AMBIVALENT PROSPECTION: COVID-RELATED ATTITUDES IN PATIENTS WITH SUBSTANCE DEPENDENCE

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The study explored associations between individual characteristics that are considered markers of suicidal and non-suicidal self-destruction (substance dependence; hopelessness, and impulsiveness), prospection (or future thinking), and attitudes to a novel coronavirus infection (COVID-19). After all inclusion/exclusion criteria were met, the sample (N=102) included two comparison groups: Group 1 comprised male in-patients diagnosed with substance dependence (N=62), and Group 2 consisted of males without this diagnosis (N=40). Methods: Beck's Hopelessness Scale; Barratt's Impulsiveness Scale (BIS-11); self-defining future projections (SDFP) generation task; COVID-19 self-report measure. Results: Groups had almost similar levels of declared COVID-related attitudes, but differed significantly in impulsiveness and hopelessness. SDFPs in Group 1 differed from those in Group 2 as to their phenomenological (shorter time perspective; more negative; less frequently simulated), content (higher frequency of Relationship and lower frequency of Achievement events), and psychological characteristics (lower Competence and Autonomy). Groups had different patterns of correlations between COVID-related and psychological parameters associated with self-destruction, as well as between all these parameters and SDFP characteristics. We also found evidence in favor of the hypothesis regarding protective function of prospection. Conclusions: We were able to confirm the association between dysfunctional COVID-related attitudes and individual characteristics that are frequently considered to be markers of non-suicidal self-destruction only partially. Nonetheless, the identified dissociation between declared COVID recognition and willingness to observe epidemiological precautions and actual neglect of those may require future study.

Keywords: COVID-19, self-destructive behavior, substance dependence, hopelessness, impulsiveness, prospection.

АМБИВАЛЕНТНАЯ ПРОСПЕКЦИЯ: УСТАНОВКИ ПАЦИЕНТОВ С СИНДРОМОМ ЗАВИСИМОСТИ ОТ ПСИХОАКТИВНЫХ ВЕЩЕСТВ ПО ОТНОШЕНИЮ К ЭПИДЕМИИ COVID-19

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В статье представлены результаты исследования связей между личностными факторами аутоагрессии (зависимость от ПАВ, безнадежность и импульсивность), проспективным мышлением и установками в отношении коронавирусной инфекции (COVID-19). Выборка (после исключения испытуемых, не подходивших по критериям отбора) составила 102 человека: 62 мужчины с подтвержденным диагнозом синдрома зависимости от ПАВ (Группа 1) и 40 мужчин без такого диагноза (Группа 2). Методы: Шкала безнадежности Бека; Шкала импульсивности Барратта (BIS-11); методика оценки самоопределяющих проекций; анкета по COVID-19. Результаты: группы не отличались по установкам в отношении COVID-19, но значимо различались по импульсивности и безнадежности. Самоопределяющие проекции в Группе 1 отличались от Группы 2 по

феноменологии (более короткая временная перспектива, более негативные, реже генерируются), содержанию (большая частота событий, связанных с отношениями, и меньшая — с достижениями) и психологическим характеристикам (более низкая компетентность и автономия). В группах были выявлены различные паттерны корреляций между установками в отношении COVID-19, психологическими характеристиками и характеристиками самоопределяющих проекций. Получено частичное подтверждение гипотезы о том, что позитивные образы себя в будущем могли бы выступать в качестве ресурса преодоления безнадежности и коррекции несуицидальной аутоагрессии. Выводы: в исследовании частично подтвердилась связь между дисфункциональными установками в отношении COVID-19 и личностными факторами аутоагрессии. Однако обнаруженное расхождение между декларируемым пониманием опасности COVID-19 и готовностью соблюдать меры предосторожности и пренебрежением ими в реальности требует дальнейших исследований.

Ключевые слова: COVID-19, аутоагрессия, зависимость от психоактивных веществ, безнадежность, импульсивность, проспективное мышление.

The spread of a novel infection caused by SARS-CoV-2 (COVID-19) resulted in a dramatic change in people's life style, global socioeconomic crisis, and deterioration of mental well-being in affected countries [2; 30]. People globally have been experiencing a whole range of negative emotions from lowered mood to hopelessness due to an exposure to isolation, financial challenges, close peoples' illness and deaths, fear of getting infected and dying. The near future will see an increase in the mental health services' workload as well as an upsurge in the rates of completed suicide and suicide attempts [15]. Furthermore, the number of the so called "deaths of despair" — i.e., mortality due to suicide and use of psychoactive substances among people facing a feeling of despair caused by uncertainty and gloominess of their future prospects [10] — is expected to grow. These deaths will add on COVID-related mortality, and, according to an average scenario, their number in the USA alone may exceed 68,000 cases [29].

