Research Article

Association between Mindfulness, Impulsivity, and Neuropsychological Measures in a Non-Clinical Population: A Correlational Study

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This study investigated the associations between mindfulness, impulsivity, self-compassion, psychological well-being, and neuropsychological functioning in a non-clinical sample of Brazilian university students. An exploratory cross-sectional design was used with 84 participants who completed validated self-report instruments and a neuropsychological test battery assessing attention, working memory, and executive function. Strong negative correlations were found between mindfulness and all subtypes of impulsivity, especially attentional impulsivity. Mindfulness also correlated positively with self-compassion and negatively with symptoms of anxiety and depression. Weak but significant associations were observed between mindfulness and neuropsychological performance, particularly in tasks involving attention and working memory. A regression model identified attentional impulsivity, anxiety, and select cognitive measures as predictors of mindfulness levels. These findings reinforce the inverse relationship between mindfulness and impulsivity and suggest a possible association between mindfulness and executive performance even in healthy individuals. By examining these constructs in a Brazilian context, the study contributes to the ecological validity of previous findings and emphasizes the relevance of culturally informed research on mindfulness and self-regulation.

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1. Introduction

Impulsivity is an important symptom of several psychiatric disorders, including pathological gambling[1] binge eating[2], borderline personality disorder, attention-deficit hyperactivity disorder, anti-social disorder[3], and alcohol and drug misuse[4][5][6]. The trait of impulsivity is predictive of several alcohol-related risks and motoring outcomes such as driving errors, violations, and traffic collisions among college students[7][8].

One of the most popular definitions of impulsivity is "a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individuals or to others"[9]. [10] suggested a three factor model: factor I – attentional impulsiveness (characterized by a difficulty in focusing on a task and quick decision- making); factor II – motor impulsiveness (characterized by low impulse inhibition and acting on the spur of the moment); and factor III – non-planning impulsiveness (characterized by behaviors directed to the moment without carful thought of the consequences and little planning or thinking before acting).

It is known that there are correlations between the operating of neuropsychological functions, especially executive functions (EFs) and impulsivity. In a study by Fino et al.[11] EFs were predicted by impulsivity and inhibitory control in adolescents in a structural equation model. [12], in their neuroimaging study, found that impulsivity and inhibition control are regulated in the same brain area, the prefrontal cortex, and Ochoa et al.,[1] noted the association between decision-making in pathological gambling, impulsivity, and EFs. Studying the relations between the sub-traits of Barratt Impulsiveness Scale-11 (BIS-11)[10] and executive processes, KAM and colleagues[13] suggest that different sub-traits of impulsivity relate to different executive processes. In Keilp et al.,[14] study, there was evidence of correlations among impulsivity ratings and EF measures and fluency, although the correlations were strongest for performance in a specialized impulsiveness task. Correlations were also seen among EFs and impulsivity in women who binge eat[2].

Interventions to cope with impulsivity are associated with its biological, social, and psychological etiologies. Among many diverse treatments, mindfulness based interventions (MBI) are being seen as a possibility to treat disorders that involve impulsivity.

Mindfulness is an inherent state of consciousness that involves attention and being aware, and differs from individual to individual[15]. Kabat-Zinn[16] explains that mindfulness consists of the process of

observing body and mind, allowing experiences to be as they are, and allowing the self to be in the present moment exactly as it is, without trying to change anything. According to the purposes of this study, the concept of mindfulness will be used as seen by western psychology, in which mindfulness is a metacognitive skill[17].

There is evidence that mindfulness is correlated with positive psychological effects, including reduced psychological symptoms and emotional reactivity, an increase of subjective well-being, and improved behavioral regulation[18]. Murphy and MacKillop[5] investigated the interrelationships between impulsivity, mindfulness, and alcohol misuse and showed that the associations among mindfulness and alcohol consumption were entirely a function of impulsivity. Christopher et al.,[4] presented similar results referring to these same variables and suggested that having a disposition toward mindfulness may be a protective factor. Peters et al.[19] presented evidence suggesting that mindfulness skills could relate to the capacity of avoiding maladaptive impulsive behaviors and that specific mindfulness skills could be helpful in addressing some specific types of impulsive behaviors, or even in preventing some types of impulsive behaviors.

However, the majority of this evidence has been produced in Western, English-speaking, high-income countries—often involving clinical or treatment-seeking populations. Cultural factors are known to shape how mindfulness and self-regulation are practiced, understood, and internalized, which may influence the strength and nature of observed associations. In Latin countries, for example, social norms, religious influences, and public health structures differ substantially from those in the Anglo-American context, potentially affecting both the adherence to and impact of mindfulness practices[20]. These contextual elements justify the need to investigate how dispositional mindfulness relates to impulsivity and cognitive functioning in underrepresented cultural settings, such as Brazil.

