

## Levels of Self-Compassion and Gratitude in adults with Substance Use Disorder\*

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**Objective:** to identify the levels of Self-Compassion and Gratitude in adults diagnosed with Substance Use Disorder (SUD), correlating them with each other and with symptoms of anxiety, depression and stress. **Method:** descriptive, quantitative and cross-sectional model with 65 adults. The instruments used were a sociodemographic and health questionnaire, the Questionnaire for Screening the Use of Alcohol, Smoking and other Substances (ASSIST), the Gratitude Scale (G-20), the Self-Compassion Scale (SCS) and the Depression Scale, Anxiety and Stress - short version (DASS-21). **Results:** the Adaptive Dimension subscale of the SCS showed higher average scores for Sense of Humanity ( $3.1 \pm 1.1$ ) and Mindfulness ( $3.1 \pm 1.1$ ), while in the Non-Adaptive Dimension subscale, Overidentification stood out ( $3.6 \pm 1.1$ ). The G-20 total score averaged 117.4 ( $sd = 19.3$ ) points. Significant correlations were found in the correlation with the anxiety and depression subscales. **Conclusion:** the data indicate the presence of significant associations between the levels of Self-Compassion and Gratitude, as well as an inverse relationship with symptomatology, since the more grateful and self-compassionate the less symptoms of depression, stress and anxiety were manifested. Thus, it fosters studies related to Positive Psychology interventions and their impacts on relapse prevention in patients with SUD.

**Descriptors:** Mental Health; Substance-Related Disorders; Positive Psychology; Prevention; Relapse.

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## Níveis de autocompaixão e gratidão em adultos com Transtorno por Uso de Substâncias

**Objetivo:** identificar os níveis de Autocompaixão e Gratidão em adultos diagnosticados com Transtorno por Uso de Substâncias (TUS), correlacionando-os entre si e com sintomas de ansiedade, depressão e estresse. **Método:** modelo descritivo, quantitativo e transversal com 65 adultos. Os instrumentos utilizados foram um questionário sociodemográfico e de saúde, o Questionário para Triagem do uso de álcool, tabaco e outras substâncias (ASSIST), a Escala de Gratidão (G-20), a *Self-Compassion Scale* (SCS) e a Escala de Depressão, Ansiedade e Estresse - versão breve (DASS-21). **Resultados:** a subescala da Dimensão Adaptativa da SCS apontou escore médio mais elevado em Senso de humanidade ( $3,1 \pm 1,1$ ) e *Mindfulness* ( $3,1 \pm 1,1$ ), enquanto na de Dimensão Não Adaptativa se destacou a Sobre identificação ( $3,6 \pm 1,1$ ). A pontuação total da G-20 teve média de 117,4 ( $dp = 19,3$ ) pontos. Correlações significativas foram encontradas na correlação com as subescalas de ansiedade e depressão. **Conclusão:** os dados indicam a presença de associações significativas entre os níveis de Autocompaixão e Gratidão, bem como uma relação inversa com a sintomatologia, pois quanto mais gratas e autocompassivas, menos sintomas de depressão, estresse e ansiedade foram manifestados. Desta forma, fomenta estudos relacionados com intervenções em Psicologia Positiva e seus impactos na prevenção de recaídas em pacientes com TUS.