In self-destruction research, the concept of despair is mirrored by the notion of "hopelessness", which is defined as a system of pessimistic expectations towards oneself and one's future [6]. Hopelessness is argued to be a key characteristic of self-destructive personality and lies at the core of various self-destruction models [6; 17], being a reliable predictor of suicidality on a continuum from suicidal ideations to completed suicide attempts [18; 31]. It also underlies non-suicidal self-destruction: self-injury without suicidal intent;

risky behaviors such as taking chances to catch fatal infections [14; 38]; and substance abuse [5], which some authors view as a latent, "chronic" suicide [21; 22]. From the cognitive psychology perspective, hopelessness in self-destructive people may stem from a deficit of prospection [33] and may imply lack of positive expectations and plans rather than predominance of negative images of the future [27; 28]. At the same time, hope and optimistic attitudes seem to be protective factors as far as suicide attempts are concerned [20].

Another concept that links the problem of self-destruction to prospection deficits is *anti-vital (or hamartic) life script*, i.e., an implicit image of one's future life and its tragic final scene [7; 34]. From the cognitive perspective, a life script is a semantic scaffold that allows for generating episodic images of one's own future within a framework of autobiographical narrative, and for performance of some mental processes that provide for future action [8; 35]. Unconscious, implicit semantic scripts can activate under stress and guide people's behaviors restricting their cognitive, behavioral and emotional repertoire [9; 36]. It is this specifics of prospection in self-destructive people (i.e., a predominance of automatic implicit images of the future at the times of vulnerability) that enables them to implement their antivital script even without explicitly planning a suicide attempt (through an impulsive suicide or accidents) [34]. Thus, suicide attempters differ from ideators only in the levels of *premediation* (impulsivity associated with a prospection deficit, i.e., a failure to anticipate consequences of one's actions) rather than *urgency* (an urge to act under the influence of a strong emotion) [16]. It should also be mentioned that impulsiveness in general is viewed — together with hopelessness — as a marker of self-destruction [16].

Accounting for the aforesaid, we hypothesized that in the context of the current pandemic, there may be a certain category of people who would be unconsciously taking an opportunity to get infected with COVID-19 to actualize their impulse for self-destruction (as it happens in case of deliberate self-infection with human immunodeficiency virus) [23]), and would exhibit more risky behaviors in terms of COVID-19 than a less self-destructive population. This subpopulation would demonstrate more severe prospection deficits and challenges utilizing the resource of hope and positive future thinking. Assumingly, people with substance dependence who have specific prospection deficits associated with non-suicidal self-destruction as we argued elsewhere [4], could become the core of this subpopulation.

As an example, a 42-year-old recovering alcohol-dependent patient holding a degree in psychology; with a history of two suicides in the maternal family and her own suicide attempt through hanging under the influence of alcohol, reported an increasing frequency of fantasies that getting infected and hospitalized with COVID-19 would solve many issues for her (one of the authors of the article holds the case study and a permission for publication).

Therefore, the *goal* of the study was to assess associations between individual characteristics that are widely considered to be predictors of self-destruction (substance dependence, hopelessness, impulsiveness, prospection deficits) and COVID-related attitudes in people with substance dependence and general population.

We tested a *hypothesis* that dysfunctional COVID-related attitudes (denial of CO-VID-19, low willingness to use personal protection equipment (PPE), and change one's usual behaviors to comply with COVID-related restrictions) related to higher levels of hopelessness, impulsiveness, and prospection deficits. People with higher levels of these parameters, and a lack of specific and positive images of the future were hypothesized to demonstrate more risky COVID-related behaviors. We also tested a narrower hypothesis that personally important mental images of the future (self-defining future projections) [11] might be protective for risky health-related behaviors in the context of distress provided that they have certain features (positive emotional valence; longer time perspective; psychological need satisfaction).

Methods

Research program. The initial study covered 209 Russian-speaking respondents who were later divided into two groups: participants with a confirmed diagnosis of substance dependence (F.10.2—F19.2) (N=83; 77 males and 6 females), and participants without this diagnosis (N=126; 44 males and 82 males). In order to avoid gender imbalance, the contrastive study described in this article included only men (N=121) aged 18—69, without mental comorbidities. All included participants gave an informed consent to the study. The study was approved by an ethical committee.

Due to the lockdown, the recruitment of participants in April 2020 had organizational differences in the community and clinical subsamples. The community subsample was recruited through targeted advertising in moderated professional groups (helping professionals and people who are interested in psychology) of a social network. The respondents received a link to an online form that included an informed consent form, a brief demographic survey, and task sections.

