health in men but not in women. Leisure time predicted better physical health in women (2.01) than in men. Sleep predicted a better physical health only in men. Diet predicted better physical health in women but not in men.

Difference within models showed that leisure time and sleep were stronger related to mental and physical health in men. For women, physical activity stronger predicted physical health than diet.

Finally, both models for mental health accounted for similar amount of explained variance. Women’s physical health model explained greater overall variance than men’s physical health model.

Discussion

Sense of Coherence (represented by its separate components) was the strongest predictor of mental health among men and women. These findings are similar with previous ones (Drageset et al., 2008; Ureña, 2008). In spite of this, differences were found in mental health between men and women. On one hand, the three SOC components were found in men’s mental health model and health behaviors also explained mental health.

On the other hand, mental health was only explained by Manageability and Meaningfulness in women. This could mean that for women’s mental health, the combination of knowledge of the resources they have in hand to cope with stress (Manageability) and a motivational element (Meaningfulness) that gives sense to confronting any situation could be sufficient for them to increase mental health. Therefore, it is possible that for women their way to cope with stress is by giving an emotional meaning to the situation and then searching for an adequate coping strategy or general resistance resource to handle the situation (Antonovsky, 1979). These findings are related to other studies

that state that men and women use different cognitive strategies and that women tend to focus more on their emotional experiences than men (Garnefski, Teerds, Kraaij, Legertee, & Van den Komer, 2004).

Moreover, these findings give evidence of the importance of leisure time for mental health in men but not in women. This health behavior allows a person to spend time with their family or friends, this could also be assessed as perceived social support, which buffers stress and develops a stronger mental health (Thoits, 2011). Likewise, leisure time not only works as an opportunity to relate to others but also helps people rest and enjoy activities that produce well-being and satisfaction (Aaker, Rudd, & Mogilner, 2010).

In spite of the literature that suggests the importance of sleep quality in mental health (Barber, Munz, Bagsby, & Powell, 2009; García, Méndez, Ruiz, Alvarado, & Rosenthal, 2010), our findings suggest that sleep is important for men and not women in order to have a better health. Some findings have concluded that in men sleep quality is related to an efficient sleep, meanwhile in women it depends on how well they are resting overnight and not how exhausted they feel during the day (Woosley, Lichstein, & Taylor, 2012). Therefore, women could be attributing their mental and physical health state to their ability to cope with stress instead of their practice of health behaviors.

In physical health, Comprehensibility was the strongest predictor among men but not women. Furthermore, SOC components have much lesser relationship with physical health than with mental health amongst men and women. We found mixed results for this statement. On one hand, Comprehensibility was positively related to men's physical health. This could mean that men need to predict, cognitively understand give order and explain the environment in order to have better physical health (Antonovsky, 1988).

On the other hand, previous findings on women's physical health, are reinforced by our own findings, were Comprehensibility is not significant. As suggested by these authors, in case of the women, it is possible that a component that contributes to predicting situations such as Comprehensibility it is not as important for physical health as other factors such as identifying what coping resources are on our repertoire (Manageability) (Antonovsky, 1988). Gender differences could be attributed to men's and women's way to process information, women tend to evaluate situations by using more subjective emotional experience from their long term memory and also can experience higher emotional arousal than men (Chentsova-Dutton & Tsai, 2007). Other findings have founded associations between low SOC and psychosomatic health complains like headaches and stomachs aches in adolescents (Myrin & Lagerstrom, 2008).

Additionally, SOC had different relationship to physical health in men and in women these results contradict previous findings that have suggested that Sense of Coherence is not different within gender (Hittner, 2007). In spite of this, it is important to take into account that in this study Sense of Coherence was measured separately by using their three theoretical components and this could have contributed to these differences.

On the other hand, we suggest that the big importance that leisure time has in women is because that they tend to talk to

friends and family more than men (Grabe, Ward, & Hyde, 2008) that helps them relax. An adequate social support reduces stress and physical symptoms (Davis & Brantley, 2004), develops a better health because no physical distress is felt.

Furthermore, physical activity and diet were also related with physical health in men but not in women. This could be due to the importance of these behaviors in weight control (Hidalgo-Rasmussen, Hidalgo-San Martín, Rasmussen-Cruz, & Montañó-Espinoza, 2011). In spite of this, other studies have shown that physical activity is not related with self-rated health (Esnaola, Infante, Rodríguez, & Goñi, 2011). Also, the strongest relationship of physical activity with physical health in women could be because women tend to have stronger believes that physical activity is more helpful than men (Lema et al., 2009). Finally, diet could be related to women and not men because of the importance women give to their body image were society tends to push women to be slim and have a specific type of body size (Hyde, Mezulis, & Abramson, 2008).

Finally, sleep quality was only related in men but not in women. This could be due to the aforementioned, that men tend to put a lot of importance in efficient sleep while women tend to think that overnight sleep is what is important to health (Woosley et al., 2012).

This study had some limitations to take notice. A non-random sample was picked upon late adolescents and emerging adults. Therefore, it is possible that students that were interesting in their own health were inclined to answer the questionnaires. Furthermore, this sample was picked from one institution with their own characteristics. We did not control if there was a difference with people that had to travel out of their city of birth in order to study.

Future studies could try to study other more heterogenic samples than the one from this study. It is possible that other adolescents and emerging adults that are out of Lima could have different individual and environmental characteristics, which could affect the relationship between the studied variables and health. Moreover, this study is one of the researches building on the analysis of health and SOC in adolescence. More research needs to be done in order to further understand if this result can be generalized to different groups or were specific characteristics of this sample.

This study opens the possibility of doing further research about Sense of Coherence, behaviors and health among late adolescents and emerging adults. Furthermore, these findings could help develop in the future intervention programs, which could enhance a better health among emerging adults and in the short term, give them tools and coping abilities which they can embrace and have a less difficult transition to adulthood.

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