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Sense of Coherence among University Students: Research Report

ABSTRACT

This article presents selected factors conditioning the sense of coherence among university students. Results were obtained after analysis of statistical data collected in a group of 467 students. Antonovsky's Sense of Coherence Questionnaire (SOC-29) was used in the research. The results obtained showed a predominance of a moderate level of the sense of coherence in the group of studied students. The study confirmed the existence of a dependency between the sense of coherence and the sex, year of study, and civil status of the studied persons. The other two variables, i.e., course of studies and declared level of religiosity, only showed certain tendencies. The results presented in this paper confirmed the need to shape coherence through education and socialization as a socially significant personal predisposition. The sense of coherence facilitates both self-reflection and self-development in the individual. Conclusions formulated on the basis of the obtained results point to the necessity of taking up a contemporary pedagogical challenge, which is health education. An additional recommendation is to enrich educational programs with activities the goal of which is to create a high sense of coherence in their recipients, which, by definition, should have pro-health consequences for a wide group of beneficiaries.

Keywords:

health education, sense of coherence, university students, social pedagogy, health.

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INTRODUCTION

University students are a social group which should, by virtue of its characteristics, be distinguished by a high level of social engagement. Students are potentially the most skilled representation of their generation, and the educational process should reinforce their responsibility for creating new ideas, views, and attitudes. Besides the substantive preparation gained over the course of studies, action in the direction of extracting resiliency resources is also important. These resources can be described as biological, psychological and interpersonal characteristics of an individual and environment (support groups, features of the physical, natural and civilizational environment) which serve a regulatory and health-promoting function as the individual confronts the demands and challenges of life. They prevent stressors from arising, tension from transforming into chronic stress, and foster an effective approach to dealing with stress (Sęk, 2001; Heszen & Sęk, 2008). Many resources that help people to deal with stressful life events are presented in the rich subject literature. Those most frequently cited are: sense of coherence, high self-esteem, sense of agency and control, openness, sense of social competence, optimism, social support, cognitive skills, and emotional skills (Poprawa, 2001; Borys, 2010).

This article focuses on one personal resource, i.e., the sense of coherence (Antonovsky, 1995). It should be understood as an individual's global life orientation, making it possible for a person to achieve and persist in well-being in spite of various environmental influences. The study of the correlation between the individual's sense of coherence and well-being was a subject undertaken in numerous publications (see, among others: Mattila et al., 2011; Binnebesel, 2006; Dolńska-Zygmunt, 2001; Mittelmark et al., 2017; Sęk, 2001). The dominant disciplines serving as lenses for observation of the phenomenon of coherence are psychology, sociology, and medical sciences (Eriksson & Lindström, 2006; Jelonkiewicz, 1996; Sęk, 2001). Pedagogical considerations, concerning the relationship between the education and upbringing process and the sense of coherence, are a relatively new direction of research (Krause & Lorenz, 2009; Majewicz, 1999; Binnebesel, 2006; Bochniarz, 2018; Konaszewski, 2016). It seems very important to capture the mechanisms shaping a strong sense of coherence, particularly from the perspective of health education. Such an approach is consistent with the goals of social pedagogy, and in particular, health education, as it is inscribed into the salutogenic model of health perception (Syrek, 2008).

A set of factors have an influence on the development of a strong sense of coherence, and Antonovsky places social origin, life history, sex, genetics, and

personal happiness among them (Antonovsky, 1995). The goal of this article is to present the results of studies conducted on university students for the purpose of diagnosing the level of their sense of coherence and selected factors differentiating this level.

