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Psychological Evaluation

Suicidal Ideation in University Students: a Rorschach Assessment

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Abstract: University students are particularly susceptible to suicidal ideation and behavior due to issues inherent to this vital lives' moment. The Rorschach test can help to understand these students' suffering. The objective was to evaluate perception, thinking, stress, and distress in the Rorschach test domains in university students attended at a public university mental health service, comparing students with suicidal ideation with those without it. A total of 36 students aged 18 or over were assessed. The instruments were: Rorschach Performance Assessment System (R-PAS), Columbia Suicide Severity Rating Scale (C-SSRS) and Self Report Questionnaire (SRQ-20). Two analyses were performed using Wilcoxon Mann-Whitney test, according to the presence of suicidal ideation in the last 30 days (SRQ-20) and in the last six months (C-SSRS). Statistically significant differences were found in the two analyses, indicative of greater perceptual distortion in students without suicidal ideation and of stress and distress in students with ideation.

Keywords: Rorschach test, suicide, perceptual distortion, stress, mental health

Ideação Suicida em Estudantes Universitários: Avaliação com Rorschach

Resumo: Estudantes universitários são particularmente suscetíveis a ideação e comportamento suicidas decorrentes de problemas inerentes a este momento vital. O método de Rorschach pode contribuir na compreensão do sofrimento destes estudantes. O objetivo do estudo foi avaliar os domínios percepção, pensamento, estresse e angústia no Rorschach de estudantes universitários atendidos em serviço de saúde mental de universidade pública, comparando estudantes com ideação suicida com aqueles sem ideação. Foram avaliados 36 estudantes com 18 anos ou mais. Os instrumentos foram: *Rorschach Performance Assessment System* (R-PAS), Escala de Avaliação do Risco de Suicídio de Columbia (C-SSRS) e *Self Report Questionnaire* (SRQ-20). Foram realizadas duas análises com teste de Wilcoxon Mann-Whitney, segundo a presença de ideação nos últimos 30 dias (SRQ-20) e nos últimos 6 meses (C-SSRS). Foram observadas diferenças estatísticas significativas nas duas análises, indicativas de maior distorção perceptiva nos alunos sem ideação suicida e de angústia e estresse nos estudantes com ideação.

Palavras-chave: teste de Rorschach, suicídio, distorção perceptiva, stress, saúde mental

Ideación Suicida en Estudiantes Universitarios: Evaluación con Rorschach

Resumen: Estudiantes universitarios son particularmente susceptibles a ideación y comportamiento suicida debido a problemas inherentes a este momento vital. El Rorschach puede ayudar a comprender su sufrimiento. El objetivo fue evaluar los dominios percepción, pensamiento, estrés y angustia en el Rorschach de universitarios atendidos en un servicio de salud mental de universidad pública, comparando estudiantes con ideación suicida con aquellos sin esa ideación. Se evaluaron 36 estudiantes de pregrado y posgrado de 18 años o más. Los instrumentos fueron: *Rorschach Performance Assessment System*, Escala Columbia para Evaluar la Seriedad de la Ideación Suicida (C-SSRS) y *Self Report Questionnaire* (SRQ-20). Se realizaron dos análisis con Wilcoxon Mann-Whitney test, según la presencia de ideación en los últimos 30 días (SRQ-20) y en los últimos 6 meses (C-SSRS). Hubo diferencias estadísticamente significativas en los dos análisis, indicativas de mayor distorsión perceptiva en estudiantes sin ideación suicida y de angustia y estrés en estudiantes con ideación.

Palabras clave: test de Rorschach, suicidio, distorción perceptiva, estrés, salud mental

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According to data from the World Health Organization (WHO) (2021a), every year more than 700,000 people die by suicide, which is the fourth leading cause of death among young people aged 15 to 29 years, after traffic accidents, tuberculosis and interpersonal violence. In contrast to the other continents, which have seen a reduction in the number of deaths by suicide since 2000, the Americas have seen an increase by 17% in the same period. In addition to deaths by suicide, suicide attempts have even higher numbers and the damage caused to individuals, family members and the community is

unfathomable. This is a problem that should be considered as a priority in public health (WHO, 2021a, 2021b). The most recent calculation of the suicide death rate in Brazil is 6.9 per 100,000 inhabitants, with 3.0 women per 100,000 inhabitants and 10.9 men per 100,000 inhabitants (WHO, 2021a). Between 2011 and 2016, more than 176,000 cases of self-injury were recorded in Brazil, and suicide attempts were identified in more than 48,000 cases, with just over two-thirds carried out by women (Ministério da Saúde, 2017). However, it is known that these numbers are always underestimated, as they are based on official data on cause of death in death certificates and on the Violence and Accident Surveillance of the Notifiable Diseases Information System (VIVA/SINAN), which are often inaccurate, since several deaths due to hit-and-run, poisoning and automobile accidents may have a suicidal intention, without such intention being identified (Cassorla, 2017), or also self-injury may not be identified by the professional as a suicide attempt. Moreover, stigmatized causes of death, such as HIV and suicide, are recognizedly underreported (WHO, 2020). Thus, it is very likely that suicide attempts and deaths by suicide have a higher occurrence than that shown by the statistics.