**Descritores:** Saúde Mental; Transtornos Relacionados ao uso de Substâncias; Psicologia Positiva; Prevenção; Recaída.

## Niveles de Autocompasión y Gratiitud en adultos con Trastorno por Uso de Sustancias

**Objetivo:** identificar los niveles de Autocompasión y Gratiitud en adultos diagnosticados con Trastorno por Uso de Sustancias (TUS), correlacionándolos entre sí y con los síntomas de ansiedad, depresión y estrés. **Método:** modelo descriptivo, cuantitativo y transversal con 65 adultos. Los instrumentos utilizados fueron un cuestionario sociodemográfico y de salud, el Cuestionario de Detección de uso de alcohol, tabaco y otras sustancias (ASSIST), la Escala de Gratiitud (G-20), la Escala de Autocompasión (SCS) y la Escala de Depresión, Ansiedad y Stress - versión corta (DASS-21). **Resultados:** la subescala de la Dimensión Adaptativa del SCS mostró puntuaciones medias más altas en Sentido de la Humanidad ( $3,1 \pm 1,1$ ) y *Mindfulness* ( $3,1 \pm 1,1$ ), mientras que en la subescala de la Dimensión No Adaptativa destacó la Sobre identificación ( $3,6 \pm 1,1$ ). La puntuación total del G-20 fue de 117,4 ( $dp = 19,3$ ) puntos de media. Se encontraron correlaciones significativas en la correlación con las subescalas de ansiedad y depresión. **Conclusión:** los datos indican la presencia de asociaciones significativas entre los niveles de Autocompasión y Gratiitud, así como una relación inversa con la sintomatología, ya que cuanto más agradecidos y autocompasivos, menos síntomas de depresión, estrés y ansiedad se manifestaron. De esta manera, se fomentan los estudios relacionados con las intervenciones en Psicología Positiva y sus impactos en la prevención de recaídas en pacientes con TUS.

**Descriptors:** Mental Health; Substance-Related Disorders; Positive Psychology; Prevention; Relapse.

## Introduction

Chronic psychoactive substance abuse (PAS) can alter brain anatomy and chemistry, even months or years after the detoxification process, evidenced by the intense desire to use the drug (craving), often causing relapses<sup>(1)</sup>. People diagnosed with Substance Use Disorders (SUD) have chronic vulnerability to such relapses, making it difficult to maintain abstinence and change behaviors during treatment<sup>(2)</sup>. Psychiatric comorbidities, especially mood and anxiety disorders<sup>(3)</sup>, as well as chronic and acute stressful events can be triggers for relapse, requiring attention and careful treatment<sup>(4)</sup>.

Within the Positive Psychology (PP) approach, it is understood that intervention with patients in SUD treatment should encompass Positive Prevention techniques, i.e., building and strengthening character strengths, helping those in the recovery process not only to cease using the PAS, but also to have a more satisfactory and healthy quality of life<sup>(5-6)</sup>. The literature presents several studies investigating the effects of PP in the treatment of SUD, such as PASs abuse in adolescents<sup>(7)</sup> and adults<sup>(8-10)</sup>. Similarly, defining a purpose in life significantly prevented relapse to any use and the number of days of cocaine or alcohol use in the 6 months after treatment<sup>(11)</sup>.

The positive approach does not ignore or diminish the relevance of suffering<sup>(12)</sup>, it only complements treatment. Beneficial effects have been evidenced<sup>(7)</sup> when exploring the positive aspects in clinical populations, showing that Positive Prevention acts as a shield against severe mental disorders<sup>(12)</sup> such as SUD. The character strengths "Self-Compassion" and "Gratitude", for example, help regulate emotions, act on psychological well-being, sleep quality, and physical health, in addition to reducing levels of anxiety, depression, and stress<sup>(13-16)</sup>.

Self-compassion (SC) is considered a form of emotional intelligence, being understood as the ability to recognize one's own suffering as a normal condition, accepting it without avoidance or disconnection. It is about being aware of one's emotions, being able to guide thoughts and behaviors towards healthier outcomes<sup>(17)</sup> and generate positive emotions, such as gratitude<sup>(18)</sup>. Gratitude is described as a life orientation to perceive and value the positive in oneself and in others, related to feelings of gratitude, satisfaction, and meaning of life<sup>(19)</sup>.

There is evidence on the relationship of these two constructs with neurobiology, correlating them with different positive emotions. One sample, for example, wrote gratitude letters and, three months later, demonstrated greater neural modulations for gratitude in the prefrontal cortex<sup>(20)</sup>. Other researchers have measured heart rate variability based on the practice of self-compassion in the face of a daunting task and reported that the relationship of high self-criticism reports

was related to increased heart rate variability and showed a significant decrease in cortisol<sup>(21)</sup>.

