

Sense of coherence in people deprived of liberty: a tool for health promotion

Senso de coerência em pessoas privadas de liberdade: ferramenta para a promoção da saúde

Sentido de coherencia en personas privadas de libertad: herramientas para la promoción de salud

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ABSTRACT

Objective: to determine the Sense of Coherence in people deprived of liberty in a tri-border region and correlate it with sociodemographic, clinical and lifestyle variables. **Method:** in this cross-sectional study, 326 people deprived of liberty self-completed the Sense of Coherence Questionnaire, between April and August 2021. The research protocol was approved by the research ethics committee. **Results:** men (90.80%), mean age 32.28 years, single (43.25%), with little education (55.83%), and moderate prevalence of Sense of Coherence (65.95%) were identified. Sense of Coherence was statistically significantly related to age (p -value = 0.011) and performing activities in the penal unit (p -value = 0.005). Weak sense of coherence was prevalent in those with mental disorders (p -value = 0.001) and infectious diseases (p -value = 0.018). **Final considerations:** examination of Sense of Coherence in vulnerable groups, such as people deprived of liberty, affords an understanding of how they comprehend, manage and give meaning to their lives, and thus constitutes a tool for health promotion.

Descriptors: Public Health; Health Evaluation; Prisons; Sense of Coherence.

RESUMO

Objetivo: determinar o Senso de Coerência em pessoas privadas de liberdade de uma região de tríplex fronteira e correlacionar com variáveis sociodemográficas, clínicas e hábitos de vida. **Método:** estudo transversal realizado com 326 pessoas privadas de liberdade que autoperceberam o Questionário de Senso de Coerência, de abril a agosto de 2021. Protocolo de Pesquisa aprovado pelo Comitê de Ética em Pesquisa. **Resultados:** homens (90,80%), com idade média de 32,28 anos, solteiros (43,25%), baixa escolaridade (55,83%) e prevalência do Senso de Coerência moderado (65,95%) foram identificados. O Senso de Coerência teve relação estatisticamente significativa com a idade (p -valor=0,011) e realização de atividades na unidade penal (p -valor=0,005). Senso de Coerência fraco foi prevalente em pessoas com transtornos mentais (p -valor=0,001) e doenças infectocontagiosas (p -valor=0,018). **Considerações finais:** analisar o Senso de Coerência em grupos vulneráveis, como as pessoas privadas de liberdade, permite apreender como compreendem, manejam e significam suas vidas, constituindo-se de ferramenta para a promoção da saúde.

Descritores: Saúde Pública; Avaliação em Saúde; Prisões; Senso de Coerência.

RESUMEN

Objetivo: determinar el Sentido de Coherencia en personas privadas de libertad en una región de triple frontera y correlacionarlo con variables sociodemográficas, clínicas y de estilo de vida. **Método:** estudio transversal realizado con 326 personas privadas de libertad que llenaron el Cuestionario de Sentido de Coherencia autoaplicado, de abril a agosto de 2021. Protocolo de investigación aprobado por el Comité de Ética en Investigación. **Resultados:** se identificaron hombres (90,80%), con promedio de edad de 32,28 años, solteros (43,25%), escolaridad baja (55,83%) y prevalencia de Sentido de Coherencia moderado (65,95%). El Sentido de Coherencia tuvo una relación estadísticamente significativa con la edad (p -valor=0,011) y el desempeño de actividades en la unidad penal (p -valor=0,005). El Sentido de Coherencia débil prevaleció en personas con trastornos mentales (p -valor de = 0,001) y enfermedades infectocontagiosas (p -valor = 0,018). **Consideraciones finales:** analizar el Sentido de Coherencia en grupos vulnerables, como las personas privadas de libertad, permite captar cómo comprenden, gestionan y dan sentido a sus vidas, lo que constituye una herramienta para la promoción de la salud.

Descritores: Salud Pública; Evaluación en Salud; Prisiones; Sentido de Coherencia.

INTRODUCTION

Prisons are spaces that should provide healthcare equivalent to that of all citizens, aiming at promoting and recovering health, besides preventing injuries. In this sense, the international movement for the inclusion of prison health, as part of public health, represents a change in the perception and discourse about prisons, an understanding that health inequalities disproportionately impact persons deprived of liberty (PDL), who present higher rates of physical and mental issues, greater chances of becoming seriously ill, and poorer health than persons in the community^{1,2}.