Suicidal ideation is related to self-destructive thoughts and the idea that life is not worth living, and may involve desires, attitudes and/or plans to end one's life (Ramírez et al., 2020). This is a fact frequently observed among people undergoing treatment for psychiatric disorders, especially depressive ones. However, suicidal ideation also occurs in the general population, outside psychiatric contexts (Sojer et al., 2021).

Most university students are at an age of frequent incidence of mental disorders, that is, late adolescence and early adulthood (Akram et al., 2020; Costa et al., 2019; Ramírez et al., 2020), being considered particularly susceptible to ideation and suicide because of challenges inherent to this period of life. Such challenges may include, for example, adapting to a new study routine, academic pressures, living away from family, suffering from loneliness or helplessness, having new responsibilities, and making new friends. Considering the global university population, suicide is the second leading cause of death and the estimated annual suicide rate is 7.5 per 100,000 university students. About 8% of undergraduate students and 5% of graduate students report that they have attempted suicide and up to 32% of students have had suicidal thoughts at some point in their lives (Costa et al., 2019). Therefore, it is very important to study and understand the mental suffering of these students.

The Rorschach test is a psychological test that evaluates "personality characteristics that are based on what people do," that is, behaviors, and can also "assess implicit characteristics that may not be recognized by the respondent him or herself" (Meyer et al., 2011, p. 1); thus, it can be useful to broaden the understanding of the suffering of those people who think of suicide as a solution to difficulties. Although it has been used for more than 50 years to evaluate suicidal behavior (Blasczyk-Schiep et al., 2011), few recent studies on suicide have used the Rorschach test as an evaluation method. Zare et al. (2022) conducted a narrative review to identify characteristics in the Rorschach test that indicate suicide risk. They found four individual signs of the presence of suicidal ideation: card turning, transparency responses, responses with color shading blend responses, and morbid content. In the use of the Rorschach test for suicidal ideation, it may be useful to evaluate two of the different domains that can be investigated through this method. First, the Perception and Thinking Domain, since ideas of suicide are related to cognitive and ideational aspects of the individual; and the Stress and Distress Domain, for evaluation of stress and distress experienced by them and that could predispose to suicidal thoughts. The association between stress and distress and suicidal ideation or behavior seems well established according to the literature. The study of Liu et al. (2019) confirms that stress has a strong association with suicide attempts and mental health diagnoses. Holdaway et al. (2018) associated rumination, referring to a repetitive focus on symptoms of distress, with suicide risk, ideations, and suicide attempts. Wang et al. (2017), in a systematic review, found a moderate association between depressive symptoms and suicidal ideation in Chinese university students. The same can be observed with Brazilian students in the work of Sousa et al. (2021). The authors also cite studies that relate depressive symptoms to suicidal ideation, and one of them (Wu & Zao, 2009) concluded that depressive symptoms can accurately predict suicidal ideation in more than 94% of cases. In the study of Ramírez et al. (2020), suicidal ideation and suicidal behaviors were related to gender issues in Brazilian university students and associated with discomfort, malaise, anguish, distress, social exclusion, and psychological and physical violence suffered by the population of lesbian, gay, bisexual and transgender (LGBT) persons.

Taking this evidence into consideration, the objective was to evaluate the perception, thinking, stress and distress domains in the Rorschach test of university students treated in a mental health service of a public university, comparing students with suicidal ideation with those without ideation. The hypothesis is that suicidal ideation could be associated with perceptual and thought difficulties of the individual and/or with a high level of stress and affective discomforts.

Method

Participants

We evaluated 36 undergraduate and graduate university students, regardless of sex and aged at least 18 years. The inclusion criterion was having spontaneously sought a mental health service of the university; without exclusion criteria.

Instruments

The instruments used were: the Rorschach Performance Assessment System (R-PAS) (Meyer et al., 2011) to assess aspects of the participants' personality; the Columbia-Suicide Severity Rating Scale (C-SSRS) (Posner et al., 2008), which provides the possibility of evaluating suicidal ideation and/or behavior throughout life and also more recently; and the Self-Report Questionnaire (SRQ-20), which is a self-administered

instrument developed by the WHO for screening psycho-emotional disorders in primary health care contexts, through the evaluation of twenty symptoms that occurred in the previous 30 days; it was validated in Brazil by Mari and Williams (1986).

Procedure

Data collection. Students who sought an open-door mental health service of a public university within a one-year period were invited to participate in this research. For those who accepted the invitation, a time was scheduled at which the participant read and signed an informed consent form and answered the SRQ-20, R-PAS and C-SSRS instruments. At the end, a space for conversation was opened and after that the contact with the participant was closed.

Data analysis. IBM SPSS Statistics and Microsoft Excel software were used. Descriptive statistics were performed for age and sex and the frequency of each student's current program was counted, whether they were undergraduate or graduate students.