SENSE OF COHERENCE

Coherence is defined as a global life orientation, expressing the degree in which the individual possessing it has a strong and permanent, though dynamic, sense of certainty that: (1) stimuli originating internally and externally over the course of life are structured, predictable, and explicable, (2) they will have access to the resources that will allow them to fulfill the demands posed by these stimuli, and (3) these demands are a challenge worthy of effort and engagement for the individual (Antonovsky, 1995; Zboralski et al., 2010). Three main components of coherence are distinguished: sense of comprehensibility, manageability, and meaningfulness. The sense of comprehensibility pertains to the individual's perception of stimuli originating from the internal and external environment as structured, coherent, and clear. An individual with a strong sense of comprehensibility perceives different life events as experiences they can deal with, because these events carry cognitive meaning (Dolińska-Zygmunt, 2001). The second component – sense of meaningfulness – determines the degree to which the individual has the perception of sufficient opportunities (resources) in themselves and their environment to fulfill various demands. A strong sense of meaningfulness prevents the individual from feeling helpless and leads them to strive to actively influence their current situation. This component of the sense of coherence, termed the cognitive-instrumental component (Sęk & Ścigała, 1996), allows the individual to become active in solving problems of an emotional and instrumental nature. The most important dimension that decides the global level of sense of coherence is the sense of manageability. Thanks to it, the individual assigns positive importance to situations and recognizes them as worthy of effort and engagement (Heszen & Sęk, 2008). This component of the sense of coherence, called the motivational-emotional component (Mroziak, 1994), causes that the individual undertakes challenges regardless of past failures or difficult situations and attempts to overcome them (Linca-Ćwikła, 2018). Despite their autonomy, mutual relationships do exist between the components of sense of coherence. The sense of manageability is dominant, and a high level of this sense enhances the value of the other two components.

The sense of coherence is a complex, subjective variable of an individual, consisting of their outlook on the world, themselves and their relationships with the world. It motivates the individual to actively deal with challenges by enabling the proper selection of resources adequate to the arising stressor and simultaneously preempting stress and negative emotional states (Sęk, 2001). People with a strong sense of coherence have the ability to assess the world around them correctly and aptly. The development of events is not a surprise to them, they do not surrender to fate, and in difficult situations, they are self-sufficient or know who to turn to for help. They are distinguished by engagement, which translates to diligence and consistency in action. Such people react to stressors actively and with faith that the resources they have are valuable and effective in such situations and that these resources will allow them to overcome difficulties. Because of this, their emotions are not extreme and can be controlled successfully, since tension does not block the mechanism of dealing with difficult situations. For this reason, the application of irrational defense mechanisms is observed less frequently in people with a high sense of coherence, and instead, rational attempts to focus on the task at hand are noted.

The sense of coherence is shaped throughout a person's lifetime, over the course of upbringing, socialization, and personal life experiences. The shaping of this predisposition begins in early childhood and reaches a characteristic level during puberty (Dolińska-Zygmunt, 2001). Antonovsky (1995) indicates three properties of life experiences that have the greatest effect on stimulating the sense of coherence: consistency, load balance, and participation in decision-making. The indicated experiences form the individual's conviction of the possibility and meaningfulness of their own action. At the same time, this allows the individual to take responsibility for their own actions, expands their knowledge and reinforces convictions concerning current and potential resources.

RESEARCH METHODOLOGY AND STUDIED GROUP

A positivist model of research was adopted as the dominant paradigm. The goal of the undertaken analyses is to determine the sense of coherence among university students and the factors conditioning it. The diagnostic survey method was applied in the study, and the Sense of Coherence Questionnaire (SOC-29) developed by Antonovsky (1987) was used to study the level of sense of coherence. The study used the Life Orientation Questionnaire (SOC-29), in the Polish adaptation from 1993, made by teams from the Department of Clinical Psychology of the Institute of

Psychiatry and Neurology in Warsaw, the Department of Psychoprophylaxis of the Institute of Psychology, Adam Mickiewicz University in Poznań, and the Department of Occupational Psychology, Institute of Occupational Medicine in Łódź.

This questionnaire consist of 29 statements evaluated on an estimated seven-point scale. The questionnaire makes it possible to measure the general sense of coherence index and its three components: sense of comprehensibility, meaningfulness, and manageability (Mroziak, 1996; Woynarowska, 2017; Kirenko & Byra, 2011). This questionnaire is characterized by good psychometric properties: Cronbach α for the entire scale is 0.85, from 0.72 to 0.75 for sub-scales. The scale's re-test reliability fluctuates from 0.72 to 0.83 ($p < 0.001$).

Persons were selected for the study purposefully. 467 students of the University of Białystok, Medical University of Białystok, Archdiocese Higher Seminary School in Białystok, and John Paul II Higher Seminary School in Łomża took part in the study. Respondents were informed about the purpose of the study and assumptions, and confirmed their consent to participate in the research and use it in subsequent scientific publications.