The clinical group was recruited among inpatients and outpatients of the Moscow Research and Practical Centre for Narcology of the Moscow Department of Public Health (MRPCN), and two private social rehabilitation centers. MRPCN patients filled in the paper-and-pencil forms in the same order of administration as the community subsample respondents. Rehabilitation center patients were invited to an online survey under a drug counselor's supervision (but without their interference or assistance) so as to ensure proper device use.

Only participants without comorbid mental disorders were included in the data analysis. In the community subsample, we controlled for that by asking straightforward questions about the diagnosis of a mental or substance use disorder, central nervous system or cognitive disorders, and administration of medications that might affect cognitive functioning. If the participants gave positive answers to all questions they were excluded from the study; if they endorsed one of the questions they were excluded from the intergroup comparison. As the community sub-

sample respondents were recruited through targeted advertising, we assumed that a straightforward answer to these questions would suffice for including/not-including respondents in the study. The criterion of truth for this assumption would be lack of marked signs of mental disorders in the participants' descriptions of the future events (formal thought disorders; delusional statements) and extremely high levels of psychopathology on the scales used [3; 6] in this group. Indeed, neither participant of the community sample was excluded from the study due to these reasons.

Psychiatric comorbidity in patients was confirmed by studying their medical records (as the possibility of personal contact and additional clinical diagnosis was limited due to the COVID-related restrictions). Furthermore, we excluded patients with organic comorbidities; amnestic syndrome; and with fewer than 10 days of abstinence, or full remission of substance dependence longer than 1.5 years.

Sample. When all inclusion/exclusion criteria were met, 2 comparison groups were shaped: Group 1 comprised male in-patients with substance dependence (N=62), and Group 2 consisted of male community controls (N=40). This sample size (N=102) provided for sufficient statistical power (80%) for assessing intergroup differences given an expected size effect of Cohen's d=.5, and two-side confidence interval of 95%.

The Groups differed in the level of education and relationship status but they had no differences as to their age and place of residence (Table 1).

Table 1

Sociodemographic Variables (N=102)

Variables		Group 1 N (%)	Group 2 N (%)	Intergroup differences*
Residence	City over 600K citizens	58 (93.5%)	34 (85%)	p=.184
	City less 600K citizens	4 (6.5%)	6 (15%)	
Education	Other	40 (64.5%)	3 (7.5%)	p=.000
	Higher	22 (35.5%)	37 (92.5%)	
Relationship status (romantic or marriage)	In relationship	26 (60.1%)	36 (90%)	p=.000
	Single	36 (58.1%)	4 (10%)	
Age	M (SD); 95% CI	39.9 (1.5) 37—42.8	38.8 (1.9); 35.1—42.6	t-test; t (100)=-.469; p=.64

Note. * — Fisher exact test unless specified otherwise

Methods. *COVID-related variables* were assessed by a survey consisting of 6 questions rated on a 7-point Likert scale. Each question corresponded to one variable:

1. *COVID Recognition:* "What is your attitude to the danger of getting infected with COVID-19?" (1 — It is not dangerous, as COVID does not exist; 7 — It is very dangerous).

2. *COVID-related stress:* "Has the level of perceived stress increased for you as a result of the COVID-19 pandemic?" (1 — Surely, it has not; 7 — Surely, it has).

3. *Fear of getting infected*: "Are you afraid of getting infected with COVID-19?" (1 — Not at all; 7 — Very afraid).

4. *Use of PPE*: "Will you use personal protection equipment because of COVID-19?" (1 — No, absolutely not; 7 — Yes, absolutely).

5. *The effect of fines on habitual actions*: "Will fines prevent you from your habitual actions?" (1 — No, absolutely not; 7 — Yes, absolutely).

6. *Self-isolation effect on habitual actions:* "Will self-isolation prevent you from your habitual actions?" (1 — No, absolutely not; 7 — Yes, absolutely).

A measure of *hopelessness* was a Russian-language version of Beck's Hopelessness Scale [1; 6]. The participants expressed their agreement with 20 statements on a 4-point scale from 1 (definitely disagree) to 4 (definitely agree). The assessment was carried out according to both a two-factor (comprising two subscales of *hope* and *hopelessness*) model, which was tested by the author of the Russian version in a sample of adolescents and students, and a one-factor model, which viewed *hopelessness* as an integrated bipolar dimension. The assessment of the scale reliability in our sample showed satisfactory values of Chronbach's alpha both for the two-factor (.68 — for the hope subscale; .84 — for the hopelessness subscale), and for a one-factor model — .76.