Furthermore, many prior studies have focused primarily on self-report measures. While valuable, self-reports are subject to biases and do not capture performance-based indicators of cognitive functioning. By integrating psychometric assessments with neuropsychological tests, the present study contributes methodologically to a more comprehensive understanding of how mindfulness and impulsivity relate to executive and attentional functions.

Therefore, this study aims to evaluate the associations between levels of mindfulness, impulsivity, and cognitive performance in a Brazilian sample of healthy university students. Based on the literature presented, the hypotheses were that a strong negative relation between mindfulness and impulsiveness

would be found, and a positive association between mindfulness and well-being, and correlations concerning levels of mindfulness and neuropsychological measures.

2. Materials and methods

The present study was an exploratory cross-sectional and analytical study that evaluated the correlations among levels of mindfulness, self-compassion, psychological well-being, impulsivity, and neuropsychological measures in 84 healthy university students. This was a purposive sample from the baseline of a randomized controlled trial.

2.1. Participants

A total of 84 participants (85.7% female, 14.3% male), ranging in age from 19 to 44 years (M = 28.01; SD = 6.953) voluntarily applied for the research through e-mail. The research was publicized online on social networks, and by flyers in the university. A triage using the Goldberg Health Questionnaire (GHQ-12) [21] was made to guarantee healthy individuals. Institutional ethics approval was obtained and participants provided informed consent. The inclusion criteria were being from 18 to 45 years, having Brazilian Portuguese as mother language, being a university student (of any course), not having any psychiatric or organic pathology, not being a neurological or neuropsychological patient. The exclusion criteria were the GHQ-12 results, and having experience with neuropsychological tests.

2.2. Measures

Self-report questionnaires were used to assess the levels of impulsivity, mindfulness, self-compassion, and psychological well-being (symptoms of depression and anxiety). Neuropsychological tests were used to assess attention, executive function (inhibitory control), and working memory functioning.

The questionnaires used on the study were the following:

- *Mindful Attention Awareness Scale (MAAS)*[22]: developed by [15], which assesses levels of mindfulness through a 15 item questionnaire on a Likert scale. The Cronbach alfa was 0.83 for the Brazilian scale adaptation.
- *Barratt Impulsiveness Scale (BIS-11)*[23]: evaluates the levels of impulsiveness according to Barratt's impulsivity theory[24], dividing it into three subtypes of impulsiveness (attention, motor, and non-planning).

- *Beck Depression Inventory (BDI)*[25]: was used to investigate possible symptoms of depression. Its Cronbach alfa was 0.82.
- *Beck Anxiety Inventory (BAI)*[25]: was used to evaluate possible anxiety symptoms with the Cronbach alfa for a university student sample being 0.87.
- *Self-Compassion Scale (SCS)*[26]: was developed by [27] and investigates the levels of self-compassion, an aspect of mindfulness. It divides the self-compassion construct into six subtypes: self-kindness (characterized by being gentle toward one's self and comprehensive); self-judgment (not being excessively critical and judgmental toward one's self); common humanity (to see one's personal experience as something shared with other human beings); isolation (to not see one's separation, isolation, or difference from other human beings); mindfulness (to relate to feelings or thoughts with awareness); and over-identification (to not identify one's self with feelings or thoughts). The Cronbach alfa of the Brazilian version was 0.92.

The neuropsychological tests used in the study were:

- *Digits* subtest from the *Wechsler Intelligence Scale for Adults (WAIS-III)*[28]: evaluates attention and working memory.
- *STROOP Test*[29]: evaluates the EFs, specifically attention and inhibitory control.
- *Rey Auditory Verbal Learning Test (RAVLT)* [30]: evaluates memory and learning.
- *Attention Psychological Evaluation Battery (BPA)*[31]: is an instrument that evaluates attention dividing it into three types: concentrated attention (or sustained attention); alternated attention (ability to switch attention between stimuli); and divided attention (ability to pay attention to two or more stimuli at the same time).
- *Trail Making Test (TMT)*[32]: evaluates attention and executive function.
- *Five Digits Test (FDT)*[33]: evaluates EFs (inhibitory control, cognitive flexibility, and processing speed).

2.3. Procedures

All participants completed a demographic survey and the self-reported measures online a maximum of one week before the neuropsychological testing. All the neuropsychological evaluations were conducted in a silent room with only the participant and the evaluator present. All participants received a report with their results at the end of the research.

3. Results

The sample was composed with 59.5% from college and 40.5% from post-graduation courses (16.7 specialization, 11.9% master, 7.1% PhD, 4.8% post-PhD).