Table 1. Characteristics of the Studied Students

Independent variables	Variable values
Sex	Men: 28.0% Women: 72.0%
University	University of Białystok: 66.7% Medical University of Białystok: 26.1% Archdiocese Higher Seminary School in Białystok: 3.9% John Paul II Higher Seminary School in Łomża: 3.3%
Course of study	Pedagogy: 31.8% Law: 34.7% Medicine: 26.5% Theology: 7.0%
Year of study	First: 46.8% Final: 53.2%
Civil status	Married: 5.5% Bachelor/Maiden: 59.0% In open relationship: 14.0% Single: 21.5%
Level of religiosity	Regularly practicing believer: 41.4% Irregularly practicing believer: 29.6% Non-practicing believer: 14.6% Practicing non-believer: 0.9% Non-practicing non-believer: 13.5%

Source: Author's own research.

The collected empirical material was statistically processed through the application of: central tendency metrics (arithmetic mean (\bar{x}), median (Me), 1st quartile (Q1), 3rd quartile (Q3), mode (D)); dispersion metrics (standard deviation (SD), range, coefficient of variation (V)); measures of distribution shape (kurtosis (K), skewness (A), non-parametric statistical tests).

RESEARCH RESULTS

Characteristics of the sense of coherence of the studied university students are presented in tables and charts as a three-component construct. It was also verified whether the independent variables applied in the empirical project (respondents' sex, civil status, course of study at university, year of study, and declared level of religiosity) determine the sense of coherence index of the studied persons.

The three equal-interval method was used to determine the widths of individual intervals for the purposes of measuring the level of sense of coherence. Interval widths were determined using the formula:

$$h \approx \frac{X_{\max} - X_{\min}}{k} \approx \frac{R}{k}$$

where: h – width of classes; k – number of intervals (variants of feature); X_{\min} – lowest value of feature; X_{\max} – highest value of feature; R – range between lowest and highest value of feature.

The following intervals were established based on obtained results of the sense of coherence study and its individual components (meaningfulness, manageability, and comprehensibility):

- low level,
- medium level,
- high level.

Results of the sense of coherence study and its subscales as well as descriptive statistics are presented in Table 2.

The results obtained allow for the conclusion that the majority of the studied group, 73.6%, is characterized by a medium level of sense of coherence. When it comes to sub-scales, high results on the manageability scale (over 94% medium and high results in total, and slightly over 5% low results), coupled with much

lower results on the comprehensibility scale (medium and high results 65% and low results 35% in total), are striking. The dominance of the mean result obtained on the meaningfulness scale (slightly over 70% medium results, over 23% high results and 6% low results) makes up the remaining piece of the puzzle. The results presented seem insufficient considering society's hopes for university students.

Table 2. Sense of Coherence (SOC-29) of the Studied University Students

Level	Coherence		Meaningfulness		Manageability		Comprehensibility	
	Number	%	Number	%	Number	%	Number	%
Low result	38	9.6%	24	6.0%	21	5.3%	139	35.0%
Medium result	292	73.6%	279	70.3%	202	50.9%	245	61.7%
High result	67	16.9%	94	23.7%	174	43.8%	13	3.3%
valid n	397	100 %	397	100 %	397	100 %	397	100 %
Mean	127.4		45.1		39.8		42.5	
Standard deviation	21.9		8.7		8.2		8.0	
Minimum	54		13		13		22	
Maximum	196		70		56		76	
Median	125		45		40		42	

Source: Author's own research.

In order to determine the factors conditioning sense of coherence among the respondents, it was investigated to what extent the independent variables applied in research differentiate the general sense of coherence index among those studied through the application of statistical analyses. The results obtained are shown below in tables and charts as well as the descriptions accompanying them.

Table 3 presents a descriptive statistic of the sense of coherence (SOC-29) in the studied group of women and men.

Table 3. Descriptive Statistic of the Sense of Coherence vs. the Sex of the Respondents

Dimension	n	\bar{x}	sd	V(x)	Me	min	max	A	K	IQR
female	240	124.53	20.52	16%	123	54	177	-0.03	0.12	25.75
male	82	133.66	22.76	17%	128.5	77	194	0.52	0.03	32.5

(sd – standard deviation, Me – median, \bar{x} – arithmetic mean, A – skewness, K – kurtosis, V(x) – coefficient of variation, IQR – inter-quartile range)

Source: Author's own research.