Impulsiveness was measured using the Barratt's Impulsiveness Scale [BIS-11; 3], which proved to be reliable and valid in a Russian-speaking sample (Chronbach's alpha in our study — .81). This self-report measure consisting of 30 questions can also have a multifactor structure. For the purposes of this study, we assessed a total score of impulsiveness and non-planning impulsiveness — one of the three second-order factors.

Prospection-related variables were measured in terms of fulfilling a self-defining future projection (SDFP) task [11]. SDFP is a future event that is highly important for one's identity; frequently simulated in one's imagination; and that reflects central themes or conflicts in a person's life [11]. The participants got acquainted with SDFP's definition and typed such an event that could plausibly happen to them in the future. The participants were invited to indicate the time to this event (temporal distance) and to assess its characteristics on a 7-point Likert scale (from the least intensive/positive level to the most intensive/positive). In this way, we measured two groups of variables:

(1) *SDFP's phenomenological characteristics* — vividness, emotional valence (positive/negative), importance for identity, simulation frequency;

(2) *Basic psychological needs satisfaction* [32].

According to the self-determination theory [32], people have three universal innate needs: for *autonomy* (a striving to be a fully-fledged agent of one's actions and regulate one's behaviors independently), *competence* (the need for self-efficacy; mastering things and achieving success), and *relatedness* (the need for interpersonal relationships; striving to care for others and to be cared for). The satisfaction of these needs underlies people's intrinsic motivation, and in future thinking it depends on the type of a goal set: in case of concordant goals (satisfying the self's aspirations), SDFPs satisfy all the three needs, whereas in case of nonconcordant goals (forced upon or external ones, like following COVID-related restrictions) SDFPs tend to thwart autonomy and competence [12]. In order to measure need satisfaction in SDFPs, we invited the participants to assess their agreement with the following statements, "In this future event, I feel free to do things and to think how I want" (*autonomy*); "In this future event, I feel connected to one or more people" (*relatedness*); "In this future event, I feel skilled and capable" (*competence*) [12, p. 36].

Although psychological research finds the use of multiple-item measures more appropriate, single-item measures remain a widespread alternative applied for measuring simple and intuitively clear psychological constructs in organizational and clinical practice, including measures of depression, anxiety and stress [37]. Hence our study implied a time-consuming procedure of imagining and writing a personally relevant future event and filling in two multiple-item measures, certain variables were measured as single items for pragmatic purposes according to a standard procedure of SDFP assessment [11].

In order to improve sensitivity of single-item measures (including COVID-related ones), we employed scales with a sufficient number of items (1 to 7).

SDFP's thematic content went through expert assessment: one of the authors and two independent experts (PhDs in Psychology briefly trained for SDFP rating, and blinded as to all participants' data but SDFP texts, and each other's and the third expert's identity and ratings) rated 35% of SDFPs (N=70) using Thorne & McLean's [39] guideline for processing and coding autobiographical narratives. As the experts' agreement was quite satisfactory (Cohen's kappa exceeded .74 for each pair of experts at every comparison with p<.001), we used the author's ratings for processing.

Statistical methods. Most distributions deviated from normal as confirmed by histogram analysis and normality tests, or had other limitations for the use of parametric analysis. Therefore, we used nonparametric methods and provided median (Med) values; Quartiles (Q) 1 and 3 as descriptive statistics. Mean values (M) and standard deviations (SD) are provided for informative purposes. In order to test differences in independent samples, the Mann-Whitney U-Test was used for quantitative data; Chi square (χ^2); Yates' Chi square, and Fisher exact test — for nominal data. In case of multiple comparisons, the adopted significance level (p<.05) was corrected accordingly. Correlational analysis relied on Spearman's rank correlation coefficient.

Results

1. Measuring COVID-related variables. Contrary to our hypothesis that Group 1 would report more dysfunctional COVID-related attitudes (i.e., lower COVID-19 recognition, lower willingness to use PPE and change one's behaviors under restrictions), there were no significant intergroup differences in these measures (Table 2). Nevertheless, Group 1 had a statistically insignificant tendency for higher fear of getting infected and COVID-related stress.