SC and Gratitude also serve as means of emotional regulation (ER)<sup>(13)</sup>. This is related to decreased intensity of PAS use symptoms and maladaptive strategies when using adequate treatment and, moreover, interventions to enhance ER strategies have had positive effects on reducing craving/fissure<sup>(22)</sup>. It is also configured as a predictive factor for addictive behaviors in adolescents and young adults<sup>(23)</sup>.

In relation to drug dependence, Self-compassion<sup>(24)</sup> and Gratitude<sup>(19,25-26)</sup> have also been studied, but further investigations of their associations are still needed. That said, the aim of this study was to profile sociodemographic and substance use, as well as the levels of Self-compassion and Gratitude in adults diagnosed with Substance Use Disorder and to map the presence of depressive, anxious, and stress symptoms which are listed in the conclusion of the paper. We have the following hypotheses: patients with SUD have low levels of Self-Compassion and Gratitude and the lower the levels of anxiety, depression, and stress, the higher the levels of these two constructs.

## Method

This is an observational study with a descriptive, quantitative, cross-sectional design.

### Ethical issues and data collection

This study was approved by the Ethics Committee of the Pontifical Catholic University of Rio Grande do Sul (CAAE: 27941520.2.0000.5336), being conducted in accordance with Resolutions 510/2016 and 466/12, regulating research involving human beings. The research was conducted online through the Qualtrics tool between April and July 2020 and after the participants accepted the Informed Consent Form (ICF); the risks of this research were considered minimal.

### Participants

A convenience sample was used based on the disclosure of the research in social networks and in a therapeutic community in the metropolitan region of Porto Alegre. Inclusion criteria for the sample were individuals over 18 years of age of both genders who had a previous diagnosis of substance use disorder, according to DSM-5. Exclusion criteria were individuals who did not fill out all the survey items.

The sample was composed of 65 participants with a mean age of 36.3 (SD = 10.5) years, homogeneous distribution regarding gender, being 50.8% (n=33) female and predominantly white (n=48). There was a predominance of single individuals (60.0%, n=39) and married individuals (27.7%, n=18), and 53.8% (n=35) had children. Regarding work activities, 55.4% (n=36) had

one, while 23.1% (n=15) reported not having one. Still, 83.1% (n=54) confirmed that they followed some religion.

### Instruments

Sociodemographic and Health Data Questionnaire: Descriptive instrument for obtaining relevant data on sociodemographic situation and psychiatric history.

Questionnaire for Screening Alcohol, Smoking and Other Substance Use (ASSIST)<sup>(26)</sup>: used to detect the use of nine classes of PASs, addressing frequency of use (in life and in the last three months), related problems, concern of people close to them about the use, impairment in performing expected tasks, attempts to stop or reduce use, feeling of compulsion, and injecting use. The Brazilian validation<sup>(27)</sup> showed good internal consistency, with alpha adequate for detection of alcohol use ( $\alpha = .80$ ), tobacco ( $\alpha = .80$ ), marijuana ( $\alpha = .79$ ), and cocaine ( $\alpha = .81$ ).

Self-Compassion Scale (SCS)<sup>(13)</sup>: self-report instrument with 26 items on a Likert scale from 1 to 5, comprising six subscales divided into two dimensions that aim to measure the level of self-compassion. The Adaptive Dimension (AD) consists of Mindfulness, Kindness to Self, and Sense of Humanity, and the Non-Adaptive Dimension (ND) includes Isolation, Severe Self-Criticism, and Over-Identification. The original scale and the Brazilian adaptation<sup>(28)</sup> showed adequate internal consistency ( $\alpha = .92$ ).

Gratitude Scale (G-20)<sup>(29-30)</sup>: aims to understand and measure the experience of gratitude, considering transpersonal, personal, and object of gratitude experiences. On a 7-point Likert-type scale, it is divided into 4 subgroups: Interpersonal Gratitude, Gratitude in the Face of Suffering, Recognition of One's Own Gifts, and Expression of Gratitude.

Depression, Anxiety and Stress Scale (DASS-21)<sup>(31)</sup>: comprises 21 items referring to the experience of anxious, depressive and stress symptoms over the last week, answered on a Likert scale between 0 and 4 points. The Brazilian validation<sup>(32)</sup> showed excellent reliability and good internal consistency regarding each subscale ( $\alpha = .92$  for depression,  $\alpha = .90$  for stress and  $\alpha = .86$  for anxiety).