For the SRQ-20 instrument, the frequency of each total score was counted, and students with a score equal to or greater than seven, which would be indicative of psycho-emotional disorder, were also considered. We also calculated how many students presented suicidal ideation in the SRQ-20 in the previous 30 days by answering "YES" to question 17: "Has the thought of ending your life been on your mind?".

In the C-SSRS instrument, we counted the frequency of (1) students who have never had suicidal ideation, (2) students with active suicidal thoughts, (3) students with suicidal plans, and (4) students with suicidal intent, referring to the previous six months. Students with a history of at least one suicide attempt during their lives and students who had non-suicidal self-injury (NSSI) behavior were also counted.

Regarding the R-PAS instrument, a reliability study was initially carried out: 12 protocols were independently recoded by people proficient in administration and coding by the R-PAS. The Intraclass Correlation Coefficient (ICC) was calculated for the protocol-level variables, according to the guidelines of recent researchers (Pianowski et al., 2021, Schneider et al., 2022). The variables for study were selected, all belonging to the Perception and Thinking Domain and the Stress and Distress Domain, variables referring to task behavior and specific concerns, as well as the *SC-Comp*, *TP-Comp* and *V-Comp* composites and the *Complexity* variable.

To examine the groups of students with and without suicidal ideation, the non-parametric Wilcoxon Mann-Whitney test was used to compare means, considering that the variables do not follow normal distribution. We performed two analyses: (1) the sample was divided according to the presence or absence of suicidal thoughts in the previous 30 days based on the YES or NO answers given to question 17 of the SRQ-20; and (2) the group was divided according to active suicidal thoughts in the previous six months, according to what was observed in C-SSRS. The 95% confidence interval (CI) and also the 90% CI were considered, since the sample size was considered statistically reduced; variables in a 90% CI can mark significant trends that can be verified with future sample expansion. The effect size (Pearson's *r*) was calculated and we considered 0.10 as small effect size, equal to or above 0.30 as average effect size, and equal to or above 0.50 as large effect size.

Ethical Considerations

The research was approved by the Human Research Ethics Committee of the School of Arts, Sciences and Humanities at the University of São Paulo, Opinion No. 3,242,990, CAAE No. 08455219.3.0000.5390. As this is a delicate time and a possible crisis of the students, the first contacts were made in the form of welcoming care with one of the psychologists collaborating with the service. Only afterward was the possibility of participating in the research offered. And, after participation, they continued with the previously established care in the university service

Results

Of the 36 students evaluated, 24 are female and 12 male, the age ranged from 18 to 44 years ($M = 25.81$; $SD = 6.52$). Twenty-six students attended undergraduate programs, five attended doctoral programs, three attended master's programs, one attended postdoctoral program, and one student was a special student, graduated but not enrolled in a graduate program.

Regarding the SRQ-20, 31 students had a score equal to or greater than seven, indicative of psycho-emotional disorder. The average total score was 11.86 ($SD = 4.415$), with a minimum value of 1 point and a maximum value of 20 points. Eleven students answered "YES" to question 17 of SRQ-20 referring to the previous 30 days, which represents almost a third of the sample (30.56%).

Regarding the C-SSRS, of the 36 students evaluated, six never had active suicidal thoughts, which means that at some point in life they may have even thought about dying or sleeping and never waking up again, but never thought about killing themselves; in the previous six months, 22 students had a desire to be dead or suicidal thoughts; of these, 16 had active suicidal thoughts, of which eight had the intention to kill themselves, and, of these, four prepared a specific plan and intended to put it into practice. When these questions are extended to the entire life period, eight students reported having prepared plans but having had no intention of putting them into practice, while other eight students reported having had intention of executing a plan. Eight students have had at least one suicide attempt at some point in their lives. Fifteen students have had non-suicidal self-injury behavior, that is, they practiced some type of self-mutilation without the intention of killing themselves.

Regarding the R-PAS, the results of the reliability study showed that of the 61 protocol-level variables, 47 presented excellent ICC (above 0.75), and, of these, 18 presented ICC above 0.95. Six variables presented good ICC (between 0.60 and 0.75) and three variables presented

poor ICC (less than 0.40), namely: *FQu%* (percentage of unusual form quality), *Vg%* (percentage of vague answers), and *IntCont* (intellectualized content). Four variables did not present valid results because they are proportion values whose denominator can be zero and, therefore, cannot be calculated *([CF+C]/SumC*; *MAP/MAHP*; *Mp/[Ma+Mp]*; *NPH/SumH*).

In the first analysis, the group of 36 students was separated according to the answer to question 17 of the SRQ-20, referring to the previous 30 days, as already described. Thus, 25 students answered "NO" and eleven students answered "YES". Table 1 shows the means and standard deviation of each group, the Wilcoxon Mann-Whitney test and the level of significance for the selected variables.