T a b l e 2

COVID-Related Variables in Two Groups

Variables	Group 1 (N=62)				Group 2 (N=40)				Mann-Whitney U-Test	
	M	SD	Med	Q1—Q3	M	SD	Med	Q1—Q3	U	p
COVID recognition	4.8	.2	5	4—6	4.8	.3	5	4—6	1130	.5
COVID-related stress	4.1	.3	4	3—6	3.4	.3	3	2—5	979	.07
Fear of getting infected	4.1	.3	4	2—6	3.4	.3	4	2—5	985.5	.07
PPE use	5.7	.2	6	5—7	5.4	.3	6	5—7	1121.5	.4
Fines effect	4.8	.3	5.5	3—7	5.1	.3	6	4—6	1169.5	.6
Self-isolation effect	4.6	.3	5	3—6	4.9	.3	5	4—6	1166	.6

2. Measuring individual characteristics associated with self-destructive behaviors. We confirmed our hypothesis that Group 1 would show an increase in markers of non-suicidal self-destructive behaviors, i.e., hopelessness in both models, total score of impulsiveness and non-planning impulsiveness (Table 3). The levels of hope did not differ.

3. SDFP characteristics. Four people (2 in each Group) failed to generate SDFPs. 14.3% (N=14) of respondents failed to indicate temporal distance: 15% (n=9) of Group 1 and 13.2 % (n=5) of Group 2. A shorter time perspective, lower positivity of SDFPs and thwarted need for autonomy in Group 1 confirmed the hypothesis on averse changes in prospection in Group 1 as compared to Group 2. Other phenomenological characteristics of SDFPs (vividness and episodic simulation frequency) and need for competence satisfaction were also lower in Group 1 but differences failed to reach statistical significance (Table 4).

SDFP thematic content distribution differed significantly (Table 5): $\chi^2(6)=17.3$, p=.008, given the level of p<.01 adjusted for multiple comparison.

Pairwise comparisons showed that the difference resulted mostly from prevalence of SDFPs about Relationships (meeting family or friends after treat-

T a b l e 3

Hopelessness and Impulsiveness

Variables	Group 1 (N=62)				Group 2 (N=40)				Mann—Whitney U-Test	
	M	**SD**	**Med**	**Q1—Q3**	**M**	**SD**	**Med**	**Q1—Q3**	**U**	**p**
Hope (2-factor model)	3.2	.06	3.1	2.9—3.5	3.3	.07	3.3	3—3.6	1026.5	.14
Hopelessness (2-factor model)	2.1	.07	2	1.6—2.6	1.6	.06	1.6	1.3—1.8	608.5	.000
Hopelessness (1-factor model)	1.97	.06	1.95	1.7—2.4	1.7	.06	1.7	1.4—1.9	733	.001
Impulsiveness	68.8	1.4	66.5	61.7—78	61.1	1.4	59.5	54.3—67	734.5	.001
Non-planning impulsiveness	25.3	.7	25	21.8—28.3	22.9	.7	22	19.3—25.8	903.5	.02

T a b l e 4

SDFP Formal, Phenomenological, and Psychological Characteristics

Variables	Group 1 (N=60)				Group 2 (N=38)				Mann—Whitney U-Test	
	M	**SD**	**Med**	**Q1—Q3**	**M**	**SD**	**Med**	**Q1—Q3**	**U**	**p**
Temporal distance (months)	6.62	1.35	2	1—12	25.5	6.69	12	6—24	414	.000
Emotional valence	5.43	.25	6	5—7	6.32	.21	7	6—7	854.5	.024
Vividness	5.33	.22	5.5	4—7	5.76	.23	6	5—7	992.5	.27
Importance for identity	6.22	.18	7	6—7	6.21	.2	7	5.75—7	1098.5	.73
Simulation frequency	4.72	.26	5	3—6.75	5.48	.27	6	5—7	900	.07
Autonomy	5.05	.24	5	4—7	5.92	.21	6	5—7	868.5	.04
Relatedness	5.73	.23	7	5—7	6.13	.22	7	5—7	1034.5	.393
Competence	5.23	.24	6	4—7	5.87	.25	6.5	5.75—7	911.5	.08

Ta b l e 5

SDFP Content in Groups

Variables		Group 1 (N=60)		Group 2 (N=38)		Intergroup difference
		N	%	N	%	p*
Thematic content	Life-threatening event	8	13.3	1	2.6	.15
	Recreation/Exploration	4	6.7	5	13.2	.19
	Relationship	24	40	5	13.2	.01
	Achievement	22	36.7	26	68.4	$\chi^2(1)= 5.8; .017$
	Shame/Guilt	0	0	1	2.6	.39
	Substance use	1	1.7	0	0	1
	Unclassified	1	1.7	0	0	1
COVID-related projection		8	13.3	2	5.3	.31

Note. * — Chi square value (degree of freedom) is indicated where appropriate unless the Fisher exact test was used for assessment.

ment, restoring relationships, helping parents or children etc.) in Group 1, and prevalence of Achievement events (opening one's business, getting a degree, fulfilling one's dream) in Group 2.

