

**Open Access** **Original Research**

# Transformation of relationships between time perspective and life-sense orientations in people with gambling disorder in a rehabilitation setting

Anna Yurievna Zinina<sup>1,2\*</sup>, Svetlana Dzakhotovna Gurieva<sup>1,3</sup>

**Citation:** Zinina, A.Y., Gurieva, S.D. (2024). Transformation of relationships between time perspective and life-sense orientations in people with gambling disorder in a rehabilitation setting. Journal of Gambling Issues.

**Editor-in-Chief:** Nigel E. Turner, PhD

ISSN: 1910-7595

Received: 09/23/2023

Accepted: 03/06/2024

Published: 03/26/2024



**Copyright:** ©2024 Zinina, A.Y., Gurieva, S.D. Licensee CDS Press, Toronto, Canada. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>)

<sup>1</sup>Social Psychology Department of Psychology, Saint Petersburg State University, Russia

<sup>2</sup>ORCID: 0000-0001-9391-102X

<sup>3</sup>ORCID: 0000-0002-4305-432X

\*Corresponding author: Anna Yurievna Zinina, [zininaanna0231@gmail.com](mailto:zininaanna0231@gmail.com)

**Abstract:** The influence of technological changes on the gambling landscape, coupled with the persistent challenges of prevalence and relapse rates, especially among already disadvantaged population sectors, highlights the need for expanding treatment provision and a comprehensive approach to addressing gambling problems. The aim of this study was to identify the relationship between time perspective and life-sense orientations in people with gambling disorder in a rehabilitation setting. The study involved 42 respondents (70% male and 30% female; mean age: 24.6; SD = 2.4) who completed a gambling rehabilitation program at the “XXX” rehabilitation center for 6 months (due to the confidentiality of the information, the name was removed). The Zimbardo Time Perspective Inventory and Leontiev's Life-Purpose Orientations test were administered immediately prior to and following the rehabilitation program. The research results revealed the dynamics in the development of positive correlations between time perspective and life-sense orientations in people with gambling disorder, which may be indicative of time perspective harmonization and an increasing interest in building a meaningful life beyond gambling. The study's findings expand and deepen existing psychological understandings of time perspective and life-sense orientations in people with gambling disorder.

**Keywords:** Gambling Disorder, People with gambling disorder, Life-sense Orientations, Time Perspective, Rehabilitation.

## Introduction

The evolving gambling landscape, characterized by technological changes and the widespread availability of online gambling platforms on the Internet, has significantly increased the convenience and accessibility of gambling.

Despite technological advancements contributing to gambling disorder development and its harms, gambling prevalence rates in many countries have declined since the early years when gambling became widely available (Calado & Griffiths, 2016; Abbott, 2020).

Nowadays, however, most new cases involve former problem gamblers whose relapse, especially among disadvantaged populations, causes serious harm, including financial difficulties, strained relationships, poor health, psychological distress, and negative impacts on work and education. (Chóliz, 2016; Gainsbury, 2015; Abbott, 2020).

These factors highlight the urgent need to address the socio-psychological impact of gambling and to expand treatment options, including residential rehabilitation, to effectively support people affected by gambling disorders.

Currently, according to the American Psychiatric Association's DSM-5, "gambling disorder" is defined as an uncontrollable urge to continue gambling despite negative consequences and is classified in a category similar to psychoactive substances and addictive disorders (based on a range of physical attributes and personality disorders) (American Psychiatric Association, 2013).

Time perspective, defined as "...the process by which the long flow of existence is unified into temporal categories that help to order, structure, and give meaning to our lives" (Zimbardo et al., 2010 p.58) and life-sense orientations, reflecting personality orientation, existence of life goals, meaningful choices and assessments, and satisfaction with self-realization (Leont'ev, 2019) are among the most fundamental personality characteristics.

Compared to healthy people, people with gambling disorder have a specific time perspective. It is characterized by negative-pessimistic perceptions of the past and future, which creates a sense of the difficulty of altering current life circumstances (Cosenza et al., 2015; Hodgins et al., 2002; Nigro et al., 2017). They are characterized by a belief in chance, fate, and the power of chance, as well as an unwillingness to accept responsibility for one's actions (Agibalova et al., 2020; Fortune et al., 2012). The need for adrenaline and excitement provided by games defines the hedonic time perspective (Cosenza et al., 2015). The only straight link between the present, past, and future is gambling. Identification with a game influences their personality and may contribute to the development of problem gambling or a more serious gambling disorder.

Though life meaning and resilience are important predictors of psychological well-being and health (Lasota et al., 2021), people with gambling disorder behaviors lack internal control as they perceive their

lives as less holistic and meaningful, according to studies by Daniellova et al. (2022) and Izotova et al. (2020).

In general, people experiencing gambling disorder are characterized by a lack of meaningful goals for the future and dissatisfaction with their present lives. They view their life as a problem rather than a significant value filled with meaning, which is a characteristic sign of existential crisis (Karpov, 2009), which creates personal dissonance, exacerbates addictive behavior, and contributes to social maladjustment (Zykov, 2012).