### Data analysis

The statistical treatment of the data was performed with the Statistical Package for the Social Sciences (SPSS), version 25.0 for Windows. Descriptive analyses were performed using measures of central tendency, variability, and absolute and relative distributions. The symmetry of continuous distributions was assessed by the Kolmogorov-Smirnov test. Continuous variables were compared between two groups using the student's t-test (independent groups) or the Mann Whitney U test. When the comparison of scores involved three or more independent groups, the One-Way Analysis of Variance - *Post Hoc* Scheffé was used. The linearity relationship between the continuous scores of the scales was investigated by Pearson's correlation coefficient.

### Results

#### Characterization of the sample

The characterization of the sample regarding drug use was verified by ASSIST. The internal consistency of the instrument was evaluated by Cronbach's alpha coefficient ( $\alpha_C$ ), and the estimates were mostly considered satisfactory ( $\alpha_C > 0.700$ ), the coefficients being: 0.728 for alcohol, 0.795 for marijuana, 0.773 for tobacco, and 0.877 for cocaine/crack. The use of alcoholic beverages predominated with 95.7% (n=62), followed using tobacco products with 89.2% (n=58), as well as, marijuana and cocaine/crack, each representing 83.1% (n=54). The median estimate indicated a concentration of high scores in these PASs and, furthermore, since the median scores were equal to or greater than 4.0, there is an indication of abuse.

The presence of psychiatric hospitalization was mentioned by 63.1% (n=41) of the sample. Moreover, 43.1% (n=19) confirmed having some psychiatric comorbidity, being depressive disorders with 15.9% (n=7) and Bipolar and Anxiety Disorders with 13.6% (n=6) each. Abstinence from drugs was present in 86.2% (n=56) of the cases and the median time of abstinence was 8 months (1st-3rd quartiles: 2.0 - 39.0), and 75% of the patients had been abstinent for 39 months or less.

## Self-Compassion Scale (SCS) and Gratitude Scale (G-20)

Table 1 - Results of descriptive measures for the Self-Compassion Scale (SCS) and Gratitude Scale (G-20). Porto Alegre, RS, Brazil, 2020

Variables	Estimations					Cronbach's Alpha <sup>5</sup>
	Average	Standard Deviation	Quartile			
			Q1 <sup>1</sup>	Q2 <sup>2</sup>	Q3 <sup>3</sup>	
Gratitude - Total	117.4	19.4	110.8	119.5	130.8	0.994
Interpersonal Gratitude	43.1	7.6	41.5	45.0	48.0	0.794
Gratitude in the face of Suffering	28.1	7.7	25.0	31.0	33.0	0.900
Recognition of One's Gifts	23.1	5.4	22.5	24.0	27.0	0.821
Expression of Gratitude	21.2	5.9	16.5	22.0	26.0	0.756
Self-Compassion	2.8	0.9	2.1	2.8	3.4	0.923
Kindness Toward Yourself	2.8	1.2	1.6	2.8	3.5	0.892
Severe Self-Criticism	3.5	1.0	3.0	3.6	4.2	0.725
Sense of Humanity	3.1	1.1	2.0	3.3	4.0	0.747
Isolation	3.1	1.1	2.3	3.0	4.0	0.703
Mindfulness	3.1	1.2	2.0	3.0	4.0	0.801
About Identification	3.6	1.1	2.8	3.8	4.5	0.798

<sup>1</sup>Q1 = Quartile 1; <sup>2</sup>Q2 = Significance level; <sup>3</sup>Q3= Quartile 3; <sup>5</sup>Cronbach's alpha = Median

The levels of Self-Compassion and Gratitude were measured, respectively, by the SCS and the G-20. Both scales in this sample showed good internal consistency, as well as good reliability (Table 1). The results regarding the SCS pointed out that in the subscales of the Adaptive Dimension the mean score was higher in Sense of Humanity (3.1±1.1) and Mindfulness (3.1±1.1) compared to Kindness to oneself (2.8±1.2). On the Non-Adaptive Dimension, they were higher in Over identification (3.6±1.1) and Self-criticism (3.5±1.0) when compared to Isolation (3.1±1.1).