Table 1

Wilcoxon Mann-Whitney and r effect size tests for selected variables, with the group divided according to the answer to question 17 of the SRQ-20

	Answer NO		Answer YES							
Parameter	*M*	*SD*	*M*	*SD*	Mann-Whitney U	Wilcoxon W	Z	Exact sig. (bilat)	Exact sig. (unilat)	*r*
Perception and Thinking Domain Variables										
EII-3	0.652	0.21316	1.3455	0.401	95.0	420.0	−1.462	0.148	0.074**	0.24
TP-Comp	1.40	0.2329	1.509	0.3786	126.5	451.5	−0.378	0.716	0.358	0.06
WSumCog	9.56	2.124	22.36	7.176	72.0	397.0	−2.256	0.023	0.012*	0.38
SevCog	0.84	0.309	1.73	0.945	129.0	454.0	−0.326	0.764	0.365	0.05
FQo%	47.28	1.806	47,0	3.018	133.5	458.5	−0.138	0.899	0.449	0.02
FQu%	32.48	1.671	35.73	3.292	123.0	448.0	−0.499	0.629	0.314	0.08
FQ-%	18.12	1.912	15.27	3.125	116.5	182.5	−0.722	0.481	0.241	0.12
WD-%	15.44	1.836	9.27	2.457	76.0	142.0	−2.115	0.034	0.017*	0.35
Popular	4.32	0.345	4.64	0.509	126.0	451.0	−0.405	0.703	0.353	0.07
Stress and Distress Domain Variables										
m	1.56	0.342	2.27	0.821	111.0	436.0	−0.942	0.358	0.179	0.16
Y	2.28	0.41	3.36	0.742	99.5	424.5	−1.342	0.186	0.094**	0.22
YTVC'	5.28	0.537	6.27	1.184	120.0	445.0	−0.605	0.557	0.279	0.10
mY	3.84	0.506	5.64	1.377	112.0	437.0	−0.883	0.387	0.194	0.15
MOR	1.80	0.316	2.36	0.823	127.0	452.0	−0.373	0.72	0.361	0.06
CBlend	0.56	0.142	0.73	0.195	115.5	440.5	−0.837	0.443	0.24	0.14
C'	1.72	0.262	2,00	0.33	116.0	441.0	−0.764	0.458	0.232	0.13
V	0.84	0.229	0.55	0.247	122.0	188.0	−0.599	0.59	0.311	0.10
PPD	10.12	0.961	11.73	2.054	120.0	445.0	−0.603	0.558	0.279	0.10
CritCont%	28.16	2.474	35.45	6.759	115.5	440.5	−0.756	0.461	0.23	0.13
SC-Comp	5.064	0.1863	4.927	0.3524	127.0	193.0	−0.361	0.729	0.364	0.06
Variables of other Domains										
R	25.00	0.819	24.82	1.334	134.0	459.0	−0.121	0.912	0.456	0.02
Pr	0.60	0.163	1.36	0.491	90.0	415.0	−1.766	0.081	0.046*	0.29
Pu	0.52	0.252	0.36	0.279	125.5	191.5	−0.544	0.623	0.359	0.09
CT	9.68	1.31	5.55	1.791	87.5	153.5	−1.732	0.085	0.042*	0.29
SR	0.56	0.154	1.09	0.368	105.5	430.5	−1.218	0.249	0.117	0.20
An	3.20	0.321	3.27	0.574	119.0	444.0	−0.657	0.527	0.265	0.11
SumH	7.08	0.568	8.82	1.967	131.0	456.0	−0.224	0.832	0.416	0.04
M-	0.80	0.20	1.27	0.384	109.0	434.0	−1.043	0.302	0.150	0.17
M	3.80	0.462	5.64	1.397	113.5	438.5	−0.835	0.415	0.207	0.14
FM	3.28	0.498	3.18	0.444	127.5	452.5	−0.350	0.738	0.37	0.06
F	10.56	1.026	8.82	1.500	114.5	180.5	−0.793	0.439	0.219	0.13
WSumC	3.30	0.40	3.773	0.581	118.0	443.0	−0.673	0.512	0.256	0.11
MC	7.10	0.6856	9.41	1.768	111.5	436.5	−0.895	0.381	0.191	0.15

(continued...)

Table 1
Continuation

Parameter	Answer NO		Answer YES		Mann-Whitney U	Wilcoxon W	Z	Exact sig. (bilat)	Exact sig. (unilat)	*r*
	M	*SD*	*M*	*SD*						
F%	41.72	3.324	34.73	5.399	112.0	437.0	−0.883	0.288	0.144	0.15
MC-PPD	−3.02	0.924	−2.31	1.310	134.5	459.5	−0.103	0.926	0.463	0.02
AGM	0.68	0.160	1.27	0.407	104.5	429.5	−1.217	0.246	0.122	0.20
AGC	3.48	0.347	4.82	0.872	92.5	417.5	−1.583	0.114	0.058**	0.26
ODL	2.60	0.374	3.36	0.866	123.0	448.0	−0.505	0.625	0.312	0.08
ODL%	10.72	1.563	13.09	2.968	120.5	445.5	−0.586	0.569	0.285	0.10
V-Comp	3.824	0.220	4.27	0.416	112.0	437.0	−0.877	0.391	0.195	0.15
Complexity	76.60	3.827	87.09	10.029	116.5	441.5	−0.722	0.481	0.241	0.12

Note. M = Mean; SD = Standart deviation; Answer "NO" to question 17, $n = 25$; Answer "YES" to question 17, $n = 11$; * Indicates significant variables with 95% *CI* ($p \leq 0.05$); ** Indicates significant variables with 90% *CI* ($p < 0.10$).