This work was carried out with the support of the National Council for Scientific and Technological Development - Brazil (CNPq) – Productivity fellow.

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Scientific Editor: Cristiane Helena Gallasch; Associate Editor: Thelma Spindola

In this sense, PDL are challenged in their skills and abilities to deal with stressors that affect their health and well-being, which shows that the salutogenic approach is appropriate for prison health. Therefore, prison constitutes a valid and viable scenario for health promotion, since the objective is to develop strategies that generate health, from a salutogenic perspective, overcoming the biomedical model of disease control and prevention, towards a health-promoting vision. It is resumed that the salutogenic perspective is aligned with the conception of integration between prison and community health².

The central component of the salutogenic model, the Sense of Coherence (SOC), demonstrates a person's ability to respond to stressful situations and utilize the Generalized Resistance Resources (GRR). Both SOC and GRR interact to support a person's health. The focus of this model is health, which, rather than disease, concentrates on identifying well-being factors. Thus, healthcare is centered on the person's experiences and preferences, on their coping skills, being individualized with the SOC level as a starting point²⁻⁴.

However, it is worth mentioning the scarcity of studies on the topic of health promotion in prisons and, in particular, that use the Salutogenic Theory and the positive health vision as a reference⁵. Thus, this study intends to answer the following research questions: What is the level of SOC in persons deprived of liberty in a triple border region and what is the influence of sociodemographic, clinical, and lifestyle variables on it?

Therefore, the objective was to determine the Sense of Coherence in persons deprived of liberty in a triple border region and to correlate it with sociodemographic, clinical, and lifestyle variables.

THEORETICAL REFERENCE

The salutogenic theory was elaborated by Aaron Antonovsky (1923-1994), presented as a global orientation to see the world, in which the way people perceive their life has an influence on their health. The central question of this model is to understand how and why certain people remain well even after experiencing situations of intense stress, and others do not. Therefore, health or illness depend on the adequate management of stress^{5,6}.

The SOC constitutes the key construct of the Salutogenic Theory. It is a global orientation, a way of seeing the world, which expresses a person's ability to trust that in their existence the stimuli derived from the internal and external environments are structured, predictable, and explainable; resources are available to meet the demands presented by these stimuli and these demands deserve investment and engagement. Thus, it refers to the extent to which people believe that life and events are understandable, manageable, and meaningful. They are related to the ability to perceive life and manage stressors regardless of what is happening, with the use of GRR, which are understood as any effective phenomenon in struggling against a wide variety of stressors⁶.

As a way of measuring health and, therefore, SOC, Antonovsky developed an instrument, which he named the Life Orientation Questionnaire, better known as the Antonovsky Questionnaire⁶. It has two versions, the complete one with 29 items and the reduced one with 13 items, that can be used to classify the SOC as weak, moderate, and strong⁷.

The SOC has three components: understanding (cognitive), handling (instrumental) and meaning (motivational)⁶. Thus, the way people see their lives influences their health, reflecting the interaction between the individual and the environment^{3,8}. It acts as a moderator or mediator in the explanation of health, as its predictor. There is, therefore, a direct relationship between SOC and good health, even representing minor symptoms and subjective complaints. SOC works as a "sixth sense" for survival and generates health-promoting skills⁹. The SOC is shaped by life experience by using GRR and dealing with stressors¹⁰.

From this perspective, health professionals have studied the relationship between SOC and health in different populations and diseases⁵. Strong SOC was correlated, at the discharge of elderly patients with Chronic Obstructive Pulmonary Disease, with greater capacity for self-care, coping with the disease and choosing healthier behaviors¹¹. Analyzing SOC in cardiovascular diseases, lead to infer that its evaluation can help the patient's adherence to healthcare, the evaluation of health conditions, contributing to strengthening skills to deal with life's challenges¹².

Thus, handling, giving meaning to and managing the disease, as well as its signs and symptoms, can represent an improvement to the person's life condition, and therefore, strengthening the SOC, establishing itself as a strategy to promote health and quality of life (QOL). The SOC acts as a QOL marker, directly related to mental health, which affects the physical component. Thus, better understanding the SOC of a person or population, and how it affects their quality of life can help planning healthcare directed to their needs¹³.