As for the reliability of the SCS, in this study the  $\alpha$ C coefficients were highest in the subscales Kindness to Self ( $\alpha$ C = 0.892) and Mindfulness ( $\alpha$ C = 0.801), while the lowest estimates occurred in Isolation ( $\alpha$ C = 0.703) and Severe Self-Criticism ( $\alpha$ C = 0.725). In the information regarding G-20, the score for the total value ranged from 53 to 140 points and averaged 117.4 ( $sd$  = 19.3) points. The internal consistency of the scale had a satisfactory estimate ( $\alpha$ C > 0.700), reaching 0.940. In the dimensions of the scale, the reliabilities showed coefficients with

internal consistency above the minimum acceptable ( $\alpha$ C > 0.600), with the minimum of 0.794 in the dimension Interpersonal Gratitude and the maximum of 0.900 in Gratitude in the face of Suffering.

### Correlation between the Self-Compassion Scale (SCS) and the Gratitude Scale (G-20)

The comparison performed between the scales indicated significant and positive correlations with the Adaptive Dimensions (Kindness to Self, Sense of Humanity, and Mindfulness) and negative correlations with the Non-Adaptive Dimensions (Severe Self-Criticism, Isolation, and Over-Identification). Correlating the subscales of the AD (SCS) with those of the G-20, one can consider that there is evidence that high scores on the AD are related to high scores on the dimensions that scored significantly on the G-20. The analysis that involved the correlation of the subscales of the ND with the G-20 shows that there is evidence that high scores on the former are related to low scores on the Gratitude Scale.

Table 2 - Results of Spearman's correlation analysis between G-20 and SCS. Porto Alegre, RS, Brazil, 2020

Compassion Scale	Gratitude scale									
	Interpersonal Gratitude		Gratitude in the Face of Suffering		Recognition of one's own Gifts		Expression of Gratitude		G20 Total	
	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$
Kindness to You	0.181	0.148	.521**	0.000	.323**	0,009	.354**	0.004	.404**	0.001
Severe Self-Criticism	-0.074	0.556	-.369**	0.002	-0.050	0,695	-0.213	0.088	-.258*	0.038

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Compassion Scale	Gratitude scale									
	Interpersonal Gratitude		Gratitude in the Face of Suffering		Recognition of one's own Gifts		Expression of Gratitude		G20 Total	
	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$	$r_s^*$	$p^\dagger$
Sense of Humanity	-0.001	0.994	.468**	0.000	.267*	0,032	.288*	0.020	.315*	0.011
Isolation	-0.026	0.837	-.362**	0.003	-0.158	0,207	-0.099	0.431	-0.210	0.092
Mindfulness	0.150	0.233	.543**	0.000	.310*	0,012	.342**	0.005	.401**	0.001
About Identification	-0.165	0.190	-.468**	0.000	-0.193	0,124	-0.227	0.069	-.311*	0.012
Total score SCS‡	0.108	0.391	.542**	0.000	.258*	0.038	.315*	0.011	.376**	0.002

\* $r_s$  = Result; † $p$  = Significance level; ‡SCS = Self-Compassion Scale

### Correlation of the Depression, Anxiety and Stress Scale (DASS-21) with the Self-Compassion Scale (SCS) and the Gratitude Scale (G-20)

In the analysis with SCS, significant and negative correlations were detected with AD and positive with that of DN. In AD, although the highest correlations occurred with Sense of Humanity [Depression:  $rs = -0.408$ ;  $p=0001$  vs. Anxiety:  $rs = -0.462$ ;  $p<0.001$  vs. Stress:  $rs = -0.421$ ;  $p<0.001$ ], it can be inferred that high scores in AD were correlated with low scores in the total DASS. In the ND, on the other hand, correlations of greater magnitude occurred with Over identification [Depression:  $rs = 0.644$ ;  $p<0001$  vs. Anxiety:  $rs = 0.472$ ;  $p<0.001$  vs. Stress:  $rs = 0.600$ ;  $p<0.001$ ] and Isolation [Depression:  $rs = 0.618$ ;  $p<0001$  vs. Anxiety:  $rs = 0.517$ ;  $p<0.001$  vs. Stress:  $rs = 0.516$ ;  $p<0.001$ ], evidencing that high scores on the DASS-21 implied scores, also high on the Nonadaptive Dimension.

