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Purpose in Life and Uncertainty Tolerance in Transport University Students during the COVID-19 Pandemic

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ABSTRACT In a situation of ambiguity and global crisis, uncertainty tolerance, purpose or meaning in life and life values have become important factors of psychological health and adaptability of the Transport University students. The purpose of this study is to survey the levels of students' uncertainty tolerance, purpose in life and life values.

Sixty students of Saint-Petersburg State Transport University aged 18–22 participated in the survey. The following methods were used in the research: Crumbaugh and Maholic's PIL (Purpose-in-Life Test) adapted by D. Leontyev; V.F. Sopov and L.V. Karpushina's Morphological Test of Life Values; E.N. Osin's adaptation of the McLane Uncertainty Tolerance Scale.

The Purpose-in-Life Test have revealed average scores; at the same time, high scores have prevailed on the "Locus of Control – Life" scale. The students' material and spiritual values proved to be in a good balance. The students' Uncertainty Tolerance turned out to be at an average level, but the "Uncertainty Tolerance" scale have revealed either high-level or low-level scores. Uncertainty tolerance is related to life values in both males and females. A higher purpose in life tends to promote greater psychological adaptability to ambiguous situations and boosts uncertainty tolerance in general. The females' uncertainty tolerance is connected to spiritual values, maintaining individuality, creativity, and hobbies. The males' attitude to novelty is linked to their prestige and achievement.

According to the survey, the Transport University students have an average level of uncertainty tolerance, purpose in life, and well-balanced material and spiritual values. Purpose in life is related to higher uncertainty tolerance and adaptability to ambiguous situation. There is some gender specific correlation between life values and uncertainty tolerance among males and females. Females' attitude is more related to spiritual values whereas males are more oriented to social success.

KEYWORDS: purpose in life; values; uncertainty tolerance; COVID-19 pandemic; students; Transport University

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Научная статья

Смысложизненные ориентации и толерантность к неопределенности в период пандемии у студентов транспортного вуза

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АННОТАЦИЯ В ситуации неопределенности и мирового кризиса толерантность к неопределенности, смысложизненные ориентации (СЖО) и ценностные ориентации становятся важным фактором сохранения психологического здоровья и адаптивности студентов транспортного вуза. Цель исследования — изучение особенностей толерантности к неопределенности, СЖО и ценностных ориентаций у студентов транспортного вуза, будущая профессиональная деятельность которых связана с высокой ответственностью, дисциплинированностью, способностью к устойчивой деятельности в стрессовых ситуациях.

В исследовании приняли участие 60 студентов ПГУПС в возрасте от 18 до 22 лет. Применялись методики: опросник СЖО Крамбо и Махолика в адаптации Д. Леонтьева, морфологический тест жизненных ценностей В.Ф. Сопова, Л.В. Карпушиной, шкала толерантности к неопределенности МакЛейна в адаптации Е.Н. Осина.

Выявлены средние показатели по методике СЖО, по шкале «Локус контроля — жизнь» преобладают высокие показатели. У студентов материальные и духовные ценности сбалансированы. Показатели толерантности к неопределенности у студентов находятся на среднем уровне, по шкале «Толерантность к неопределенности» преобладает высокий или низкий уровень показателей. Толерантность к неопределенности взаимосвязана с СЖО как у девушек, так и у юношей. Чем выше осмысленность жизни, тем выше психологическая адаптивность к неопределенным ситуациям и толерантность к неопределенности в целом. Толерантность к неопределенности у девушек взаимосвязана с ценностями духовного удовлетворения, сохранения индивидуальности, креативности и увлечениями, у юношей отношение к новизне связано с ценностями собственного престижа и достижений.

Студенты транспортного вуза обладают толерантностью к неопределенности, осмысленностью жизни, сбалансированностью материальных и духовных ценностей. Осмысленность жизни связана с более высокой толерантностью к неопределенности и адаптивностью к неопределенным ситуациям. Взаимосвязь ценностей и толерантности к неопределенности имеет гендерную специфику: у девушек выявлены взаимосвязи с духовными ценностями, у юношей — с ценностями социального успеха.