Health professionals can use the construct for healthcare management, with a view to enabling people to identify, mobilize, and use available resources and so that they can develop themselves to deal effectively with their own health¹⁴. In the field of prison health, strengthening the SOC can help identifying the coping strategies used by PDL to maintain well-being despite imprisonment and illness, and how the actions of the health sector can help them strengthening the SOC, and therefore, improve health.

Prisons need to be constituted as health-promoting spaces that provide opportunities for PDL to improve their health and well-being, especially because they primarily consist of socially marginalized people prior to imprisonment. It is necessary to overcome healthcare with a pathogenic focus, expanding it to a positive, salutogenic view of health, which reflects environmental, organizational, and personal factors, in order to meet the specific needs of this population¹⁵.

METHOD

This is a cross-sectional study of self-assessment of health conditions of the prison population in a triple border city, which is an excerpt from a thesis project: "Chronic disease and health of Persons Deprived of Liberty in the light of the Salutogenic Theory: study of mixed methods". The recommendations of the Strengthening the Reporting of Observational studies in Epidemiology (STROBE)¹⁶ have been used in this study.

The study was carried out in the prison units of Foz do Iguaçu, a large municipality on the triple border of a state in the southern region of Brazil, which has four prison units located in the extreme west of Paraná, conducted between April and August 2021. Units 1, 2, and 3 are for males, and unit 4 is for females, all for inmates over the age of 18. The installed capacity of the units totaled 2,335 PDL¹⁷. However, on the date of the sample calculation (April 7, 2021), the units held 2,163 PDL, the basis for the sample calculation, as described in Table 1.

TABLE 1: Proportional sample number according to data collection sites. Foz do Iguaçu, PR, Brazil. 2021.

Place	Population (n)	%	n samples
Unit 1	614	28.4%	93
Unit 2	910	42.1%	137
Unit 3	442	20.4%	66
Unit 4	197	9.1%	30
Total	2,163	100,0%	326

Participants were selected using probabilistic, stratified proportional sampling, considering a margin of error of 5%, a confidence level of 95% and an expected frequency of the event of interest in the population of 50%. The sample to represent the total population was calculated to be of 326 individuals using the Epi Info® 7 software. In each unit, a simple random draw was used using Excel software, based on the alphabetical lists available in the prison units.

In each penal unit, one of the researchers met with the drawn PDL in the respective galleries where they were housed and informed the objectives of the study, its usefulness and procedure. Participated in the study the drawn PDL who agreed to compose the study sample by signing an informed consent form. The illiterate PDL sample and those who refused to participate were excluded from the sample, with a new draw being carried out without replacement. Participants self-completed the SOC-29 questionnaire and the semi-structured questionnaire. Data were exported to the Excel software and analyzed by the R® software.

For the collection of sociodemographic data, a self-completed semi-structured questionnaire was used, adapted from the Group of Multidisciplinary Studies in Adult Health (*Grupo de Estudos Multidisciplinar em Saúde do Adulto*, GEMSA) of the *Universidade Federal do Paraná* (UFPR), composed of sociodemographic, occupational, and clinical variables and life habits data, with 19 questions, two open questions, nine closed question and eight mixed ones. This questionnaire also included analyzed life habits, namely: smoking, drug addiction, alcoholism, and physical activity. It was based on the self-declaration by the PDL.

The instrument used for measuring the SOC was the Antonovsky Questionnaire, SOC-29³ version, consisting of a closed and systematized questionnaire with 29 items, divided into three components: 11 items dealing with investigating the understanding component (items 1, 3, 5, 10, 12, 15, 17, 19, 21, 24, and 26); ten items assessing the handling component (items 2, 6, 9, 13, 18, 20, 23, 25, 27, and 29); and eight items verifying the meaning component (items 4, 7, 8, 11, 14, 16, 22, and 28), a 29-item questionnaire, which was divided into 11 items for comprehensibility, 10 for handling, and 8 for meaning (SOC elements). It was organized on a seven-point scale (values from 1 to 7) and two anchor phrases (3). The sense of coherence questionnaires were classified according to the score: up to 72 classified as weak; from 73 to 138, as moderate; and above 138, ranked as strong.