The statistical test showed a significant dependency between the sex of students and their sense of coherence (SOC-29 – Mann-Whitney-Wilcoxon test statistic value $W = 7767$, $p\text{-value} = 0.004398$). The results obtained indicate that the sense of coherence is significantly higher in men than in women, which is additionally illustrated by Chart 1.

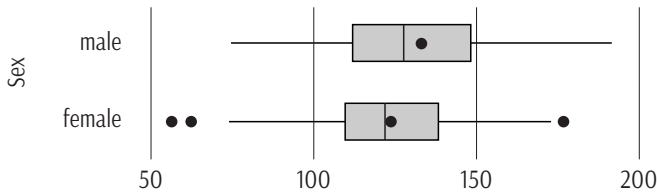


Chart 1. Dependency between the Sense of Coherence (SOC-29) and the Sex

Source: Author's own research.

This result can be explained by the socially observed tendency of stronger concretization of the way in which men function, while women display a more emotional manner of expression.

Table 4 presents a descriptive statistic of the sense of coherence (SOC-29) depending on the civil status of the respondents.

Table 4. Descriptive Statistic of the Sense of Coherence (SOC-29) vs. the Civil Status of the Students

Dimension	n	\bar{x}	sd	V(x)	Me	min	max	A	K	IQR
A	143.87	21.51	15%	149	111	188	0.34	-0.62	26.5	143.87
B	127.15	21.96	17%	125	54	177	-0.13	0.01	31	127.15
F	123.46	17.66	14%	122.5	77	167	0	0.46	16.5	123.46
G	122.96	20.16	16%	119	83	194	0.98	1.79	21.75	122.96

(sd – standard deviation, Me – median, \bar{x} – arithmetic mean, A – skewness, K – kurtosis, V(x) – coefficient of variation) Legend: A – married, B – bachelor/maiden, F – open relationship, G – single, IQR – inter-quartile range

Source: Author's own research.

The results indicate statistically significant differences in the respondents' sense of coherence (SOC-29) depending on the civil status declared by them (value of Kruskal-Wallis chi-squared test statistic = 16.867, $df = 3$, $p\text{-value} = 0.0007525$). Tukey's post-hoc tests showed that the sense of coherence is significantly greater in persons who:

- declare their status as married with respect to persons declaring status as bachelor/maiden ($p=0.002$);
- declare their status as married with respect to persons declaring status as open relationship ($p=0.0007$);
- declare their status as married with respect to persons declaring status as single ($p=0.0002$).

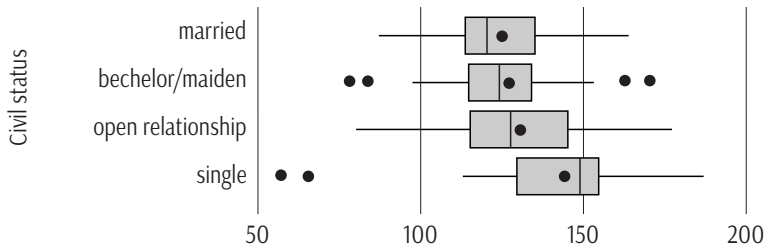


Chart 2. Dependency between the Sense of Coherence (SOC-29) and the Respondents' Civil Status

Source: Author's own research.

This result signifies that the achievement of life stabilization in the form of entry into a matrimonial relationship fosters the achievement by the studied youth of a sense of meaningfulness, manageability, and comprehensibility. Here, it must be noted that the presented result may only indicate certain tendencies due to rather high disproportions in the representation of individual groups and also to the short married life of the studied persons.

Table 5 presents a descriptive statistic of the sense of coherence (SOC-29) depending on courses of study of the respondents.

Table 5. Descriptive Statistic of the Sense of Coherence (SOC-29) vs. the Respondents' Course of Study

Dimension	n	\bar{x}	sd	V(x)	Me	min	max	A	K	IQR
pedagogy	116	126.66	19.33	15%	124.5	77	175	0.14	-0.33	28
law	112	127.24	24.85	20%	124	54	188	0.07	-0.19	39.25
medicine	85	124.71	17.93	14%	122	63	171	0.07	1.29	21
theology	9	144.89	26.87	19%	139	113	194	0.53	-1.23	32

(sd – standard deviation, Me – median, \bar{x} – arithmetic mean, V(x) – coefficient of variation, A – skewness, K – kurtosis, IQR – inter-quartile range)

Source: Author's own research.