It can be observed that the variables *WSumCog* (weighted sum of the six cognitive codes), *WD-%* (percentage of form quality minus responses in *W* and *D* areas), both with a medium effect size; *Pr* (asking the subject to provide another answer for the card) and *CT* (card turning) showed significant differences, with a small effect size, for a 95% CI; and, for 90% CI, also the variables *EII-3* (Ego Impairment Index-3), *Y* (diffuse shading determinant), and *AGC* (aggressive content) also showed a trend towards statistical significance.

In the second analysis, the C-SSRS was used, considering as active suicidal ideation the participant having really thought about killing themself in the previous six months. Presence of suicide plans and intent are also included in present active ideation. Thus, 20 students did not present active suicidal ideation in the previous 6 months and 16 students presented suicidal ideation. The results of the analysis of the variables using the Wilcoxon Mann-Whitney test are shown in Table 2.

Table 2
Statistics for Wilcoxon Mann-Whitney and r effect size with the group divided according to the presence or absence of active suicidal ideation based on the C-SSRS

Parameter	Ideation absent		Ideation present		Mann-Whitney U	Wilcoxon W	Z	Exact sig. (bilat)	Exact sig. (unilat)	*r*
	M	*SD*	*M*	*SD*						
Perception and Thinking Domain Variables										
EII-3	0.835	0.29085	0.90	0.26188	153.0	363.0	−0.223	0.832	0.416	0.04
TP-Comp	1.555	0.2855	1.281	0.2643	145.5	281.5	−0.462	0.654	0.327	0.08
WSumCog	12.2	3.907	15.06	3.952	108.5	318.5	−1.644	0.102	0.051*	0.27
SevCog	1.10	0.518	1.13	0.499	132.5	342.5	−0.979	0.338	0.174	0.16
FQo%	47.75	1.936	46.50	2.518	154.5	290.5	−0.175	0.869	0.434	0.03
FQu%	30.40	1.666	37.31	2.474	100.0	310.0	−1.915	0.056**	0.028	0.32
FQ-%	19.15	2.281	14.88	2.226	120.0	256.0	−1.275	0.208	0.104	0.21
WD-%	15.90	2.202	10.63	1.923	105.5	241.5	−1.738	0.084	0.042*	0.29
Popular	4.20	0.374	4.69	0.435	142.5	352.5	−0.571	0.577	0.288	0.10
Stress and Distress Domain Variables										
m	1.25	0.323	2.44	0.632	103.5	313.5	−1.861	0.064	0.033*	0.31
Y	2.40	0.467	2.88	0.598	147.5	357.5	−0.409	0.694	0.346	0.07
YTVC'	4.95	0.667	6.38	0.785	113.0	323.0	−1.507	0.135	0.067**	0.25
mY	3.65	0.617	5.31	0.952	116.5	326.5	−1.397	0.167	0.083**	0.23
MOR	1.55	0.294	2.50	0.632	125.5	335.5	−1.135	0.261	0.132	0.19
CBlend	0.50	0.154	0.75	0.171	126.0	336.0	−1.199	0.255	0.143	0.20
C'	1.65	0.319	2.00	0.242	127.0	337.0	−1.088	0.285	0.144	0.18

(continued...)