Although Life Threatening Events (one's own or relatives' death/illness/injury) were reported by 13.3% of Group 1 participants (cf. 2.6% in Group 2), this difference failed to be significant. Being twice as much as typical frequency of 5% identified earlier [11], it may still have clinical value. Interestingly, COVID-related SDFPs were also more frequent in Group 1, although the difference was insignificant.

4. Correlational Analysis Results. Table 6 provides findings of the correlational analysis between COVID-related variables, hopelessness and impulsivity.

Correlations between SDFP measures and COVID-related variables were not identified for Group 2. In Group 1, SDFP's importance for identity correlated with PPE use (r=.32; p=.01), readiness to change behaviors under the threat of fines (r=.34; p=.008) and self-isolation (r=.43; p=.001). Recreation/Exploration events had a weak significant negative correlation with self-isolation effects (r=-.25; p=.05), and, vice versa, Achievement events correlated positively with self-isolation (r=.25; p=.05) and fines effects (r=.34; p=.009).

As to the associations between SDFP variables and psychological variables related to self-destruction, the Groups had a number of differences in correlational patterns (Table 7). In Group 1, phenomenological characteristics had more frequent and stronger associations with impulsiveness, and in Group 2 — with hopelessness.

T a b l e 6

Correlations between COVID-related and Psychological Parameters

Variables	Group 1						Group 2					
	1	2	3	4	5	6	1	2	3	4	5	6
1. COVID recognition	1						1					
2. COVID-related stress	.44***	1					.48**	1				
3. Fear of getting infected	.57***	.5***	1				.63***	.71***	1			
4. Use of PPE	.26*	.2	.22^t	1			.62***	.37*	.55***	1		
5. Fines effect	.3*	.3**	.09	.38**	1		.2	.08	.14	.16	1	
6. Self-isolation effect	.33*	.27*	.13	.35***	.74***	1	.4*	.25	.3^t	.43**	.58***	1
7. Hope (2-factor)	-.1	-.17	-.28*	.18	.2	.02	-.02	-.3^t	-.28^t	.1	-.05	-.04
8. Hopelessness (2-factor)	.29*	.31*	.35**	-.03	-.34**	-.14	-.06	.36*	.2	-.17	.04	.02
9. Hopelessness (1-factor)	.29*	.3*	.37**	-.08	-.32*	-.1	.001	.37*	.26	-.15	.08	.02
10. Impulsiveness	-.04	-.07	-.1	-.33**	-.26*	-.28*	-.001	.18	.06	-.14	.05	-.07
11. Nonplanning impulsiveness	-.06	-.03	-.02	-.23^t	-.16	-.1	-.02	.2	.06	.006	-.02	-.1

Note. * — p<.05; ** — p<.01; *** — p<.001; t — trend to significance, .05<p<.1. Correlations that are absent in a comparison group are marked in grey.

Ta b l e 7

Correlations between SDFP and Psychological Characteristics

Variables	Group 1					Group 2				
	1	2	3	4	5	1	2	3	4	5
1. Hope (2-factor)	1					1				
2. Hopelessness (2-factor)	-.45***	1				-.68***	1			
3. Hopelessness (1-factor)	-.75***	.9***	1			-.9***	.9***	1		
4. Impulsiveness	-.25*	.41**	.42**	1		-.38*	.55***	.46**	1	
5. Non-planning impulsiveness	-.31*	.18	.25ᵗ	.77***	1	-.37*	.45**	.4*	.83***	1
6. Temporal distance (months)	.23	-.19	-.2	.22	.12	.06	.16	.09	.41*	.25
7. Emotional valence	.25ᵗ	-.17	-.22ᵗ	-.005	.03	.1	.001	-.1	.04	-.17
8. Vividness	.35**	-.2	-.27*	-.34**	-.26*	.24	-.42**	-.39*	-.16	-.2
9. Importance for identity	.18	-.1	-.15	-.29*	-.32**	.48**	-.51**	-.57***	-.17	-.15
10. Simulation frequency	.31*	-.02	-.17	-.28*	-.31*	.26	-.23	-.3ᵗ	-.09	-.15
11. Autonomy	.15	-.1	-.13	.1	.03	.35*	-.29ᵗ	-.38*	-.03	-.06
12. Relatedness	.2	-.46***	-.43**	-.09	.04	.25	-.24	-.3ᵗ	-.18	-.2
13. Competence	.29*	-.27*	-.33*	-.24ᵗ	-.2	.45*	-.28ᵗ	-.42*	-.2	-.2
14. Relationship	.22	-.33**	-.35***	-.34**	-.16	-.2	.08	.1	.27	.25
15. Achievement	-.04	.27*	.24ᵗ	.06	-.06	.1	-.2	-.2	-.23	-.2
16. Life threatening event	-.31*	.2	.27*	.4**	.22ᵗ	-.28	-.15	.16	-.25	-.2

Note. * — p<.05; ** — p<.01; *** — p<.001; t — trend to significance, .05<p<.1. Correlations that are absent in a comparison group are marked in grey.