Rehabilitation pathways for people with gambling disorder may vary depending on the specific subtypes of gambling disorder. Many people greatly benefit from self-help resources, face-to-face and online interventions of varying duration, and medication. Non-treatment-assisted 'natural' recovery in gambling disorder is associated with less severe cases and individuals without premorbid psychopathology, indicating a behaviorally conditioned subtype (Blaszczynski and Nower 2002; Toneatto et al. 2008).

Since gambling disorder is a complex disorder, effective residential treatment and rehabilitation require a multifaceted approach to restoring physical and mental health. This allows people with more severe, complex, and persistent gambling disorder problems to reintegrate into society through the development of a new lifestyle (Zinina & Gurieva, 2021).

It should be noted that rehabilitation centers provide a highly structured and organized setting, with specific goals and objectives established at each stage, such as overcoming the denial system, dealing with negative emotions (resentment, guilt, self-pity, etc.), enhancing one's self-esteem, overcoming outdated stereotypes, accepting responsibility for one's actions, developing a life perspective beyond addiction, and so on (Kulakov, 2023).

Although life in rehabilitation may seem monotonous, with each day planned down to the minute, there is more to the process than just following a rigid schedule. The ability to work on oneself to overcome addiction creates a sense of purpose and meaning within a rigidly planned schedule, which can play a key role in shaping the desire to begin living a conscious, healthy life (DiClemente, 2018).

However, reliable diagnostic criteria for assessing the personality recovery of people with gambling disorder who have undergone rehabilitation programs have not yet been established. At the same time, it is difficult to say unequivocally which rehabilitation program would be most effective in promoting positive change and for which patients specifically (Zykov, 2012).

Therefore, for a more holistic understanding of the effectiveness and limitations of rehabilitation programs as well as their impact on recovery, it is important to deepen research aimed not only at establishing the dynamics of rehabilitation outcomes but also at identifying the interrelationships and underlying mechanisms that provide additional opportunities for a deeper

understanding of both the disorder itself and the rehabilitation process, which determines the relevance of our study.

This study is a continuation of the study into the transformation of the time perspective and life-sense orientations of people with gambling disorder under the conditions of their rehabilitation (Zinina & Gurieva, 2021, 2022). Previously, we have found that the combination of a targeted rehab program and the situational impact (a special type of rehabilitation setting - "micro-society") positively influences the dynamics of the rehab process in terms of restructuring personality and having a favorable impact on people with gambling disorder perceptions of the past, present, and future.

Based on this, we developed the primary hypothesis of the current study: a comprehensive rehabilitation program may contribute to the formation of a positive relationship between time perspective and life-sense orientations in people experiencing gambling disorder, harmonizing and intensifying their interest in building a meaningful life beyond gambling.

Therefore, the aim of this study is to identify and gauge the transformation of the relationship between the indicators of time perspective and life-sense orientations in people with gambling disorder in a rehabilitation setting.

## **Methods**

### ***Participants***

The study involved 42 gambling-dependent respondents undergoing a six-month rehabilitation program. We defined the criteria for the inclusion of the participants in the study as follows: 1) voluntary; 2) age 18 years and older; 3) no gender restrictions.

Residential rehabilitation is intended for people with a severe gambling disorder who are unable to stop gambling without 24-hour support; thus, all patients are subjected to clinical and psychological diagnostics prior to admission to the institution.

All participants in our study meet the diagnostic criteria for a gambling disorder, which was diagnosed according to the DSM-5 criteria prior to admission to the rehabilitation center. Those with serious physical or mental illnesses were excluded.

Of the 48 prospective subjects, six declined without providing a reason. Those who agreed to participate (n = 42) gave informed consent. The research team received no indication from any participants that they wished to withdraw before the study's conclusion. We did not carry out the experiment on the control group.

At the beginning of the study, we conducted a socio-demographic analysis of the participants in the rehabilitation program (Table 1). Comparison of the samples revealed 70% males and 30% females. The mean age of the participants was 24.6 years, with an age range of 20 to 29 years. Most participants (55%) were in a relationship but not married (32%). Thirteen percent of participants were in a formal relationship. The

participants' educational level is heterogeneous; they are engaged in various spheres of professional activity and have a medium level of material well-being (63%).

**Table 1** Socio-Demographic Characteristics

Characteristics		Participants (n = 42)
Sex composition		Males –70% Females – 30%
Mean age		24.6 years
Education	high educational qualification	24%
	incomplete higher education	29%
	secondary	26%
	secondary specialized	17%
	incomplete secondary	4%
Marital status	married	13%
	single	32%
	in a relationship	55%
Material well-being	high	17%
	medium	63%
	low	20%
Professional activity	employed	42%
	unemployed	19%
	student	39%

### ***The rehabilitation program of the “XXX” rehabilitation center***

The study was carried out at the “XXX” rehabilitation center (the name of the center is not mentioned; it is encrypted due to the confidentiality of the information provided by the study participants).

The rehabilitation program of the “XXX” rehabilitation center includes targeted (rehabilitation program) and situational impact (a special type of rehabilitation - "micro-society") effects aimed at detailed elaboration of addiction problems, comprehensive recovery and reconstruction of people with gambling disorder personalities (including their spiritual, biological, social, and psychological components), and assistance in returning to a healthy and socially valuable life.