3.1. Data Analysis

The results were analyzed using IBM SPSS software. This involved descriptive analysis of the demographic data. The relationships among the variables of interest were assessed by Spearmen correlations. A linear regression model was used to explain the mindfulness variable.

3.1.1. Associations between the self-reported measures: mindfulness, self-compassion, impulsiveness, anxiety, and depression

Table 1 presents descriptive statistics for the BIS-11, MAAS, SCS, BAI, and BDI. The correlations of all these variables with the MAAS and BIS-11 scores are also shown.

Self-Reported Measures	MAAS	BIS-11 total	BIS Non-Planning	BIS Attention	BIS Motor
	R (p)	*R* (p)	*R* (p)	*R* (p)	*R* (p)
MAAS					
BIS –Total	**-0.55** (***p*<0.001**)				
BIS Non-Planning	**-0.41** (***p*<0.001**)	**0.86** (***p*<0.001**)			
BIS Attention	**-0.55** (***p*<0.001**)	**0.67** (***p*<0.001**)	**0.36** **(0.001)**		
BIS – Motor	**-0.36** **(0.001)**	**0.82** (***p*<0.001**)	**0.66** (***p*<0.001**)	**0.31** **(0.004)**	
SCS total	**0.43** (***p*<0.001**)	**-0.27** **(0.013)**	-0.19 (0.070)	**-0.49** (***p*<0.001**)	-0.01 (0.895)
SCS isolation	**0.38** (***p*<0.001**)	**-0.25** **(0.021)**	-0.19 (0.082)	**-0.45** (***p*<0.001**)	-0.02 (0.837)
SCS Com. Humanity	**0.29** **(0.006)**	-0.23 (0.36)	-0.15 (0.165)	**-0.34** **(0.001)**	-0.08 (0.420)
SCS Over-identification	**0.37** (***p*<0.001**)	**-0.27** **(0.012)**	-0.17 (0.118)	**-0.46** (***p*<0.001**)	-0.07 (0.479)
SCS Mindfulness	**0.48** (***p*<0.001**)	**-0.38** (***p*<0.001**)	**-0.31** **(0.003)**	**-0.51** (***p*<0.001**)	-0.13 (0.210)
SCS Self-Judgment	**0.28** **(0.010)**	-0.15 (0.17)	-0.07 (0.478)	**-0.37** (***p*<0.001**)	0.02 (0.791)
SCS Self-Kindness	**0.41**	-0.17	-0.12	**-0.43**	-0.10

Self-Reported Measures	MAAS	BIS-11 total	BIS Non-Planning	BIS Attention	BIS Motor
	R (p)	*R* (p)	*R* (p)	*R* (p)	*R* (p)
	(*p*<0.001)	(0.110)	(0.263)	**(*p*<0.001)**	(0.348)
BAI	**−0.52** **(*p*<0.001)**	**0.30** **(0.005)**	0.20 (0.062)	**0.49** **(*p*<0.001)**	0.10 (0.342)
BDI	**−0.47** **(*p*<0.001)**	**0.33** **(0.002)**	**0.28** **(0.009)**	**0.49** **(*p*<0.001)**	0.06 (0.540)

Table 1. Correlation between self-reported measures.

Strong and negative correlations were seen between levels of mindfulness (MAAS) and all subtypes of impulsiveness measured by BIS-11 ($-0.55 < r < -0.36$; $p < 0.001$), and between the BIS-11 total score and MAAS ($r = -0.55$; $p < 0.001$), suggesting that those who have a higher level of mindfulness tend to be less impulsive generally. The strong and negative correlation between the level of mindfulness (MAAS) and the attention impulsiveness subtype suggests that those who have a higher level of mindfulness tend to be less impulsive when making decisions and are more capable of keeping attention on the task in hand. The same association was seen among the mindfulness subtype of the SCS which was negatively correlated with the BIS-11 total score and with two subtypes of impulsiveness (attention and non-planning), reinforcing the correlations found between MAAS and BIS-11 scales.

As expected, there were several correlations among the mindfulness scale (MAAS) and the SCS, as they are a linked construct. Additionally, there were negative and strong correlations among the mindfulness scale (MAAS) and the anxiety ($r = -0.52$; $p < 0.001$) and depression ($r = -0.47$; $p < 0.001$) inventories.

3.1.2. Correlations between impulsiveness, mindfulness, self-compassion, and neuropsychological measures

The statistically significant correlations ($p < 0.05$) found among the neuropsychological results and the mindfulness, impulsiveness, and self-compassion measures are shown in Table 2.