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Discussion

In this study we were pursuing two key issues: (1) do people with markers of self-destruction, such as substance dependence, hopelessness, impulsiveness, and specific deficits of prospection, really exhibit more risky COVID-related behaviors; and (2) could personally-important images of the future be protective factors in terms of risky health-related behaviors? Therefore, we compared a community male sample and a clinical sample of substance-dependent men who represent a specific risk group in terms of getting infected with COVID-19 and ill coping with consequences of COVID-related life style changes [40]. We came across some interesting findings.

Firstly, we found no expected differences between the groups in declared COVID-related attitudes: both tended to recognize the threat of COVID, and expressed readiness to use PPE and change their behaviors under restrictions. The groups tended to differ in the levels of fear of getting infected and perceived COVID-related stress, which were higher in Group 1. Dependent respondents' higher stress levels correlated with more expressed willingness to observe restrictions. At the same time, associations between COVID-recognition and COVID-related behaviors (PPE use and changing life style under self-isolation) were weaker in Group 1, and significant positive correlations between the key parameter of functional COVID-related behavior — PPE use — and COVID-related stress and fear were present in Group 2 alone.

Secondly, we found evidence in favor of dependent patients' vulnerability to impulsive risky behaviors (which are qualified as non-suicidal self-destruction) as impulsiveness and hopelessness (a reliable marker of self-destruction) were significantly higher in Group 1 (Table 3), with the positive correlation between these parameters found in both groups (Table 7). Willingness to use PPE was associated with impulsiveness (but not hopelessness) in Group 1 alone (Table 6). Furthermore, impulsiveness correlated neither with fear of getting infected, nor with COVID recognition, nor with COVID-related stress. Therefore, it could hardly be considered situationally driven, in contrast to hopelessness, which had positive associations with stress in both groups; with COVID-recognition and fear of being infected in Group 1 alone.

When interpreting the above data, one needs to account for the study time and venue: despite the declared willingness to use PPE and change their habitual life style to comply with epidemiological recommendations amidst the upsurge in COVID rates (April 2020), Group 1 participants' status quo — being hospitalized after acute intoxication with psychoactive substances — implied an increased risk of getting infected with the disease that they had reported to have a fear of. That is, in contrast to the healthy population, neither COVID recognition, nor fear of infection, nor perceived COVID-related stress facilitated functional behaviors or precluded substance misuse (Table 6); perhaps, they

actually reinforced the latter as a dysfunctional coping strategy [2; 13]. A confirmation of this assumption is found in a simultaneous existence of a positive correlation between hopelessness and COVID recognition and a negative one with willingness to change habitual behaviors under the threat of fines, i.e., although hopeless dependent patients experienced high COVID-related anxiety, fines failed to preclude their habitual activities, including buying and using substances [40], whereas constitutionally high level of impulsiveness might have contributed to the neglect of the recommended precautions and triggered risky behaviors shaped as substance misuse.

Although we failed to fully confirm our hypothesis that people with substance dependence would have marked dysfunctional COVID-related attitudes, the identified phenomenon of perceived experience of COVID's threat and fear of getting infected, reported willingness to observe epidemiological concerns and actual neglect of those may be of special interest. There may be different interpretations of this phenomenon.

Firstly, it may relate to addictive ambivalence or addictive dissociation [24; 25], when the Addict self, which is striving for self-destruction, is positive about the risk of getting infected, while the Normative self observes the precautions. It is this struggle between subpersonalities that may cause indefinite anxiety, agitation, and mild depressive symptoms. In our findings, this struggle was mirrored, for example, by almost complete lack of future events (N=1) that described substance use straightforwardly, and a simultaneous registration of SDFPs qualified either as Life threats or Recreation/Exploration events that could plausibly include substance use ("going to the country house with friends... having barbecue"; "a noisy feast... fighting"). Furthermore, Recreation events had a negative association with willingness to change one's habitual behaviors because of self-isolation.

Secondly, the Addict self can be viewed as a carrier of automatic antivital scripts — maladaptive prospective schemata — whose implementation is facilitated by substance use or becomes possible in a stressful context given lack of more positive and explicit future thinking [4].