The rehabilitation program is based on a specialized program that is tailored to each patient's specific needs, taking into consideration all aspects of his or her disorder, and it may be altered throughout therapy if necessary. Each patient is assigned a psychologist who supervises program tasks, conducts personality-oriented psychotherapy, organizes family sessions, and accompanies their post-discharge. This program has existed for several years and has proven its effectiveness and validity.

The program is based on the principle of the “12 Steps” model, combined with a complex of rehabilitation techniques aimed at the detailed elaboration of addiction problems and the development of a person's

incentive and desire to start living a sober life (individual and group psychotherapy, keeping a "diary of feelings", daily and weekly monitoring, thematic trainings, a course of specialized lectures, sports and cultural events, etc.). The program aims to enhance the patient's existential space by harmonizing four life dimensions: physical, social, personal, and spiritual. The Center, based on the "12 Steps" model, does not impose specific religious views on the patient but is based on the spiritual principles of humanity as a whole. The 12-step model is recommended as a spiritually oriented technology for support and guidance after discharge from inpatient care, either alone or in combination with individual psychotherapy or professional accompaniment (Kulakov, 2023).

The rehabilitation ("micro-society") is a specialized therapeutic setting with a certain internal order and norms of behavior and a clear hierarchical structure of the rehabilitation system, where functions of different complexity and responsibility are performed by the rehabilitants (maintenance of the center and its improvement, domestic self-care, providing meaningful leisure activities, etc.). Creating a special framework allows the patient to learn various social roles, to develop responsibility and the ability to solve tasks, as well as to concentrate on his/her recovery in isolation from destructive influences (in a closed inpatient facility for 3-6 months).

### ***Procedure***

This project is an evaluation of the program and specifically how the outcome variables test the program's goal.

The ethical guidelines outlined by the most recent edition of the Declaration of Helsinki (1964) for research studies involving humans were followed in the conduct of this investigation. Additionally, St. Petersburg State University (ID: 116230058) gave its approval to the project. The administration and psychologists of the rehabilitation center also gave their approval to the study's plan and methodology. The author of the article has been an active consultant on the issue of gambling disorder for many years. Being an independent expert, the author is not affiliated with the rehabilitation program.

Ethical issues were highly considered, such as the following: participants were informed about the nature of the study as well as its anonymity and confidentiality; informed consent was obtained from each respondent to participate in the study; every questionnaire was coded; and personal information was deleted. A sample of informed consent is provided as an appendix to the article (Appendix 1).

The research includes a longitudinal component. Measures were administered twice, applying the same techniques to participants who provided informed permission and satisfied study criteria: the primary psychodiagnostics study (before the intensive psychological rehabilitation program) and the control study (after the rehabilitation program).

In the first stage of the trial, the study participants were required to self-complete questionnaires following a week-long quarantine and prior to

the beginning of the rehabilitation program. After six months of rehabilitation, they participated in the second stage of the study and completed the questionnaires on their own, which were scored by the authors.

Participants were given printed test forms with verbal instructions on how to complete them. Over the course of three days, at their leisure from therapy, participants self-completed questionnaires, returned the forms, or photographed their responses and e-mailed them. They received written feedback on the test results upon request. Participants had the right to withdraw from the study at any time. The study was conducted using scientifically valid, reliable, validated, and adapted psychodiagnostics methods.

### **Research Methods**

*The “Zimbardo Time Perspective Inventory”* (ZTPI, Zimbardo & Boyd, 1999), as adapted by the Russian scientists Syrtsova, Sokolova, and Mitina (Syrtsova, Sokolova, & Mitina, 2008), is designed to measure one's assessment of one's own time continuum and one's tendency to focus on one of the time intervals (past, present, or future). Our study was used to reveal the connection between participation in the rehabilitation program and changes in the participants' time perspective. The methodology contains 56 statements and five main measurement indicators: “Past-Negative” (level of rejection of one's own past), “Present-Hedonistic” (goal-based enjoyment), “Future” (existence of goals and plans for the future), “Past-Positive” (level of acceptance of one's own past), and “Present-Fatalistic” (dominance of an external locus of control).

*The “Life-Purpose Orientations”* (LPO) test by the Russian scientist Leontiev (Leontev, 2006) (an adapted version of the Purpose-in-Life Test (PIL) by J. Crumbo and L. Maholika) allows researchers to get information about the subject's experience of the meaningfulness of their own life as an integral indicator of adaptation and psychological wellbeing. In our study, this technique was used to identify the connection between participation in the rehabilitation program and changes in the overall level of meaningfulness of the participants' life perspectives. This methodology uses 20 symmetrical scales and questions, including the General Meaningfulness of Life (GML) index and five subscales: “Goals” (the presence or absence of goals), “Process” (the degree of satisfaction with the process of life, interest, and emotional saturation), “Result” (evaluation of the past life segment, the degree of satisfaction with the result of self-realization in the past), “Locus of Control – Self” (LC-S - I am the master of life), and “Locus of Control-Life” (LC-Life - life or controllability of life) - (subjective position of the personality).

*Socio-demographic characteristics.* The author's questionnaire was used to determine socio-demographic characteristics. The questionnaire was used to determine the following characteristics of the participants: sex composition, age, level of education, marital status, professional activity,

and financial situation. The questionnaire was offered to the participants to complete before the study.