КЛЮЧЕВЫЕ СЛОВА: смысложизненные ориентации; ценностные ориентации; толерантность к неопределенности; пандемия; студенты; транспортный вуз

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INTRODUCTION

At the turning points in history, prolonged uncertainty becomes an integral part of everyone's. The individual's spiritual resources become particularly important for positive coping. The works of W. Frankl (1990) and A. Langlais (2021) have shown the role of purpose or meaning in life in external and internal crisis. Life values are related to an individual's experience of internal (Okoneshnikova, 2012) and external life events. A study by E.V. Fedoseenko (2020) has revealed that the prevalence of altruistic values can be a resource for individuals in conditions that are perceived as threatening.

One of the biggest modern challenges people have faced worldwide was the pandemic of a new Coronavirus infection. The COVID-19 pandemic and vital threats and social constraints associated with it have had a negative impact on people's psychological health and emotional well-being. While fear was the most common emotional response at the early pandemic period (Seçer, Ulaş, 2020), anxiety, depression and stress increased later (Kavčič, Avsec, Kocjan, 2020; Talevi et al., 2020). Uncertainty tolerance developed as a result of less acute negative reaction to the pandemic (Pershina, 2022).

Young people make part of a vulnerable social group due to their lack of experience of crises and less social security than older and more mature people. At the early days of the pandemic, they had to adjust to the life with constraints including distant learning, which placed greater demands on their self-management. Researchers have identified factors that contributed to more successful adaptation and psychological well-being of students. Self-management and self-regulation boosted students' adaptation to new conditions and, consequently, they were more satisfied with life (Zinchenko et al., 2021; Sinelnikova, 2021).

In the post-pandemic period, higher education institutions including transport universities in the country returned to classroom learning, but the pandemic had a prolonged effect on students' emotional state and contributed to a higher level of mental stress that they were not always aware of. Chronic stress is potentially more dangerous to an individual's mental and physical health than acute stress unless the latter is fatal (Kitaev-Smyk, 2021; Sapolsky, 2015). Quarantine often has a delayed negative effect, particularly increasing the likelihood of post-traumatic stress even three years later (Reynolds et al., 2008).

After graduating from university, students will have to build their professional and personal life under con-



ditions of uncertainty. Uncertainty tolerance becomes a key factor for psychological health as an integral component of an individual's psychological well-being (Pyatakova et al., 2019) and socio-psychological adaptability. As an essential trait in students, uncertainty tolerance helps to acquire professional knowledge and skills and develop a successful professional career as well as maintain psychological stability, which is important for transport workers.

Intolerance of uncertainty is associated with greater social anxiety and lower self-efficacy (Aksenova, Sineva, 2022). Purpose-oriented life (PIL) and meaningful life are personality factors contributing to successful coping (Odintsova, Semenova, 2011; Borisova, Shapovalenko, 2018) and their importance has increased in the current context. The data obtained from the students indicate that developed PIL is associated with a higher level of responsibility (Slotina, 2019) that is required in transport sector workers.

MATERIALS AND METHODS

Sixty students (24 males, 36 females) of Petersburg State Transport University (PSTU) aged from 18 to 22 took part in the empirical research. The following methods were used to collect the empirical data: Crumbo and Maholik's PIL Questionnaire (adapted by D. Leontiev, 2000), V.F. Sopov and L.V. Karpushina's Life Values Morphological Test (LVMT) (2001), McLane's Uncertainty Tolerance Scale (adapted by E.N. Osin (2010) [1–10].

RESEARCH RESULTS

The results of the PIL research are presented in *Table 1* and *Fig. 1*.

According to the survey results, the students in general showed mean PIL scores. However, on the "Locus

Table 1
Mean values according to D.A. Leontiev's Purpose-life
Orientation Test

Scales	Mean	Standard deviation	Sample variance	Minimum	Maximum
Purpose	26,45	8,46	71,64	6	42
Process	22,42	5,67	32,11	9	32
Outcome	23,33	5,48	29,99	6	33
Control locus - I	19,05	4,44	19,74	8	26
Control locus - Life	27,18	6,68	44,59	8	39

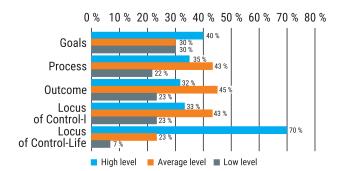


Fig. 1. Scores according to D.A. Leontiev's PIL methodology

of Control – Life" scale, 70 % of the Transport University students surveyed showed high scores, i.e. they are convinced that individuals can build and manage their life at their own will.