For the statistical analysis, initially, a descriptive analysis of the data was performed with an estimate of the mean, median, standard deviation, 25th and 75th percentiles, and interquartile range of the component scores. The characteristics of the participants were analyzed descriptively with simple (n) and relative (%) frequencies. The

association of chronic diseases was verified using the chi-square and/or Fisher's exact test when applied. For better visualization of these analyses, bar graphs were produced. All tests were considered significant when $p < 0.05$ and the analyzes were performed in the R 4.1.1 environment (R Core Team®, 2021).

Chronic diseases were categorized by body systems into pulmonary; genitourinary; gastrointestinal; musculoskeletal; psychological; rheumatological; neurological; otological; ophthalmological; dermatological; endocrine; metabolic; cancer; infectious; chronic pain and nonspecific symptoms. As for life habits, the following variables were selected for this study: eating habits; cigarette smoking, alcohol and other drugs; and practice of physical activity.

The research protocol was approved by the Human Research Ethics Committee and followed the guidelines of Resolution 466 of December 12, 2012. The study participants were informed about the purpose of the research and signed the Informed Consent Form, which informed the research objectives and ensured the anonymity of the participant.

RESULTS

A total of 326 PDL participated in the study, who answered 100% of the questions in the SOC-29 Questionnaire. Of these, 296 were male (90.80%), 141 were single (43.25%) and 191 had between 1 and 3 children (58.59%). Regarding family income prior to deprivation of liberty, 254 had an income of less than two minimum wages (77.91%), of which 71 received less than one minimum wage (21.78%). One hundred and eighty-two persons had less than nine years of education (55.83%).

Regarding the SOC, 215 had a moderate level (65.95%). The general average score of the questionnaire was 127.89 (± 23.59); the Comprehension, Handling and Meaning components obtained mean values (\pm St.Dev.) of 36.97 (± 11.66), 47.25 (± 9.71), and 40.97 (± 8.64), respectively.

The analysis of the association between SOC scores and sociodemographic characteristics is shown in Table 2.

TABLE 2: SOC according to sociodemographic variables of persons in prison units. Foz do Iguaçu, PR, Brazil. 2021.

Variable		SOC						p-value
		n	col %	n	col %	n	col %	
Age (years old)	18 to 29	3	100.00%	127	59.07%	44	40.74%	0.011
	30 to 44	0	0.00%	63	29.30%	48	44.44%	
	45 to 59	0	0.00%	23	10.70%	11	10.19%	
	60 or more	0	0.00%	2	0.93%	5	4.63%	
Gender	Feminine	0	0.00%	24	11.16%	6	5.56%	0.222
	Masculine	3	100.00%	191	88.84%	102	94.44%	
Marital status	Single	2	66.67%	93	43.26%	46	42.59%	0.957
	Married or consensual union	1	33.33%	93	43.26%	44	40.74%	
	Widow(er)	0	0.00%	2	0.93%	1	0.93%	
	Separated or divorced	0	0.00%	27	12.56%	17	15.74%	
Number of children	0	2	66.67%	62	28.84%	27	25.00%	0.216
	1 to 3	1	33.33%	129	60.00%	61	56.48%	
	More than 3	0	0.00%	24	11.16%	20	18.52%	
Family income (multiples of Minimum Wage)	<1 MW	1	33.33%	54	25.12%	16	14.81%	0.223
	1-2 MW	1	33.33%	120	55.81%	62	57.41%	
	2-3 MW	1	33.33%	27	12.56%	14	12.96%	
	3-4 MW	0	0.00%	6	2.79%	3	2.78%	
	4-5 MW	0	0.00%	4	1.86%	6	5.56%	
Education (years)	Above 5 MW	0	0.00%	4	1.86%	7	6.48%	0.253
	<9	1	33.33%	118	54.88%	63	58.88%	
	9 to 12	1	33.33%	56	26.05%	17	15.89%	
	> 12	1	33.33%	41	19.07%	27	25.23%	
Participates at activities at the penal unit	No	3	100.00%	94	43.72%	32	29.63%	0.005
	Yes	0	0.00%	121	56.28%	76	70.37%	

LEGEND: n: number of observed elements; col%: percentage calculated having as denominator the column total; p-value: Chi-square Test or Fisher's Exact Test, when applied.