### ***Data Analysis***

Various methods of mathematical and statistical analysis were used to interpret the empirical data using the IBM SPSS Statistics 24.0 program. Primary descriptive statistics were calculated for all variables. The dependent Student's t-test for all individual variables was used to identify significant differences between pre-measure (stage I) and post-measure (stage II) on scales with a normal distribution. Non-parametric correlation analysis of empirical data Spearman's correlation coefficient was used to identify statistically significant connections between the indicators before and after comprehensive psychological rehabilitation.

## **Results**

### ***Comparative analysis***

The current research is a continuation of the data analysis of the previously obtained results of the distribution of time perspective indicators (ZTPI) and life-sense orientations (LPO) of people with gambling disorder before and after the rehabilitation program (Zinina & Gurieva, 2021, 2022). The results of the comparative analysis of the averages obtained using the Student's t-test for dependent samples are presented below. Table 2 demonstrates a comparative analysis of participants' mean scores of time perspective on the F. Zimbardo (ZTPI) scales.

**Table 2** Mean scores on the Zimbardo Time Perspective Inventory (ZTPI) scales (n = 42)

Scales	stage I	stage II	p-level
Past-Negative	4.2	2.9	0.0001*
Present-Hedonistic	4.6	3.5	0.0001*
Future	2.4	3.7	0.0001*
Past-Positive	3.3	3.9	0.0308*
Present-Fatalistic	3.8	2.4	0.0001*

\*p≤0.05

Comparative analysis of the results according to the “Zimbardo Personality Time Perspective Inventory” (ZTPI, Zimbardo & Boyd, 1999) demonstrates positive dynamics on all scales. The Student's t-test confirmed statistically significant differences ( $p \leq 0.05$ ) after rehabilitation on the scales: “Past-Negative” (4.2 vs. 2.9), “Present-Hedonistic” (4.6 vs. 3.5), “Future” (2.4 vs. 3.7), “Past-Positive” (3.3 vs. 3.9), and “Present-Fatalistic” (3.8 vs. 2.4). After the rehabilitation program (stage II), the temporal perspective of the positive past prevails over the negative past. Participants shifted their focus, and it is more oriented towards the future. There is a decline in the hedonistic and fatalistic presence.



The results of the statistical analysis according to the “Life-Purpose Orientations” (LPO) test are shown in Table 3.

**Table 3** Mean scores on the “Life-Purpose Orientations” (LPO) scales (n = 42)

Scales	stage I	stage II	p-level
Purpose	19.1	29.6	0.0001*
Process	21.2	30	0.0001*
Result	15.8	24.3	0.0001*
Locus of Control - Self	14.3	22.3	0.0001*
Locus of Control - Life	18.2	27.8	0.0001*
General Meaningfulness of Life	64.1	100.1	0.0001*

\*p≤0.05

Comparative analysis of the Student's t-test results according to Leontiev's “Life-Purpose Orientations” (LPO) methodology confirmed statistically significant differences ( $p \leq 0.05$ ) after the course of rehabilitation on the General Meaningfulness of Life (GML) scale (64.1 vs. 100.1), as well as on other scales: “Purpose” (19.1 vs. 29.6), “Process” (21.2 vs. 30), “Result” (15.8 vs. 24.3), “Locus of Control – Self” (14.3 vs. 22.3), “Locus of Control – Life” (18.2 vs. 27.8). An increase in the general meaningfulness of life score indicates that participants perceived their life process as richer, more meaningful, and more engaging after completing the rehabilitation program (stage II).

The differences in time perspective and life-sense orientations with regard to demographic variables before and after the rehabilitation program were not tested by the authors.

### ***Correlation analysis***

The association between time perspective indicators (ZTPI) and life-sense orientations (LPO) of participants with gambling disorder was established in the current study using Spearman's non-parametric correlation coefficient criterion technique at each step of the investigation.

The results of the correlation analysis between the indicators studied before (Table 4) and after (Table 5) undergoing the rehabilitation program are presented below.

**Table 4** Results of the correlation analysis between ZTPI and LPO before the rehabilitation program by participants (n = 42)

Scales LPO	Scales ZTPI				
	Past-Negative	Present-Hedonistic	Future	Past-Positive	Present-Fatalistic
General Meaningfulness of Life	<b>-.42**</b>	.36*	<b>-.40**</b>	-.14	<b>-.41**</b>
Purpose	-.05	.33*	-.30*	-.33*	-.33*
Process	-.33*	.32*	<b>-.31**</b>	<b>-.22**</b>	-.19
Result	-.35*	-.15	-.04	-.19	<b>-.37**</b>
Locus of Control - Self	-.36*	-.20	-.31*	-.03	.01
Locus of Control - Life	-.32*	-.05	.09	-.12	<b>-.38**</b>

Note. significance levels: \* -  $p < 0.05$ , \*\* -  $p < 0.01$ ; values remaining significant after correction for multiplicity are in bold italics.