However, on the "Locus of Control – Self" scale, only 33 % of students show high scores, which means that most students are not confident in their ability to build and manage their life, and do not feel that they have sufficient internal and external resources to do so.

On the "Purpose" scale, 40 % of the students have high scores, i.e. they have purposes in life that they would like to achieve [11–15].

Only about one-third of the students have high scores on the "Process", "Outcome", and "Locus of Control – I" scales. This suggests that having formulated the goals, most of the students do not have practical tools to achieve them and to develop self-management skills, which is reflected in their life satisfaction (both process and results).

The results of the survey according to V.F. Sopov and L.V. Karpushina's LVMT methodology are shown in *Table 2* and *Fig. 2*.

Both material and spiritual values are obviously significant for the Transport University students.

The survey results according to the McLane Uncertainty Tolerance Scale adapted by E.N. Osin are shown in *Table 3* and *Fig. 3*.

The majority of respondents have shown average scores on all scales except uncertainty tolerance. On the "Uncertainty Tolerance" scale, high and low levels of tolerance predominate among the students.

There have been revealed certain relationships between the "Uncertainty Tolerance" and "Life Values" scales. The "Attitude to Novelty" scale correlates with self-esteem (r=0.426, p<0.05) and achievement (r=0.503, p<0.05) among young males. The young men's positive attitude to novelty depends on how high they value prestige and achievement.

The "Spiritual Satisfaction" scale correlates with the attitude to ambiguous situations (r = 0.380, p < 0.05), preference for uncertainty (r = 0.418, p < 0.05), with the overall Tolerance scale score of (r = 0.344, p < 0.05) among the females. When the girls are guided more



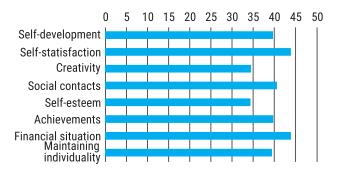


Fig. 2. Mean scores of the life value scales according to the LVMT methodology as adapted by V.F. Sopov and L.V. Karpushina

Table 2 Mean indicators of life values according to the "Morphological test of life values" method adapted by V.F. Sopov and L.V. Karpushina

Scales	Mean	Standard deviation	Sample variance	Minimum	Maximum
Self- development	39,65	7,68	58,94	17	60
Spiritual satisfaction	43,78	7,04	49,49	27	60
Creativity	34,40	8,82	77,74	15	60
Social contacts	40,35	7,49	56,06	22	56
Self-esteem	34,02	9,38	87,98	19	60
Achievements	39,78	7,19	51,73	20	60
Financial situation	43,82	7,12	50,73	27	60
Maintaining individuality	39,28	8,17	66,68	22	60

by moral principles in life, their attitude to ambiguous situations will be more positive. They will prefer the novelty to the familiar and their overall uncertainty tolerance will be higher.

"Creativity" correlates with the "Uncertainty Preference" scale (r=0.334, p<0.05) among the girls. The more important creativity is for the girls, the more they strive to develop their creative abilities and prefer the novelty to the familiar [16–24].

The "Individuality Maintenance" scale correlates with the attitude to challenging situations (r=0.388, p<0.05), attitude to ambiguous situations (r=0.344, p<0.05), and preference for uncertainty (r=0.364, p<0.05), with the overall score of (r=0.342, p<0.05) among the girls. When individuality and its manifestation in life are important for the females, they will be more positive to challenging and ambiguous situations. They will prefer novelty to the familiar and their overall uncertainty tolerance is higher.

The "Hobby" scale correlates with the attitude to ambiguous situations (r = 0.381, p < 0.05) and preference for uncertainty (r = 0.385, p < 0.05) among the girls. When interests and hobbies are important for girls, they will be more positive to ambiguous situations and their preference for novelty will be higher.

The survey has revealed the correlations between the "Uncertainty Tolerance" and "Meaningful Life" scales. The integrated "Meaning in Life" scale correlates with attitude towards novelty (r = 0.433, p < 0.05), challenge (r = 0.424, p < 0.05), and uncertainty tolerance (r = 0.453, p < 0.05), with the overall score of (r = 0.446, p < 0.05) among young men.