When investigating the association between sociodemographic variables and SOC levels, a statistically significant positive relationship was found between age and moderate/strong score, and activity in the penal unit with moderate/strong SOC.

Participants under the age of 30 (between 18 and 29 years old) represented a total of 88.37% of persons who have a moderate and strong score. Moreover, regarding carrying out some activity in the penal unit, the proportion of the score categorized as people between 30 and 44 years old represent a total of 85.18% of the people who have a moderate and strong score. Of the people who practice some activity in the penal unit, 70.37% had a strong score.

The variables gender, marital status, number of children, family income and education did not demonstrate a statistically significant association with SOC for the PDL sample analyzed.

Analyses related to clinical variables are presented in Table 3.

TABLE 3: SOC according to clinical variables of persons in prison units. Foz do Iguaçu, PR, Brazil. 2021.

Variable		SOC						p-value
		Weak		Moderate		Strong		
		N	col %	n	col %	N	col %	
Do you have any chronic illness?	No	1	33.33%	108	50.47%	45	41.67%	0.291
	Yes	2	66.67%	106	49.53%	63	58.33%	
Respiratory	No	3	100.00%	161	75.23%	87	80.56%	0.359
	Yes	0	0.00%	53	24.77%	21	19.44%	
Urinary tract	No	3	100.00%	211	98.60%	107	99.07%	0.918
	Yes	0	0.00%	3	1.40%	1	0.93%	
Gastrointestinal tract	No	3	100.00%	194	90.65%	97	89.81%	0.828
	Yes	0	0.00%	20	9.35%	11	10.19%	
Cardiovascular	No	3	100.00%	198	92.52%	94	87.04%	0.236
	Yes	0	0.00%	16	7.48%	14	12.96%	
Musculoskeletal	No	3	100.00%	205	95.79%	102	94.44%	0.801
	Yes	0	0.00%	9	4.21%	6	5.56%	
Chronic pain	No	3	100.00%	209	97.66%	102	94.44%	0.304
	Yes	0	0.00%	5	2.34%	6	5.56%	
Mental disorder	No	1	33.33%	191	89.25%	103	95.37%	<0.001
	Yes	2	66.67%	23	10.75%	5	4.63%	
Rheumatological	No	3	100.00%	213	99.53%	108	100.00%	0.771
	Yes	0	0.00%	1	0.47%	0	0.00%	
Neurological	No	3	100.00%	207	96.73%	104	96.30%	0.929
	Yes	0	0.00%	7	3.27%	4	3.70%	
Dyslipidemia	No	3	100.00%	212	99.07%	108	100.00%	0.593
	Yes	0	0.00%	2	0.93%	0	0.00%	
Cancer	No	3	100.00%	214	100.00%	107	99.07%	0.365
	Yes	0	0.00%	0	0.00%	1	0.93%	
Infectious	No	3	100.00%	211	98.60%	100	92.59%	0.018
	Yes	0	0.00%	3	1.40%	8	7.41%	
Metabolic	No	3	100.00%	211	98.60%	107	99.07%	0.918
	Yes	0	0.00%	3	1.40%	1	0.93%	
Otolological system	No	3	100.00%	212	99.07%	107	99.07%	0.986
	Yes	0	0.00%	2	0.93%	1	0.93%	
Dermatological	No	3	100.00%	210	98.13%	104	96.30%	0.582
	Yes	0	0.00%	4	1.87%	4	3.70%	
Eye diseases	No	3	100.00%	208	97.20%	108	100.00%	0.205
	Yes	0	0.00%	6	2.80%	0	0.00%	
Nonspecific symptoms	No	3	100.00%	212	99.07%	108	100.00%	0.593
	Yes	0	0.00%	2	0.93%	0	0.00%	
Endocrine diseases	No	3	100.00%	213	99.53%	108	100.00%	0.771
	Yes	0	0.00%	1	0.47%	0	0.00%	
Use of medications	No	2	66.67%	142	67.62%	59	56.19%	0.137
	Yes	1	33.33%	68	33.38%	46	43.81%	

LEGEND: n: number of observed elements; col%: percentage calculated having as denominator the column total; p-value: Chi-square Test or Fisher's Exact Test, when applied.