Regarding G-20, the results showed statistically significant and negative correlations in almost all comparisons, indicating that high scores on G-20 were related to low scores on DASS. The most significant results occurred with the Depression subscale compared to Gratitude in the Face of Suffering ( $rs = -0.618$ ;  $p<0.001$ ); Recognition of One's Own Gifts ( $rs = -0.517$ ;  $p<0.001$ ) and the G-20 Total ( $rs = -0.531$ ;  $p<0.001$ ). On the Anxiety subscale, representative results with Gratitude in the Face of Suffering ( $rs = -0.541$ ;  $p<0.001$ ) and Recognition of One's Own Gifts ( $rs = -0.506$ ;  $p<0.001$ ) stood out. Correlations of lesser magnitude were observed between Stress and G-20.

### Discussion

The Positive Psychology perspective sees addiction as the result of deficiencies or damages in the several areas of the individual's life, building capacities that can reduce any personal deficiency<sup>(5)</sup>. Therefore, the enhancement of constructs such as Self-compassion and Gratitude help in this reduction, leading to the need of comprehensive evaluations that consider the particularities of the population diagnosed with SUD.

The participants in this study showed a high prevalence of comorbidities and more than 50% reported the presence of psychiatric hospitalization. These results corroborate the existing literature since studies indicate a causal relationship and/or a higher occurrence of psychopathologies in users<sup>(3)</sup>. Moreover, 83.1% of this sample said they followed some religion, which according to other studies is a protective factor in relation to drug use<sup>(33)</sup>. In principle, there is a direct relationship in lower levels of SUD in people with religious beliefs, as mentioned in this study and in relation to neurobiology, which mentions that there is a significant decrease in Cortisol hormones the greater the neural variations for gratitude<sup>(33)</sup>.

In the Self-Compassion Scale (SCS), it was observed that the subscales of AD, Sense of Humanity ( $3.1\pm 1.1$ ) and Mindfulness ( $3.1\pm 1.1$ ) exhibited higher levels. These results are present in another study<sup>(24)</sup> that also demonstrated that the more self-compassionate individuals are, the lower the risk of drug use, indicating the relevance of self-compassion as a treatment and intervention tool for individuals with SUD. Furthermore, the mean Mindfulness score was higher for the self-compassion components of the study. Thus, the high scores on this subscale, added to the fact that 86% of the sample was in a state of abstinence, confirm the importance of this construct to avoid relapse<sup>(34)</sup>, since the level of Mindfulness in drug users is lower<sup>(35-37)</sup>. This refers to the full consciousness for the present moment, since it is necessary to recognize the suffering, because only then it is possible to respond to it with love and kindness<sup>(18)</sup>.

The high level of gratitude found in the sample expresses an important relationship between gratitude and abstinence. This result corroborates other findings in the literature<sup>(26)</sup>, in which this construct is more significantly associated with individuals who are in a period of abstinence from alcohol use. Thus, the role of understanding the levels of gratitude in this population is to complement the most urgent interventions, including the search for maintenance of abstinence.

G-20 presented variations among the internal reliability coefficients, in which the Interpersonal Gratitude

and Gratitude in the face of Suffering dimensions represented the lowest and highest values among the dimensions, respectively. This result relates to the findings of the original study<sup>(29)</sup>, in which the Gratitude in the Face of Suffering dimension also represented the highest reliability value. In addition, in a study that used this scale with an American sample, the same item obtained the best internal consistency among the four dimensions<sup>(38)</sup>.

The correlation results of the G-20 and the SCS showed a considerable relationship. The adaptive dimension of the SCS showed moderate and weak correlations with the G-20 dimensions, which demonstrates an association between the two constructs. This corroborates the findings of another study<sup>(24)</sup> that points in similar directions for predicting substance use. Thus, it can be inferred that as both constructs are related to drug use variables, this can be transposed to other circumstances, such as abstinence, in which most participants were.