The more meaningful young men's lives are, the more defined their goals are and the more they experience the ontological significance of life. Thus, they are more positive to novelty and challenges and more adaptable to ambiguous situations. As a result,

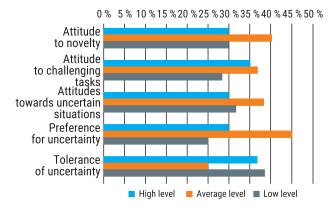


Fig. 3. Mean scores on the McLean Uncertainty Tolerance scales as adapted by E.N. Osin

Table 3
Mean indications in the McLane Uncertainty Tolerance Scale
as adapted by E.N. Osin

Scales	Mean	Standard deviations	Sample variance	Minimum	Maximum
Attitudes towards novelty	12,72	2,92	8,51	7	20
Attitudes towards challenging tasks	29,82	6,04	36,49	19	45
Attitudes towards uncertain situations	34,32	7,75	60,05	17	56
Preference for uncertainty	42,22	8,06	65,02	27	66
Tolerance of uncertainty	38,42	9,05	81,98	19	57



they tend to view ambiguous situations as stimulating and emotionally charged and are more tolerant of uncertainty in general. Among the females, the "Meaning in Life" scale correlates with the attitude to novelty (r=0.397, p<0.05), challenging tasks (r=0.393, p<0.05), attitude to ambiguous situations (r=0.393, p<0.01), preference for uncertainty (r=0.411, p<0.05), and uncertainty tolerance (r=0.528, p<0.01), with the overall score of (r=0.501, p<0.01). The more meaningful the girls' life is and the more positive their attitude to novelty, challenges and ambiguous situations is, the more adaptable to uncertainty they are. Thus, their preference to novelty and uncertainty tolerance will be higher.

The "Goals" scale correlates with the attitude to novelty (r=0.356, p<0.05), ambiguous situations (r=0.479, p<0.01), preference for uncertainty (r=0.393, p<0.05), and uncertainty tolerance (r=0.424, p<0.05), with the overall score of (r=0.436, p<0.01). The girls' attitude to novelty and ambiguous situations will be more positive when their goals are more explicit and meaningful. They will prefer novelty to the familiar, and their adaptability to ambiguous situations and their uncertainty tolerance will be higher.

The "Life Process" scale is correlated with the attitude to novelty (r = 0.502, p < 0.05) and uncertainty tolerance (r = 0.455, p < 0.05) among the males. The more positive is their attitude towards novelty and the higher is their adaptability to ambiguity, the more emotionally charged and satisfied they are with their life. Among the females the Life Process scale is related to the attitude to novelty (r = 0.374, p < 0.05), attitude to challenging tasks (r = 0.389, p < 0.05), attitude to ambiguous situations (r = 0, 548, p < 0.01), preference for uncertainty (r = 0.435, p < 0.01), and uncertainty tolerance (r = 0.514, p < 0.01), with the total score of (r = 0.506, p < 0.01). The more positive is the girls' attitude to novelty, complex and ambiguous situations, the higher is their preference for novelty, their adaptability and uncertainty tolerance. As a result, they feel more emotionally charged and satisfied with their lives as being.

The "Life Outcome" scale is related to the attitude to novelty (r = 0.348, p < 0.05), challenging tasks (r = 0.345, p < 0.05), ambiguous situations (r = 0.449, p < 0.01), and uncertainty tolerance (r = 0.498, p < 0.01), with the overall score of (r = 0.428, p < 0.05) among the females. The more positive the girls are about new developments in their lives, the more they are willing to accept the complexity and ambiguity of the world and to take it into account in their actions. They are more adaptable to ambiguous situations and their uncertainty tolerance is higher in general. As a result, they perceive their life more meaningful and productive as being.

The "Locus of Control – I" scale is related to the attitude to novelty (r = 0.445, p < 0.05) and uncertainty

tolerance (r = 0.444, p < 0.05) among the males. The more convinced the young men are of their ability to control their lives, the more positive they are to novelty and challenging tasks. Among the females, the Locus of Control - I scale is associated with the attitude to novelty (r = 0.355, p < 0.05), challenging tasks (r = 0.385, p < 0.05), and ambiguous situations (r = 0.494, p < 0.01) as well as preference for uncertainty (r = 0.370, p < 0.05) and uncertainty tolerance (r = 0.511, p < 0.01), with the overall score of (r = 0.470, p < 0.01). When the girls are more positive to novelty in life, they will more willingly accept the complexity and ambiguity of the world. They will prefer the new to the familiar; they will readily adapt to ambiguous situations, tolerate uncertainty in general and be more confident in their ability to control their own lives.