Table 2
Continuation

Parameter	Ideation absent		Ideation present		Mann-Whitney U	Wilcoxon W	Z	Exact sig. (bilat)	Exact sig. (unilat)	*r*
	M	*SD*	*M*	*SD*						
V	0.60	0.21	0.94	0.295	134.5	344.5	−0.913	0.381	0.186	0.15
PPD	9.40	1.125	12.13	1.431	106.0	316.0	−1.726	0.086	0.043*	0.29
CritCont%	26.35	3.026	35.44	4.514	111.0	321.0	−1.561	0.121	0.061**	0.26
SC-Comp	4.78	0.2069	5.325	0.2558	104.0	314.0	−1.785	0.075	0.038*	0.30
Variables of other Domains										
R	24.55	0.977	25.44	0.975	139.0	349.0	−0.671	0.512	0.256	0.11
Pr	0.80	0.321	0.88	0.18	125.5	335.5	−1.189	0.231	0.117	0.20
Pu	0.55	0.312	0.38	0.202	158.5	294.5	−0.063	0.952	0.483	0.01
CT	8.40	1.663	8.44	1.387	159.5	295.5	−0.016	0.994	0.497	0.00
SR	0.60	0.169	0.88	0.287	147.0	357.0	−0.459	0.646	0.332	0.08
An	2.80	0.451	3.75	0.233	92.0	302.0	−2.238	0.024	0.012*	0.37
SumH	7.75	0.757	7.44	1.329	131.5	267.5	−0.912	0.37	0.185	0.15
M-	1.15	0.264	0.69	0.237	122.5	258.5	−1.272	0.207	0.108	0.21
M	4.40	0.723	4.31	0.84	157.0	293.0	−0.097	0.93	0.465	0.02
FM	3.20	0.588	3.31	0.405	136.5	346.5	−0.762	0.456	0.228	0.13
F	10.40	1.313	9.56	1.004	152.0	288.0	−0.256	0.807	0.403	0.04
WSumC	3.20	0.4845	3.75	0.4233	128.0	338.0	−1.024	0.314	0.157	0.17
MC	7.60	0.9945	8.063	1.0972	152.5	362.5	−0.239	0.819	0.41	0.04
F%	41.30	4.37	37.44	3.428	136.5	272.5	−0.749	0.464	0.232	0.12
MC-PPD	−1.80	1.086	−4.062	0.9375	116.0	252.0	−1.403	0.165	0.083**	0.23
AGM	0.90	0.25	0.81	0.228	159.0	295.0	−0.034	0.987	0.502	0.01
AGC	2.95	0.32	5.06	0.616	68.0	278.0	−3.000	0.002	0.001^{+}	0.50
ODL	2.60	0.40	3.13	0.67	154.5	364.5	−0.178	0.866	0.433	0.03
ODL%	11.15	1.792	11.81	2.284	159.0	369.0	−0.032	0.981	0.491	0.01
V-Comp	3.985	0.2402	3.931	0.3395	153.0	289.0	−0.223	0.832	0.416	0.04
Complexity	73.80	4.064	87.31	7.30	120.5	330.5	−1.259	0.214	0.107	0.21

Note. Ideation absent in the previous 6 months, $n = 20$; ideation present in the previous 6 months, $n = 16$; $^{+}$ Indicates significant variable with *99% CI* ($p \leq 0.001$); * Indicates significant variables with 95% *CI* ($p \leq 0.05$); ** Indicates significant variables with 90% *CI* ($p < 0.10$).

These variables were significant within a 95% CI: *WSumCog* (weighted sum of the six cognitive codes), *WD-%* (percentage of form quality minus responses in *W* and *D areas*), *PPD* (potentially problematic determinants, which includes *FM* [animal movement], *m* [inanimate movement], *Y* [diffuse shading], *T* [texture], *V* [vista], *C'* [achromatic color]), these three with small effect size; *m* (inanimate movement determinant), *SC-Comp* (suicide concern composite) and *An* (anatomy content) with medium effect size; and *AGC* (aggressive content) with $p \leq 0.001$ and large effect size; and there was a trend toward statistical significance, with a 90% CI, in the variables *FQu%* (percentage of form quality unusual), *YTVC'* (sum of the shadings and achromatic color determinants), *mY* (sum of the inanimate movement and diffuse shading determinants), *CritCont%* (percentage of critical content, which comprises the codes for morbid content [*MOR*], aggressive movement [*AGM*], and anatomy, blood, explosion, fire and sex contents), and *MC-PPD* (human movements plus the weighted sum of color determinants, minus *PPD* described above), all with small size effect, except for the variable *FQu%*, with medium effect size.

Discussion

Regarding the first statistical analysis performed, it is interesting to note that there were variables of the Perception and Thinking Domain that had higher means in the groups with and in the group without suicidal ideation, indicating specific difficulties in these aspects in each group. The variable *WD-%* had higher means in the group of students who reported not having had suicidal ideation in the previous 30 days, and the increase is significant when compared with

data for the normative sample (M = 8.2, SD = 6.7). The mean of the variable *FQ-%* (percentage of form quality minus) is also higher in the group of students without ideation, but it is not a statistically significant difference. Thus, the distortions in the perception of reality in the group without ideation occurred in *W* and *D* areas mostly, which indicates significant impairment in the reality test. On the other hand, *WSumCog* (weighted sum of the six cognitive codes) was significantly higher in the group of students with suicidal ideation and *EII-3* (ego impairment index-3) showed a trend toward statistical significance (p = 0.074). *WSumCog* suggests greater disorder and disorganization of thought or immature and inefficient thought; *EII-3* is considered a general measure of disorder of thought and severity of psychopathology. It involves calculation with the variables *FQ-%* (percentage of form quality minus, or distorted), *M-* (human movement with form quality minus), *WSumCog*, *CritCont%*, *PHR*, (poor human representation), *GHR* (good human representation), and *R* (total number of responses). *EII-3* indicates greater disorder of thought in the group of students with ideation, having shown a higher average than the normative sample (M = -0.1; SD = 0.8; percentile 95 = 1.2). Here are some examples of answers from the group of students with ideation that involve cognitive codes: "two close people with wings" (card I, *W*, *INC1*), "several small animals partying together" (card X, *W*, *FAB1*), "a frog with an ear" (card IV, *D7*, *INC2*), "a rabbit crying something green" (card X, *D10*, *FAB2*). The cognitive codes are related to ideational aspects, concept formation, and thought process. In turn, the form quality minus responses, increased in the group of students without ideation, are considered distorted and are more significant when they occur in *W* and *D* areas, because they are more global (*W*) and more obvious (*D*) environmental situations. They are closely related to the judgment of reality, that is, to a way of capturing the world differently from other people, of perceiving the outside in their own and not shared way. This seems to be a significant difference between students who have and students who do not have recent suicidal ideation — students who had no ideation had problems with the judgment of reality, while students who had suicidal ideation had problems with the thought process. Perhaps suicidal ideation itself can be considered as a specificity in the thought processes in this group.