Prior to the rehabilitation program (Table 4), data analysis revealed significant negative correlations between the indicators:

- rejection of one's own past ("Past-Negative") - general meaningfulness of life (GML  $r = -.42$ ,  $p < 0.01$ );

- having goals and plans for the future ("Future") - general meaningfulness of life (GML  $r = -.40$ ,  $p < 0.01$ ), satisfaction with the process of life ("Process"  $r = -.31$ ,  $p < 0.01$ );

- acceptance of one's own past ("Past-Positive"), satisfaction with life process ("Process"  $r = -.22$ ,  $p < 0.01$ );

- prevalence of external locus-control ("Present-Fatalistic") - general meaningfulness of life (GML  $r = -.41$ ,  $p < 0.01$ ), satisfaction with the result of self-actualization in the past ("Process"  $r = -.37$ ,  $p < 0.01$ ), subject position of personality ("Locus of Control-Life"  $r = -.38$ ,  $p < 0.01$ ).

**Table 5** Results of the correlation analysis between ZTPI and LPO of after the rehabilitation program by participants (n = 42)

Scales LPO	Scales ZTPI				
	Past-Negative	Present-Hedonistic	Future	Past-Positive	Present-Fatalistic
General Meaningfulness of Life	.18	.18*	<b>.42**</b>	<b>.42**</b>	.04
Purpose	.12	.02	<b>.37**</b>	.36*	.01
Process	-.06	.14	.31*	<b>.33**</b>	.11
Result	.12	-.14	.21	<b>.27**</b>	-.01
Locus of Control - Self	.32*	.17*	<b>.37**</b>	.24*	.31*
Locus of Control - Life	.13	.14*	.35*	.05	.12

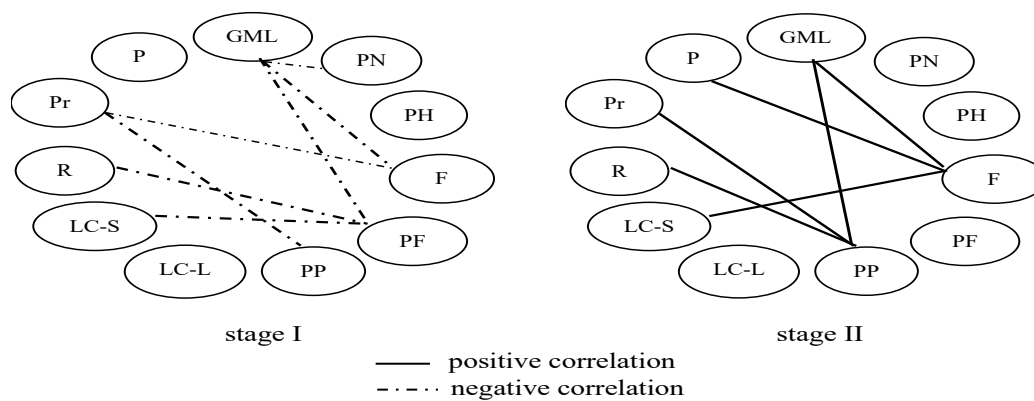
Note. \* -  $p < 0.05$ , \*\* -  $p < 0.01$ ; values remaining significant after correction for multiplicity are in bold italics.

After completion of the rehabilitation program (Table 5), the dynamics of the formation of positive correlations between:

- presence of goals and plans for the future (“Future”) - general meaningfulness of life (GML  $r = .42, p < 0.01$ ), clarity of goals (“Purpose”  $r = .37, p < 0.01$ ), subject position of personality (“Locus of Control - Self”  $r = .37, p < 0.01$ );
- the degree of acceptance of one's own past (“Past-Positive”) - the general meaningfulness of life (GML  $r = -.42, p < 0.01$ ), satisfaction with the process of life (“Process”  $r = .33, p < 0.01$ ), the result of self-actualization in the past (“Result”  $r = .27, p < 0.01$ ).

For a more visual representation and comparison of the correlations between the types of time perspective and life-sense orientations revealed in the I and II stages of the research, the correlation pleiades of statistically significant relationships at the level of 0.01 are presented in Figure 1.

**Figure 1** Correlation pleiades at I and II stages of research



*Notes.* GML - General Meaningfulness of Life; P - Purpose; Pr - Process; R - Result; LC-S – Locus of Control - Self; LC-L - Locus of Control-Life; PN – Past-Negative; PH - Present-Hedonistic; F - Future; PP – Past-Positive; PF - Present-Fatalistic.

### Discussion

The main purpose of this study was to identify the transformation of the relationship between time perspective indicators and life-sense orientations in people with gambling disorder in a rehabilitation setting.

In the process of establishing relationships between these phenomena, we found that before undergoing the rehabilitation program (Table 4), the time perspective reflecting a negative attitude toward the personal past (the “Past-Negative” scale) had been inversely correlated with the general meaningfulness of life (the “General Meaningfulness of Life” scale), which illustrates the tendency to perceive one's past as joyless and filled with negative memories, associated with a sense of unproductive life.

The negative coloring forms the belief that life is beyond conscious control. Stuck in negative experiences, people experiencing gambling disorder do not perceive their past as constructive and meaningful (scale “Past-Positive” – “Process”). Thus, emotional centering on the negative events of the past deprives one of the abilities to see one's life in its entirety. As a result, an unfavorable perspective on the past acts as a kind of anchor that prevents one from moving forward. This is implicitly consistent with research showing how negative views of the past can lead to feelings of hopelessness, depression, and helplessness about the future (Przepiorka et al., 2019; Stolarski et al., 2014).