The "Locus of Control – Life" scale correlates positively with the attitude to novelty (r = 0.428, p < 0.05), challenging tasks (r = 0.463, p < 0.05), and uncertainty tolerance (r = 0.414, p < 0.05) among the young men. If the young men are more confident in their ability to control life, make decisions and put them into action, they will be more adaptable to ambiguous situations and more positive towards novelty and challenging tasks. Among the girls, the "Locus of Control -Life" scale is related to the attitude towards difficult (r = 0.378, p < 0.05) and ambiguous situations (r = 0.455, p < 0.05)p < 0.01) as well as towards preference for uncertainty (r = 0.363, p < 0.05) and uncertainty tolerance (r = 0.467, p < 0.05)p < 0.01), with the overall score of (r = 0.443, p < 0.01). The more confident the girls are in their ability to control their own lives, the more positively they accept the complexity and ambiguity of the world. They prefer novelty to the familiar and have higher levels of adaptability to ambiguous situations and uncertainty tolerance.

CONCLUSION AND DISCUSSION

The results of the research have shown that the majority of the Transport University students participating in the survey have well-balanced material and spiritual values and have an average score of purpose in life. According to the survey, 70 % of the students have high scores on the "Locus of Control – Life" scale. This means that a large proportion of the students believe in individuals' ability to control life. On the other hand, on the "Locus of Control - I" scale, the average scores prevail, i.e. the majority of students are less confident in their ability to control their lives, which could potentially be due to a lack of their planning and management skills. The research conducted earlier by the Applied Psychology Department at PGUPS suggests that planning, as a coping strategy, correlates positively with emotional comfort in students (Ma-



zurova, Kaznacheeva, 2019). The Transport University students who developed self-management skills during the period of self-isolation and distant learning have a high level of satisfaction with life (Sinelnikova, 2021). The results of the empirical study conducted indicate that adaptability to uncertainty and readiness for new experiences are associated with higher scores on the "Locus of Control - I" scale, which means that the students' confidence in the ability to control their life is high enough in both males and females.

40 % of the Transport University students have high scores on the "Goals" scale, i.e. a significant number of students have formulated life goals. At the same time, satisfaction with both the outome and the process of life is at an average level. The "Process of life" scale is associated with the attitude to novelty and uncertainty tolerance among both males and females. The results of the empirical study suggest that the students' lack of satisfaction with life is partly due to internal psychological barriers, fear of ambiguity and the negative outcomes associated with it that prevent the students from having new experiences. The empirical research results (Kononova, 2014) also suggest that high school students involved in collective creative activities have higher "Purpose in Life" scale scores; they are more satisfied with the life process and its outcome and are more confident in their ability to control life as compared to the control group. A more active involvement of students, especially junior students, in the university social activities is likely to make students' life more meaningful, to develop their ability to control their life, and consequently, they will be more satisfied with life.

According to the survey, the uncertainty tolerance in the Transport University students is at an average level; nevertheless, on the "Uncertainty Tolerance"

scale, low and high levels predominate. The research findings show that uncertainty tolerance is associated with purpose in life. A low level of uncertainty tolerance correlates with a lack of purpose in life, a lower level of confidence in their ability to control life and a lack of emotionally-charged and interesting life as being.

Thus, an average level of uncertainty tolerance can be assumed as optimal. Public sector workers with a low level of anxiety and pronounced temporal infantilism have a higher level of uncertainty tolerance compared to those with an average level of anxiety and temporal freedom (Dukhnovsky S.V., 2022). The average scores on the "Uncertainty Tolerance" scales suggest that the Transport University students accept ambiguous situations in general and are willing to undertake challenging levelsf tasks. They are moderately positive to novelty, are highly reflective and relatively quick to move from plans to action, and have a moderate ability to take risks. A low level of uncertainty tolerance revealed in a third of the students surveyed can potentially reduce their psychological adaptability to ambiguous situations. The gender differences in uncertainty tolerance have revealed that uncertainty tolerance in males correlates with social success, whereas in females — with moral values, creativity and hobbies.

In conclusion, it can be stated that the Transport University students possess well-balanced material and spiritual values, a well-developed sense of life purpose and a high level of uncertainty tolerance. Purpose in life is associated with higher uncertainty tolerance. The students with the defined life purposes are more tolerant of uncertainty. They readily learn new skills and solve challenging tasks, and are prepared to live and act in uncertain environments.

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