Also, from the perspective of this important correlation, gratitude not only generates positive cognitions and reinforces recovery<sup>(39-40)</sup>, but also correlates with lower levels of substance abuse<sup>(41)</sup>. The literature points to the importance of self-compassion for the well-being of individuals<sup>(42)</sup>, generating proactive behaviors<sup>(18)</sup>. In this sense, gratitude and self-compassion become fundamental to interventions, which reinforces the need for more thorough evaluations of these in future studies on addiction disorders.

The practice of self-compassion and gratitude can increase the areas of the brain involved in the production and release of dopamine and elevate blood flow from the hypothalamus that is related to the stress response. With these brain changes, levels of stress, depression, and anxiety are reduced<sup>(43-44)</sup>. This decrease in negative symptoms may be associated with the significant, positive correlations with the adaptive dimensions and negative correlations with the maladaptive dimensions between the SCS and the G20.

Among the positive dimensions, there was a moderate correlation of Kindness to Self and Sense of Humanity with Gratitude in the face of suffering. This relationship is based on the premise that self-compassion is important for personal experiences of suffering since kindness to self and self-judgment constitute one of the interactive components of self-compassion<sup>(42)</sup>.

It can be said that the more grateful the participants were, the less symptoms of depression, anxiety, and stress they showed, as well as with high scores on the Adaptive Dimension of the SCS. The higher scores on the Non-Adaptive Dimension occurred along the same lines as high scores on the DASS-21, demonstrating that the less the individual was self-compassionate, the more depressive, anxiety, and stress symptomatology they presented.

These symptoms are quite common in individuals who use substances, especially alcohol. In one study, it was found that 16% of the sample that had used alcohol in the past 12 months had been diagnosed with depression, and 14% had exhibited a type of anxiety disorder<sup>(44)</sup>. Thinking about resources that allow subjects to be more grateful and self-compassionate helps to reduce this symptomatology and, consequently, acts directly in the prevention of possible psychological disorders, as well as in the worsening of existing pathologies<sup>(45)</sup>.

In synthesis, after measuring and analyzing the levels of the self-compassion and gratitude scales and confronting these results, it was possible to see that they match the symptoms of depression, anxiety, and stress scales. In this way, the three constructs stand face to face with the purpose of treatment and prevention for people diagnosed with SUD. Positive Psychology brings the possibility that subjects experience being more grateful and self-compassionate and that they can also use these strengths of character as tools for their own treatment and well-being.

## Conclusion

This study made it possible to profile sociodemographic and psychoactive substance use, as well as levels of self-compassion and gratitude in adults diagnosed with Substance Use Disorder. It also mapped the presence of depressive, anxious, and stress symptoms. From the results obtained, the sample showed high levels of Gratitude, being related to the fact that most of them were in abstinence. A low level of Self-Compassion was identified among the participants. Significant associations were seen between levels of Self-Compassion and Gratitude, as well as an inverse relationship with symptomatology: the more grateful and self-compassionate the less symptoms of depression, stress and anxiety were manifested.

It was also possible to notice the existence of an agreement between religiosity and/or spirituality and SUD, since related studies have shown that there is a direct relationship in lower levels of SUD in people with religious beliefs. Thus, it has been shown that this faith, whether in a "God" or not, can serve as a protective factor for individuals. Moreover, other studies reinforce how Positive Psychology plays an important role in the emotional regulation of patients, since the literature has pointed to several evidence of the relationship of Gratitude and Self-compassion in neurobiology, showing that they had higher neural variations for gratitude and a significant decrease in the cortisol hormone.

Although this research had limitations, such as the reduced sample size and part of the online application of the instruments during the coronavirus pandemic, it contributes to a greater focus on the positive

characteristics of people diagnosed with SUD. It is also noteworthy the restriction of further analysis regarding comorbidities, since these were assessed only from the participants' self-report. Future studies and interventions are needed to better understand the associations found, as they can help in the development of new preventive strategies, both regarding the maintenance of abstinence and the prevention of new cases.

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