The statistical test did not show statistically significant differences in the respondents' sense of coherence (SOC-29) depending on their course of studies at their respective universities (value of Kruskal-Wallis chi-squared test statistic = 4.8207, $df = 3$, p -value = 0.1854). Chart 3 illustrates the results obtained.

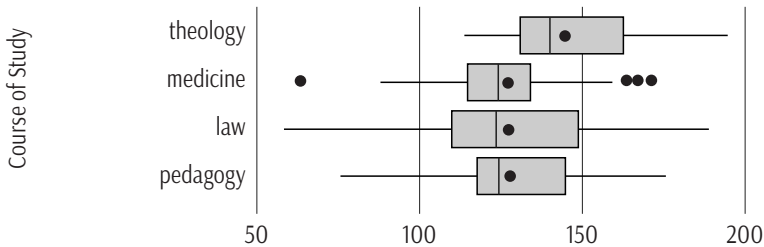


Chart 3. Dependency between the Sense of Coherence (SOC-29) and the Course of Study

Source: Author's own research.

Despite the absence of a dependency on a statistical level, in this analysis, the value of sense of coherence, i.e., the personal capacity to persist in well-being, among students of theology is noteworthy. The rather low sense of coherence shown by students of medicine seems rather surprising; the sense of coherence index was the lowest among all of the analyzed university student groups.

The descriptive statistic of the sense of coherence depending on the year of study in the course of university education is presented in Table 6.

Table 6. Descriptive Statistic of the Sense of Coherence (SOC-29) vs. the Year of Study

Dimension	n	\bar{x}	sd	V(x)	Me	min	max	A	K	IQR
first	154	120.62	18.03	15%	119	54	160	-0.1	0.52	20.75
last	168	132.57	22.75	17%	130	63	194	0.08	0.04	33

(sd – standard deviation, Me – median, \bar{x} – arithmetic mean, V(x) – coefficient of variation, A – skewness, K – kurtosis, IQR – inter-quartile range)

Source: Author's own research.

The results allow for the conclusion that people in their final year of study have a significantly higher sense of coherence (SOC-29 – value of Mann-Whitney-Wilcoxon test statistic $W = 8908.5$, p -value = 1.389e-06) with respect to people in their first year of study. The data is illustrated by Chart 4.

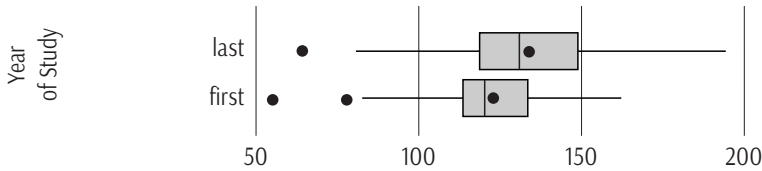


Chart 4. Dependency between the Sense of Coherence (SOC-29) and the Year of Study

Source: Author's own research.

These results provide a sound foundation for the conclusion that, as knowledge and experience grow and social awareness is expanded over the course of every successive stage of academic learning, the respondents gain the capacity to persist in well-being, which can be identified with a growing sense of coherence.

Table 7 presents a descriptive statistic of the sense of coherence (SOC-29) depending on the students' declared level of religiosity.

Table 7. Descriptive Statistic of the Sense of Coherence vs. the Respondents' Religiosity

Dimension	n	\bar{x}	sd	V(x)	Me	min	max	A	K	IQR
A	23	143.87	21.51	15%	149	111	188	0.34	-0.62	26.5
B	179	127.15	21.96	17%	125	54	177	-0.13	0.01	31
C	50	123.46	17.66	14%	122.5	77	167	0	0.46	16.5
D	70	122.96	20.16	16%	119	83	194	0.98	1.79	21.75
E	23	143.87	21.51	15%	149	111	188	0.34	-0.62	26.5

(sd – standard deviation, Me – median, \bar{x} – arithmetic mean, A – skewness, K – kurtosis, V(x) – coefficient of variation).