The general time frame reflecting conviction in the predeterminedness of life and the lack of orientation toward the future (the “Present- Fatalistic” scale), as well as passivity toward the future (the “Future” scale), are inversely correlated with the indicators of life-sense orientations (“General Meaningfulness of Life”, “Result”, “Locus of Control-Life” / “Process”) and reflect a pessimistic view of the future associated with the feeling of inability to shape one's life according to the goals and perceptions of its meaning, with the tendency to "go with the flow", which prevents the formation of meaningfulness of life and leads to psychosocial maladaptation. The more a person's dissatisfaction with themselves becomes apparent, the more they behave this way. Typically associated with the experience of a life crisis, it is accompanied by a feeling of helplessness and can be manifested by depression and anxiety. That finding is indirectly consistent with the studies on the relationship between time perspective, life satisfaction, and depressive symptoms (Fortune et al., 2012; Phillips, 2018), and also correlates with the results of our studies obtained by using other methods (Zinina & Gurieva, 2021, 2022).

Based on the indicators of the patients undergoing the rehab programme (Table 5), we have discovered that the psycho-corrective effect contributes to the positive dynamics of the acceptance of the former life stage, the processing of unpleasant life events, and the reassessment of life orientations. This is reflected in the positive correlation between the scale “Past-Positive” and the “General Meaningfulness of Life”, “Purpose”, and “Locus of Control-Self” subscales.

The patterns revealed imply that participants advanced to the level of meaning-finding as a result of the rehabilitation program. A positive view of the past and avoiding bad memories are predictors of life meaning (Shterjovska et al., 2014; Konowalczyk et al., 2019), and gratitude mediates the association between life satisfaction and a positive perspective of the past (Bhullar et al., 2015; Przepiorka et al., 2021).

Psychological processing of traumatic experiences and the ability to mitigate the negative impact of the past on everyday activities are linked to present-day satisfaction, the ability to achieve productive outcomes, and the proclivity to seek purpose in life. According to Dzhydaryan (2001), people who are content with their pasts are more appreciative of their experiences, better able to handle crises, and more likely to develop the required

optimism and confidence in their ability to overcome challenges. The presence of a structured and saturated subjective image of the past is a predictor of psychological well-being (Vasilevskaya, 2008).

Satisfaction with self-actualization and with one's past and present inspires a person to create new perspectives in one's life, orienting toward the future. A positive outlook on the future is directly related to life objectives, which inspire self-assurance and give people a sense of control over their own destiny (scale "Future" – "General Meaningfulness of Life", "Goals", "Locus of Control- Self"). The existence and degree of goal completion are significant determinants of life satisfaction and boost the sense of purpose in life, according to similar research results (Schmuck et al., 2001; Elizabeth et al., 2021; Çolak, 2021).

The patterns mentioned here are generally correlated with the studies on the link between temporal perspective, subjective well-being, and life satisfaction (Shterjovska et al., 2014; Przepiorka et al., 2021).

However, the current study discovered that the change in correlations between the "Locus of Control-Life" subscale and the time perspective scales was insufficient, suggesting that the study participants need to learn how to take responsibility for creating and implementing their own personal goals and objectives. Further study and analysis may be required to understand the underlying causes leading to these weak relationships.

Despite this, the results show favorable modification of the link between the indicators of time perspective, purpose, and life orientation of people with gambling disorder in a rehabilitation setting. These transformations contribute to the tendency to harmonize the personalities of the participants, the formation of interest in the life process, and the positive dynamics of building their lives in accordance with the chosen goals and objectives, all of which indirectly indicate the effectiveness of the rehabilitation program and the tendency to a subsequent return to society — resocialization.

### **Limitations**

It is important to consider the study's limitations when analyzing the findings.

Our study's use of a one-group quasi-experimental design is one of its limitations. The absence of a control group makes it difficult to establish causality or determine the true effect of the intervention.

Our study did not explore the potential impact of demographic variables on time perspective and life goals in the context of the rehabilitation program. Understanding demographic factors such as age, gender, and socioeconomic status could provide a deeper understanding of the socio-psychological factors influencing people experiencing gambling disorder reintegration into society.

One drawback is the limited sample size ( $n = 42$ ). Increased patient enrollment in future research should be considered, as it might improve representativeness, reduce the margin of error, and provide more accurate and reliable results. By using a larger sample size, it is sometimes possible

to identify significant differences or correlations that would otherwise go undetected.

Another limitation is the imbalanced gender distribution of the sample (male preponderance). Future research needs to consider the possible influence of gender and other socio-demographic characteristics. This would allow for the creation of preventative measures as well as the development of rehabilitation processes and therapeutic effects while taking into consideration the particular demands of different demographic groups.

### **Future research**

Because the positive results of this study were obtained in a “micro-society” rehabilitation setting in which addiction can be “controlled”, additional observations of the participants who successfully complete rehabilitation programs are required to understand the effectiveness and long-term effects of such programs.

Among other things, more research is needed to determine the impact of conscious effort and the rehabilitation setting in shaping positive tendencies in individuals undergoing a comprehensive rehabilitation program.

Furthermore, the relationships between particular program components, participant engagement, changes in time perspective, life-sense orientations, and their interactions need to be examined. It appears to be assumed that the changes observed may lead to positive longer-term outcomes, including cessation and/or reduction of gambling.

### **Conclusion**

In conclusion, the findings of this study confirm the existence of a relationship between the time perspective indicators and the life-sense orientations of participants with gambling disorder.