Regarding self-reported chronic diseases associated with SOC levels, there was a statistical significance with mental disorders and infectious diseases ($p < 0.001$ and $p = 0.018$, respectively). Among the three people who had a weak SOC, two had mental disorders, representing 66.67%. Moreover, of the people with non-respiratory infectious diseases, only three and eight people had a moderate and strong score, representing a total of 1.40% and 7.41%, respectively.

As for life habits, no significant relationship was observed with SOC levels, as observed in Table 4.

TABLE 4: SOC according to life habits variables of PDL. Foz do Iguaçu, PR, Brazil. 2021.

Variable		SOC						p-value*
		Weak		Moderate		Strong		
		N	col %	N	col %	n	col %	
Smoking	No	2	66.67%	140	66.04%	77	71.30%	0.829
	Yes	1	33.33%	72	33.96%	31	28.70%	
Alcoholism	No	1	33.33%	82	38.32%	33	30.56%	0.388
	Yes	2	66.67%	132	61.68%	75	69.44%	
Drug addiction	No	2	66.67%	131	60.93%	80	74.07%	0.064
	Yes	1	33.33%	84	39.07%	28	25.93%	
Physical activity	Does not practice	2	66.67%	63	29.30%	29	26.85%	0.313
	Practice	1	33.33%	152	70.70%	79	73.15%	

LEGEND: n: number of observed elements; col%: percentage calculated having as denominator the column total; p-value: Chi-square Test or Fisher's Exact Test, when applied.

DISCUSSION

When exploring the SOC in PDL, strong SOC rates were found in 33.13%; moderate SOC in 65.95% and weak SOC in 0.92%. A moderate SOC level, despite being different populations, was also found in 45 youths apprehended in a minor's center in Spain and in 70 Polish PDL, and, differing from a study carried out with 1,124 Brazilian university students, which showed a higher prevalence of high SOC (the first and third using SOC-13 version and the second SOC-29)¹⁸⁻²⁰. A Spanish study using the SOC-13 scale also showed a predominance of moderate SOC in 124 PDL²¹.

An average SOC of 128.89 found in the research is similar to two studies carried out with PDL in Poland, the first carried out with 390 men, with an average of 118.9 and the second, which considered 100 PDL young women who committed violent and non-violent crimes with SOC 122.25 and 151.16, respectively. With a higher value than a Brazilian study with 203 people with heart diseases, which presented an average of 143.2 (± 24.9)^{3,22,23}.

The observed general average of SOC was also higher than that found in another study with 70 Polish PDL who were serving their sentence for the first time and who self-injured, which used the SOC-29 items and found an average of 119 (maximum and minimum of 87 and 149, respectively). When analyzing the isolated components, our study found lower rates for the Comprehension component (39.67 to the detriment of 41.14); higher in Handling (47.25 over 44.02) and Meaning (40.97 over 34.62)²⁰.

It should be recalled that understanding is a cognitive structure based on which people plan their activities and develop coping strategies in different contexts of life. People who commit crimes tend to have low understanding, manifested by lack of reflection on the consequences of their actions; focus on actual gains rather than consequences and antisocial activity, tendency to attribute the cause of one's action to external events, difficulty assessing the situation, and problems formulating, planning, and meeting goals. As for handling, the fact of presenting in few actions that modify attitudes can lead to consequences such as anxiety, apathy, depression, and risk of self-mutilation. On the other hand, meaning reflects the person's emotional-motivational attitude towards the surrounding environment, as people with high SOC tend to constructive solutions²⁰.

The relationship of SOC with the person's health and with the GRR (biological, material and psychosocial factors) means that individuals with a strong SOC tend towards optimism and positive actions for health promotion^{24,25}. However, prisons house mostly socially marginalized people, with health problems (untreated chronic illnesses and mental illnesses, with risky lifestyles, such as high consumption of illicit drugs and alcohol), as well as the overcrowded and unhealthy environment and violence can determine the well-being of PDL¹⁵.