The variable *Pr* is coded when the respondent gives only one response to a blot and the examiner encourages them to give more responses. This can be related to different aspects, such as cognitive deficit, "rigidity, inflexible perception, depression, lack of trust and engagement, evasiveness, defensiveness, resistance" (Meyer et al., 2011, p. 347). It can be noted that the group of students with ideation more often needed to be motivated to see other things in the blots. However, for both groups, the mean value of this variable is between percentiles 25 and 75 of the normative sample (percentile 25 = 0; percentile 75 = 1.5). It was also possible to learn that students who had not had suicidal ideation in the previous 30 days turned the card more (*CT*), demonstrating greater flexibility, interest, curiosity or anxiety. This increase is also significant when we examine the normative sample data (M = 4.1; SD = 4.5). This finding is consistent with the narrative review of Zare et al. (2022), in which card turning was associated with suicidal ideation. The variable *AGC*, aggressive content, reflects annoyances, concerns and aggressive identifications and high values can reflect both identification with power and aggressiveness and fear of aggressive dangers in the environment, or even an oscillation between both. The group with ideation has higher *AGC* values, which could represent an increase in aggressive identifications in this group. As for variable *Y*, it can be thought that people with suicidal ideation have a greater tendency to present feelings of helplessness in the face of stressors, which could be a factor that contributes to predispose them to suicidal thought.

Regarding the second analysis, with the group divided according to the presence or absence of suicidal ideation in the previous six months, the same trend shown in the first analysis can be observed in relation to the variables *WD-%* and *WSumCog*: the variable *WD-%* presented higher means in the group of students without ideation, and *WSumCog* presented higher means in the group with ideation. Within the variables of the Perception and Thinking Domain, *FQu%* showed trend toward statistical significance; however, it was not taken into account for the analysis given the low reliability of this variable in this study, possibly because part of this type of response belonged to objects that are not included in the form quality lists of the R-PAS.

Students who had thought about killing themselves in the previous six months showed greater concerns about the body or even vulnerability in body image or psychic aspects (anatomy responses, *An*). It can be observed that both groups are above the range expected in the normative sample (*An* percentile 75 = 2.0), which leads us to think that the entire group of students presents concerns with the body or psychic vulnerability, and more markedly in those students with active suicidal ideation. The *AGC* code is significantly higher in the group of students with ideation, which is also increased when compared with the normative sample (M = 3.1; SD = 1.9; percentile 75 = 4.0). With regard to *AGC*, it can be assumed, then, that suicidal ideation is related to aspects of aggressiveness, and this increase in *AGC* can either refer to the desire for suicide, which is a self-aggressive act, or to the fear of performing such act. This idea is reinforced by the fact that it is an increased variable both in the protocols of students with more immediate suicidal ideation in the previous 30 days and in those with ideation in the previous six months. In addition, for this second analysis, it is the variable that presented the most significant statistical difference ($p \leq$ 0.001 and large effect size) and may be a more representative marker of this difference between the groups.

The variables *m* (inanimate movement), *PPD* (potentially problematic determinants), *YTVC'* (diffuse shading, texture, vista, and achromatic color determinants) and *mY* (inanimate movement and diffuse shading determinants) are all related to determinants indicative of distress, both chronic and related to situational stressors (*m*, *mY*). All have higher averages in

the group of students with ideation, which can be an important factor for them to have this type of thought. Accordingly, the Suicide Concern Composite is calculated with the variables *V* (vista determinant), *FD* (form dimension determinant), *CBlend* (color shading blends), reflection determinant and pair, *MOR* (morbid content), complexity, *PPD*, color responses, *FQo%* (percentage of form quality ordinary), space responses, popular and whole human content. It is a measure of the risk of suicide and self-destructive behavior and may be, from a psychic point of view, related to feelings of despair. The group of students with suicidal ideation had significantly higher *SC-Comp* compared with the group without ideation, which also denotes more distressing feelings in that group. However, for *SC-Comp*, both groups have values within the range expected for the normative sample ($M = 4.7$; $SD = 1.4$; percentile 75 = 5.6). In any case, it is possible to think that *SC-Comp* seems to be a measure sensitive to aspects related to suicide, since we are studying students with and without suicidal ideation, who did not act on the ideation by making an attempt; although it is a subtle difference between the two groups, of suicide restricted to thoughts and without behaviors, the composite was able to capture the difference between the groups.