Indeed, we found significant differences between SDFPs in dependent and healthy participants. For example, Group 1 SDFPs had shorter time perspective, more negative valence, and were simulated less frequently. These findings comply with multiple studies on prospection deficits in substance dependence [26]. Group 1 SDFPs enjoyed less Autonomy and Competence need satisfaction than in Group 2. Group 1 was also more concerned about relational issues and life-threatening events and less interested in achievement (the existing achievement events focused on professional failures rather than future success). In contrast to Group 2, SDFPs' fuller phenomenological experience and positive valence weren't related to a decrease in hopelessness. These findings evidence that dependent patients have a significantly hindered access to adaptive

images of the future that they could use for making decisions, including health-related ones, and that could facilitate actual (rather than declared) compliance with COVID-related precautions.

Correlations between impulsiveness parameters (including non-planning impulsiveness) and phenomenological and psychological characteristics found almost *only* in Group 1 provide indirect evidence to the above findings and highlight dependent patients' vulnerability to unpredicted and unplanned impulsive actions related to prospection deficits. Moreover, in some (in our clinical experience, more infrequent) cases, the negative outcome can come into awareness and occupy a special place in long-term predictions of one's personal future. The following patient's SDFP is illustrative of this internal preparedness for the tragic script, "*A relapse* (auth. — time distance is unknown). *I am recovering, observing all the 4 wheels of recovery, enjoying personal growth, trying hard, but here [I] start sliding down slowly to the old life style without noticing this and relapse. I derail all the work I have done, everything that other people — residents, counselors, relatives and close people, the sponsor and just people from the community — have invested in me. [I] face consequences — a loss of trust as a minimum, perhaps relationships, finances, time, health, and, if I am lucky enough, I enter the rehab again. The worst thing in my understanding is simply to lose one's mind, for good. [I] will be salivating and wetting my bed. This can't be called life*".

At the same time, in both groups, we found partial evidence in favor of a narrower hypothesis that personally important mental images of the future might be protective factors in relation to dysfunctional health-related attitudes reflecting the self-destructive predisposition of their owners. Although we found no relationship between SDFP characteristics and COVID-related variables in Group 2, there were negative associations between SDFP phenomenological and psychological need parameters and hopelessness, and positive ones with hope (Table 7). It is worth emphasizing significant correlations with the need for autonomy satisfaction, which lies at the core of human mental well-being [32], and their lack in Group 1. There may be an indirect association between prospection and COVID-related parameters which is mediated by significant relations between a less deficient capacity for prospection (as shown by the comparison) and hopelessness.

One of the most clinically significant findings of our study is identification of positive associations between prospection variables and COVID-related behaviors in Group 1. That is, SDFPs' sufficient importance for identity contributed at least to the declared willingness to use PPE and observe restrictions. We also found out negative correlations between hopelessness, Relationship events and satisfaction of the need for relationship, and negative associations between impulsivity and some SDFP phenomenological parameters in dependent patients. These associations indicate specific targets of psychotherapy that relate to working on the problems of dependent patients' dysfunctional relationships

(both retrospectively and prospectively), that some authors believe to be at the core of therapy of addictions [19]. In this sense, the focus on the relationship component in the future simulation tasks included in therapy interventions aiming at nurturing recovery intentions and motivation for supportive treatment, and creating adaptive attitudes to one's own future, may hypothetically exert a positive effect on impulsivity and hopelessness. This assumption needs additional empirical verification.

Limitations. The design of an online study implies a number of limitations, including those related to reliability of information obtained and potential lack of representativeness of the community sample. Convenience sampling allows for extrapolation of this study findings onto narrower cohorts of substance-dependent people and people without substance dependence who come from or are interested in helping professions. Furthermore, the results might be influenced by differences in the materials administration in the community and clinical samples (filling in paper-and-pencil rather than online forms). On the other hand, anonymity and targeted advertising could reduce risks of intentionally wrong answers and allowed for recruiting the necessary number of people with and without confirmed diagnosis of substance dependence. Another limitation of the study was use of single-item measures when studying SDFPs and COVID-related measures that we attempted to mitigate using 7-point scales.

Conclusions

We were able to confirm the hypothesis about the association between dysfunctional COVID-related attitudes and individual characteristics that are frequently considered to be markers of non-suicidal self-destruction only partially. Nonetheless, the identified dissociation between declared recognition of COVID-19 and willingness to observe epidemiological recommendations and actual neglect of those may be of a special research interest and complies with contemporary theoretical understanding of non-suicidal self-destructive behaviors and the role of prospection in them. We also found evidence for the protective effect of SDFPs in a frustrating context.

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