Regarding the sociodemographic variables, SOC was related to age, being higher in PDL aged less than 30 years. However, Antonovsky's research pointed out that this would stabilize somewhere on the health-disease continuum around 30 years old, after the individual experiences work, family, and cultural relationships, but age would not be directly related to the SOC⁶ indices. Gender, on the other hand, did not show a significant relationship with the SOC in our sample, in line with the research by the founder of the SOC Questionnaire, Antonovsky⁶, in contrast to the results of a study with 203 people with heart disease in Brazil in 2014, which using the SOC-29 was statistically different for men and women and also in the study with Israeli PDL (65 men and 54 women) conducted in 2010, in which the SOC was higher for men than for women^{7,26}.

A study with 100 young women deprived of liberty in Poland showed that the higher the level of education, the greater the SOC, the ability to perceive the world as comprehensive, manageable, and meaningful²³. Thus, education and family have a significant influence on the level of SOC²⁷, an element that was not made evident in our research.

Engagement in activities at the penal unit, such as study and work, was associated with a 70.37% strong SOC score, representing an element that facilitates the self-management of their lives. This is in line with what was found in a Horticultural Project with PDL in England, which demonstrated an increase in PDL confidence and self-esteem, providing them with tools to transform their lives, despite previous negative experiences, with hope for a better future and improved coping. The activity preserved the well-being of PDL, allowing better self-management of anxiety and stress¹⁵. A study carried out in Spain using the SOC-13 scale found higher rates in the meaning component of the SOC in PDL included in physical activity, education, and work, however, not in the global SOC²¹. A study with PDL in the Philippines concluded that the following are coping mechanisms in prison: occupying oneself, religious activities, and submission²⁸.

Regarding clinical variables, mental and infectious diseases were negatively related to SOC. Regarding illness, weak SOC was prevalent in people with mental disorders and infectious diseases. In this sense, a Spanish study with family caregivers found an inverse relationship of SOC with subjective overload, anxiety and depression²⁹. Thus, strong SOC is related to a lower risk of psychiatric disorders and a lower rate of psychopathological symptoms^{30,31}. Illness in the general context did not represent a delimiting element of the SOC, but related to perceived resources, their meaning and management⁶.

Regarding lifestyle habits, this study did not identify significance with SOC, however, research carried out with Israeli PDL showed an association between SOC and illicit drug use and relapses²⁶.

It is noteworthy that the SOC is related to how people can remain healthy and with QOL and well-being, despite adversities. Therefore, studying it in the prison context may imply understanding how prisoners, despite the disciplinary context and structurally inadequate life, develop strategies that allow them to remain healthy and manage to create possibilities to deal with the prison situation. Thus, it can be considered that the SOC is an important predictor tool for the health of the prison population.²³

Although the SOC and the GRR are little explored in the prison context, some factors can create conditions for the PDL to maintain a positive attitude, contributing to health and well-being, despite the negative impacts of prison². The creation of a health-promoting environment in prisons implies that these institutions consider the recommendations of the World Health Organization and that they establish health policies to build resilient communities and salutogenic environments.^{21,32}

Study limitations

The main limitation of the study is that the SOC-29-item scale used was validated in Brazil for another population group³. However, there are no validation studies on PDL. In addition, there is no possibility of generalization to populations other than prisons, since they have characteristics inherent to the prison context and the study participants had few years of formal education, which cannot be generalized to people with a higher level of education.

FINAL CONSIDERATIONS

The PDL included in this study were mostly young, single men, with low education, with a prevalence of moderate SOC. The analyzes allowed pointing out that for this population group, SOC had a statistically significant relationship with the sociodemographic variables age and performance of activities in the penal unit, and a negative relationship with the clinical variables mental disorders and infectious diseases. There was no relationship with the life habits analyzed.

Analyzing the SOC in vulnerable groups such as the PDL allowed us to understand how these persons, despite being imprisoned, understand, manage, and give meaning to their lives. Consider the mutability of the SOC, especially via health education and the great potential for health promotion seen in the sample, since most have the possibility of increasing the SOC, and therefore, improving their life and health.

The importance of new studies with prison populations from other locations for later comparison with this study is highlighted, as well as qualitative studies based on the Salutogenic Theory to emphasize the generalized resources of resistance used by the PDL to maintain life and health despite the stressors.

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