Legend: A – regularly practicing believer, B – irregularly practicing believer, C – non-practicing believer, D – practicing non-believer, E – non-practicing non-believer

Source: Author's own research.

Research results indicate the absence of a statistically significant dependency between the respondents' declared level of religiosity and their sense of coherence (SOC-29 – value of Kruskal-Wallis chi-squared test statistic = 6.5145, df = 4, p-value = 0.163926).

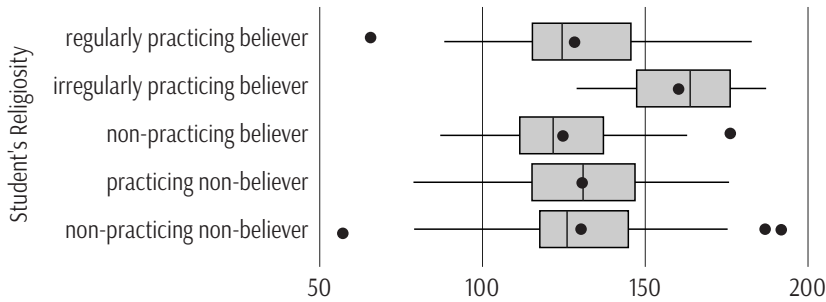


Chart 5. Dependency between the Sense of Coherence (SOC-29) and the Students' Religiosity (n = 322)

Source: Author's own research.

The dependencies presented on Chart 5 allow for the conclusion that people declaring themselves as non-believers mobilize themselves to greater responsibility for their own health, which may be the reason why this group of the respondents achieves the highest level of sense of coherence. Analogously, the results of people declaring themselves as practicing believers may indicate greater hope in God when it comes to their own health, which manifests as the lowest sense of coherence among those studied. Research on the dependency between the sense of coherence and the religiosity shows that the greatest relationship between the two can be found in the type of attachment to God (Zarzycka & Tychmanowicz, 2015), and finds a particularly positive correlation with the personal dimension of religiosity (Zasępa, 2002). Research results show other paths to reaching a stable sense of coherence, as presented by distance to religiosity and the practices associated with it.

CONCLUSIONS

The presented research results invite reflection on methods of stimulating the sense of coherence in the group of students. The medium level of sense of coherence shown by the studied group of university students seems to be insufficient by a large margin from this point of view. The need for changes with respect to methods of educating students is becoming a pedagogical imperative, so that both the knowledge and skills gained over the course of education will allow this social group to withstand crises and problems of both personal and social nature. Certain researchers highlight the cognitive possibilities of shaping the sense of

coherence in the educational process (Binnebesel, 2006). In the opinion of this article's author, knowledge makes it possible to understand the meaning behind actions taken. This relationship was observed in studies conducted on adults, where the level of educational engagement, motivation and aspirations depend on the achieved level of the sense of coherence (Jarmużek, 2018). The fact that the higher sense of coherence indexes are achieved by students of higher years with respect to their younger colleagues is cause for some optimism. This may indicate that university education enriches students with the knowledge and baggage of experience that they then creatively convert into their personal resources.

To a certain extent, the results obtained confirm Antonovsky's hypothesis (1995) that a strongly developed sense of coherence motivates an individual to act and be active. Internal or external resources that make it possible to form an opinion on incoming stimuli from the environment are activated, assessing whether these stimuli should be evaluated as positive or encumbering the regulation mechanism. If challenge is dominant in the assessment of stressors, the individual mobilizes themselves and their skills to deal with problems effectively. Thanks to this, tension will not metamorphose into chronic stress, which will not take its toll on health, while success will develop and enhance resources. Depending on the configuration and intensity of its individual components, the sense of coherence influences the efficacy of dealing with stressors. A strong sense of coherence helps an individual to perceive reality in a more realistic way and makes it possible to focus on the significant parts of it, rather than on stimuli of little significance. People with a high sense of coherence are able to control and express the emotions they experience and more effectively deal with tension arising as a result of adverse life events (Kirenko & Byra, 2011; Woynarowska, 2017). From this perspective, it seems important for university students at the start of their adult life to have a high sense of coherence at their disposal, which will lead to them learning about themselves, their capabilities and barriers, and open up a new space for self-invention and self-development.

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