The variable *MC-PPD* is an equation calculated with the sum of the human movement and chromatic color determinants (*MC*), subtracting the potentially problematic determinants (*PPD*). It represents a measure of the ideational and affective resources (*MC*) in relation to the distress experienced by the person. The lower the value of the equation, the more distressing feelings invade the person, which decreases the ability to cope with everyday events. In the samples analyzed, the group of students with ideation has a lower *MC-PPD* than the students with suicidal ideation, which could also indicate a lower coping and handling capacity of the group of students with ideation, generating a predisposition to suicidal thought. And, finally, critical content (*CritCont%*) also increased in the group of students with ideas of suicide also in relation to the normative sample ($M = 20.4$; $SD = 13.5$; percentile 75 = 28.0), which indicates the possible presence of traumatic experiences and/or primitive thoughts in this group. This refers to the possibility of trauma and dissociation and to the presence of little precise or primary cognitions that can generate censorship failures such as occurs in psychotic and borderline states. A third hypothesis that could be interpreted from the increase in the *CritCont%* variable would be that of malingering, which occurs when people want to exaggerate symptoms in Rorschach. However, as the students evaluated were in the context of research within a service in which they sought help due to mental health issues, they would be unlikely to be interested in faking symptoms or psychopathologies.

It is notable that there were more variables with statistically significant differences in the comparison of the groups in the second analysis. This could be explained according to the nature of the Rorschach method, which captures not only situational characteristics of a person's psychic state, but of a stable functioning. The SRQ-20 evaluates the presence of ideation in the previous 30 days, and the C-SSRS, in the last six months; thus, we can assume that those who scored by the C-SSRS had thoughts of suicide for a longer period and then more stable, which led to greater differences in functioning that could be captured by the Rorschach method.

The increased distorted responses (*WD-%*) in the group of students without ideation, which goes against the initially raised hypotheses of greater distortion in the group of students with ideation, could be the result of greater defense of the group of students with ideation. This hypothesis can be reinforced by the increased *Pr* in the group of students with ideation: this group needed to be more stimulated to give more answers, perhaps because they tried to suppress the distorted answers they could have given. In addition, they also had fewer card turning (*CT*) behaviors, which could be a result of greater behavioral rigidity and, therefore, less flexibility. However, for these students, the difficulties related to the cognitive aspects ended up being shown in the conceptualization of the responses that were not suppressed, through the increased *WSumCog*. Thus, they appear to have managed to defend themselves by suppressing distorted responses, but have failed to defend themselves from revealing ideational problems through the responses of severe cognitive codes.

It can be observed in the group of students with suicidal ideation in the previous six months the predominance of variables related to the Stress and Distress Domain and, even variables that are outside this domain, can be referred to the presence of distress. The variable anatomy contents, although related to the Representation of Self and Others Domain, contains characteristics of concerns about one's own body, illnesses or psychic vulnerability that are possibly burdened by distress. The permanence of distressing living experiences in conjunction with the presence of disorganized thoughts could be associated with thoughts of suicide as an unusual reasoning to deal with the distress they feel. This hypothesis is consistent with the studies of Holdaway et al. (2018), Liu et al. (2019), and Sousa et al. (2021), in which there was an association of stress symptoms with suicide ideation and attempts. Three of the four signs cited by Zare et al. (2022) were not confirmed in this study, which in the R-PAS can be seen by the variables *CT*, *CBlend*, and *MOR*. Transparency responses were not individually analyzed, being part of the *FAB2* cognitive code, which is included in the calculation of the variables *EII-3*, *TP-Comp*, *WSumCog*, and *SevCog*.

In summary, the variables *WSumCog* and *AGC* were the most significant to delimit the differences between students with suicidal ideation and students without suicidal ideation. It is concluded that, for this sample, suicidal ideation seems to result from the combination of rational and emotional aspects, that is, the way they think about dealing with this overflow of negative and distressing feelings. Thus, it is understood that these are students who experience a great burden of these negative feelings, to the extent of thinking that there is no other way out of suffering but death. Having a service to care for students and so they are listened to can be essential in reducing distress and, consequently, preventing suicides. The

main limitation of the present study would be the small sample, whose collection was hindered by the pandemic period and, therefore, care should be taken so as not to generalize results and hypotheses; in addition, the sample was restricted to public university students, but very significant from the perspective of the complexity of the human living experience, since they represent a universal issue of youth (Akram et al., 2020; Costa et al., 2019; Ramírez et al., 2020). Studies involving persons belonging to other times of the life cycle and other cultures would be necessary to determine if this understanding could be extended to other groups.

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