Our study demonstrated correlations between these phenomena in the context of their undergoing a comprehensive rehabilitation program.

The data analysis within the context of the research conducted prior to the participants’ entering the rehabilitation program revealed a significant number of negative correlations, indicating a kind of avoidance strategy of people with gambling disorder based on their awareness of their existence and their role as “observers” of their lives, which contributes to the destruction of their own lives and leads to social maladaptation.

After completing the rehabilitation program, participants developed a tendency to perceive life prospects and opportunities for self-realization, including a sense of control over their lives and confidence in their ability to achieve what has been planned.

These modifications establish the framework for a more solid and adaptable self-perception, overcoming the feeling of guilt for one's addiction as well as for personal growth and the incentive to begin a healthy life beyond gambling.

However, future research is needed to assess whether the observed changes are associated with improved longer-term outcomes (e.g., gambling cessation/reduction, improved mental health).

### **Statement of Competing Interests**

The authors do not declare any interest.

### **Ethics Approval**

The study was conducted by the research project with the support of St. Petersburg State University, grant ID:116230058. The St. Petersburg State University approved the project «Psychosocial Design of Work Setting as a Factor of Subjective Well-Being» on October 19, 2022 (approval # 115-03-19).

### **Funding**

None

### **Relative Contributions**

All authors conceived of the study. Zinina and Gurieva developed the search strategy, participated in the study selection and data extraction. All authors cooperated in drafting, reading, and approving the final version.

### **Research Promotion**

The study aimed to identify the relationship between time perspective and life-sense orientations in people with gambling disorder in a rehabilitation setting. The results showed positive correlations between time perspective and life-sense orientations, suggesting time perspective harmonization and an increasing interest in building a meaningful life beyond gambling. This research expands existing psychological understandings of time perspective and life-sense orientations in gambling disorder.

## References

- Abbott, M. W. (2020). The changing epidemiology of gambling disorder and gambling-related harm: public health implications. *Public health, 184*, 41-45.  
<https://doi.org/10.1016/j.puhe.2020.04.003>
- Agibalova T.V., Tuchina O.D., Buzik O.Zh., Potapova R.K., Potapov V.V. (2020) Cognitive Deficits in Patients with Gambling Disorder. *Counseling Psychology and Psychotherapy, 28(4)*, 167—185. (In Russ.).  
<https://doi.org/10.17759/cpp.2020280409>
- APA (2013). *Diagnostic and statistical manual of mental disorders, 5th ed.* (DSM-5). American Psychiatric Association: Washington, DC, USA.  
<https://doi.org/10.1176/appi.books.9780890425596>
- Bhullar, N., Surman, G., & Schutte, N. S. (2015). Dispositional gratitude mediates the relationship between a past-positive temporal frame and well-being. *Personality and Individual Differences, 76*, 52-55.  
<https://hdl.handle.net/1959.11/16523>
- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97(5)*, 487-499.  
<https://doi.org/10.1046/j.1360-0443.2002.00015.x>
- Calado, F., & Griffiths, M. D. (2016). Problem gambling worldwide: An update and systematic review of empirical research (2000–2015). *Journal of behavioral addictions, 5(4)*, 592-613.  
<https://doi.org/10.1556/2006.5.2016.073>
- Chóliz, M. (2016). The Challenge of Online Gambling: The Effect of Legalization on the Increase in Online Gambling Addiction. *Journal of gambling studies, 32*, 749-756.  
<https://doi.org/10.1007/s10899-015-9558-6>
- Çolak, T. S., ÖZCAN, N. A., & Peker, A. (2021). The Mediation Role of Personal Meaning Profile in The Relationship Between Resilience Capacity and Meaning in Life. *Participatory Educational Research, 8(3)*, 252-267.  
<https://doi.org/10.17275/per.21.64.8.3>
- Cosenza, M., & Nigro, G. (2015). Wagering the future: Cognitive distortions, impulsivity, delay discounting, and time perspective in adolescent gambling. *Journal of adolescence, 45*, 56-66.  
<https://doi.org/10.1016/j.adolescence.2015.08.015>
- Danilova N. S., YUrkevich N. A. (2022) Meaningful orientations in boys and girls with different levels of Internet addiction. *New Science: current state and development paths* (pp. 240-247). (In Russ.).
- DiClemente, C. C. (2018). *Addiction and change: How addictions develop and addicted people recover*. Guilford Publications.
- Dzhidaryan I. A. (2001) Concepts of happiness in the Russian mentality. *Aletheia Publishing*, (In Russ.).
- Elizabeth, A. Y., & Chang, E. C. (2021). Relational meaning in life as a predictor of interpersonal well-being: A prospective analysis. *Personality and individual differences, 168*, 110377.  
<https://doi.org/10.1016/j.paid.2020.110377>
- Fortune, E. E., & Goodie, A. S. (2012). Cognitive distortions as a component and treatment focus of pathological gambling: a review. *Psychology of Addictive Behaviors, 26(2)*, 298.  
<https://doi.org/10.1037/a0026422>



- Gainsbury, S. M. (2015). Online Gambling Addiction: the Relationship Between Internet Gambling and Disordered Gambling. *Current addiction reports*, 2, 185-193.  
<https://doi.org/10.1007/s40429-015-0057-8>
- Hodgins, D. C., & Engel, A. (2002). Future time perspective in pathological gamblers. *The Journal of nervous and mental disease*, 190(11), 775-780.  
<https://doi.org/10.1097/00005053-200211000-00008>
- Izotova I. YU. (2020). General characteristics of the value-semantic sphere of a dependent person. *Sociology*, 6, 23-30. (In Russ.).
- Karpov A. A. (2009). Psychological problems of gambling addiction. *PSYCHOLOGIST*, 77 p. (In Russ.).
- Konowalczyk, S., Buhl, M., Moon, J., & Mello, Z. R. (2019). The past, present, and future all matter: How time perspective is associated with optimism and sensation seeking among young adults. *Research in human development*, 16(2), 119-134.  
<https://doi.org/10.1080/15427609.2019.1662709>
- Kulakov S. A (2023). Guide to Addict Rehabilitation. 4th Edition. *Publishing Solutions*, 447 p. (In Russ.).
- Lasota, A., & Mróz, J. (2021). Positive Psychology in Times of Pandemic—Time Perspective as a Moderator of the Relationship between Resilience and Meaning in Life. *International journal of environmental research and public health*, 18(24), 13340.  
<https://doi.org/10.3390/ijerph182413340>
- Leontev D. A. (2006). Test of "Life-Purpose Orientations Questionnaire" (LPO). *M.: Sense*. (In Russ.).
- Leont'ev D.A. (2019). Psychology of Personal Meaning: Nature, Structure and Dynamics of Meaningful Reality. 4th ed., revised and supplemented. - *M.: Meaning*. (In Russ.).
- Nigro, G., Cosenza, M., & Ciccarelli, M. (2017). The Blurred Future of Adolescent Gamblers: Impulsivity, Time Horizon, and Emotional Distress. *Frontiers in Psychology*, 8, 486.  
<https://doi.org/10.3389/fpsyg.2017.00486>
- Phillips, W. J. (2018). Future-outlook mediates the association between self-compassion and well-being. *Personality and Individual Differences*, 135, 143-148.  
<https://doi.org/10.1016/j.paid.2018.07.006>
- Przepiorka, A., & Sobol-Kwapinska, M. (2021). People with Positive Time Perspective are More Grateful and Happier: Gratitude Mediates the Relationship Between Time Perspective and Life Satisfaction. *Journal of happiness studies*, 22, 113-126.  
<https://doi.org/10.1007/s10902-020-00221-z>
- Przepiorka, A., Blachnio, A., & Cudo, A. (2019). The role of depression, personality, and future time perspective in internet addiction in adolescents and emerging adults. *Psychiatry research*, 272, 340-348. <https://doi.org/10.1016/j.psychres.2018.12.086>
- Schmuck, P. E., & Sheldon, K. M. (2001). *Life goals and well-being: Towards a positive psychology of human striving*. Hogrefe & Huber Publishers.
- Shterjovska, M., & Achkovska-Leshkovska, E. (2014). Time Perspective as Predictor of Meaning in Life. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)*, 2(1), 25–29.
- Stolarski, M., Matthews, G., Postek, S., Zimbardo, P. G., & Bitner, J. (2014). How We Feel is a Matter of Time: Relationships Between Time Perspectives and Mood. *Journal of Happiness Studies*, 15, 809-827. <https://doi.org/10.1007/s10902-013-9450-y>

- Syrcova A., Sokolova E. T., Mitina O. V. (2008). Adaptation of the personal time perspective questionnaire by F. Zimbardo. *Psychological journal*, 29 (3), 101-109. (In Russ.).
- Toneatto, T., Cunningham, J., Hodgins, D., Adams, M., Turner, N., & Koski-Jannes, A. (2008). Recovery from problem gambling without formal treatment. *Addiction Research & Theory*, 16(2), 111-120.  
<https://doi.org/10.1080/16066350801923638>
- Vasilevskaya K. N. (2008). Development and validation of diagnostics questionnaire «Functions of the Autobiographical Memory». *Psychological Science and Education*, 4, 101-110. (In Russ., abstr. in Engl.)
- Zimbardo F., & Boyd J. (2010) The Paradox of Time. New time psychology that will improve your life. - *SPb.: Speech*, 352 p. 6. (In Russ.).
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting Time in Perspective: A Valid, Reliable Individual-difference Metric. *Journal of Personality and Social Psychology*, 77, 1271-1288.
- Zinina A. Y., Gurieva S. D., & Gogitsaeva O. U. (2021). Transformation of the Value-Semantic Sphere of Pathological Players in the Conditions of Rehabilitation. *Journal of Intellectual Disability-Diagnosis and Treatment*, 9, 628-640. <https://doi.org/10.6000/2292-2598.2021.09.06.6>
- Zinina, A. YU., Gurieva, S. D. (2022). Peculiarities of Interrelation of Meaningful Orientations and Structural Components of Self-Attitude of Persons with Gambling Addiction in the Conditions of Comprehensive Rehabilitation Program. *Nauchnoe mnenie* 6, 4-79. (In Russ., abstr. in Engl.)
- Zykov O.V. (2012). Rehabilitation programs. *M.: RBF NAN*, 4. 448 p. (In Russ.).