A weak but significant positive correlation was found between a working memory measure (RAVLT A6) and the mindfulness scale (MAAS) (r = 0.22; p = 0.03). There was also a weak but significant negative correlation between the number of mistakes on the TMT B and the mindfulness scale (MAAS) (r = −0.22; p = 0.003), suggesting that those who have higher levels of mindfulness tend to make fewer mistakes on this kind of task. A similar negative correlation was found among the number of mistakes on the STROOP task 2 and the SCS subtypes. Another similar weak and negative correlation was seen among the time on FDT and the “isolation” aspect of the SCS.

		BIS Total score	BIS Attention	BIS Motor	BIS Non-Planning	MAAS	SCS Total	SCS Over-Identification	SCS Isolation
RAVLT A6	*R* (p)					0.22 (0.03)			
TMT B ER	*R* (p)					-0.22 (0.03)			0.25 (0.02)
STR 2 TMP	*R* (p)							-0.22 (0.03)	
STR 2 ER	*R* (p)						-0.23 (0.03)	-0.33 (0.002)	
STR 3 ER	*R* (p)								0.21 (0.05)
BPA CON OM	*R* (p)	-0.33 (0.002)	-0.23 (0.03)	-0.32 (0.002)*	-0.21 (0.50)				
BPA ALT OM	*R* (p)	-0.21 (0.04)		-0.21 (0.04)					
FDT Choic Err	*R* (p)				-0.22 (0.03)				
FDT Choic Time	*R* (p)							-0.23 (0.02)	-0.28 (0.009)
FDT Count Time	*R* (p)							-0.25 (0.02)	

		BIS Total score	BIS Attention	BIS Motor	BIS Non-Planning	MAAS	SCS Total	SCS Over-Identification	SCS Isolation
FDT Read Time	*R* (p)							-0.26 (0.01)	

Table 2. Correlations among mindfulness (MAAS), self-compassion (SCS), impulsiveness (BIS-11), and neuropsychological measures.

Note: FDT Read Time = reading time of FDT in seconds; FDT Count Time = counting time at FDT in seconds; FDT Choic Time = FDT choice time in seconds; FDT Choic. Err = FDT choice errors; BPA ALT OM = omissions on BPA switching attention; BPA CON OM = omission on BPA concentrated attention; STR 3 ER = STROOP 3 errors; STR 2 ER = STROOP 2 errors; STR 2 TMP = STROOP 2 time in seconds; TMT B ER = errors on TMT B; RAVLT A6 = right answers on RAVLT A6.

Negative correlations appeared among the omissions number of the BPA sustained attention and all of the BIS-11 subtypes of impulsiveness, suggesting that those participants who had a higher level of impulsivity had fewer omissions on this task, achieving better results.

3.1.3. Linear regression model

A linear regression was made with the aim to explain the mindfulness measure (MAAS) through other measures. The results are shown in Table 3.

Model	R	R square	R adjusted square	Standard error estimated
1	.566[a]	.320	.312	.71139
2	.635[b]	.403	.388	.67073
3	.670[c]	.449	.428	.64829
4	.659[d]	.434	.420	.65295
5	.688[e]	.474	.454	.63371
6	.723[f]	.523	.498	.60736

Table 3. Linear regression model summed up.

a. *Predictors: (Constants), BIS Attention;*

b. *Predictors: (Constants), BIS Attention and BAI;*

c. *Predictors: (Constants), BIS Attention, BAI and BIS Total Score;*

d. *Predictors: (Constants), BAI and BIS Total Score;*

e. *Predictors: (Constants), BAI, BIS Total Score and TMT A Errors;*

f. *Predictors: (Constants), BAI, BIS Total Score, TMT A Errors and RAVLT Recognition.*

The linear regression showed that the best measure to predict mindfulness level (MAAS) was BIS-11 attention impulsiveness. As predicted, measures of anxiety also appeared as mindfulness level predictors,

as well as neuropsychological measures, such as TMT and RAVLT.

4. Discussion

The present study is unprecedented in Brazil. Its aim was to investigate the correlations among the levels of mindfulness, impulsivity, and neuropsychological measures in healthy college students. Importantly, this study was conducted within a cultural context that remains underrepresented in the literature. As noted by García-Campayo et al.[20], Latin American populations differ from those in Anglo-Saxon countries in several key domains that may influence the perception, practice, and effects of mindfulness —including religious values, health system structures, family roles, and emotional expression norms. Such cultural dimensions may shape both the construct of mindfulness and its behavioral correlates, such as inhibitory control and emotional regulation. In this sense, our findings offer ecologically valid data for the Brazilian context, contributing to the broader goal of culturally sensitive and inclusive research in mindfulness and behavioral science.

According with that predicted, strong and moderate negative correlations were found among mindfulness measures and impulsiveness measures, dialoging with the literature that points to negative correlations between these constructs[4][5][19], suggesting that those who have a higher level of mindfulness, tend to be less impulsive. These correlations were seen among all the subtypes of impulsiveness and were stronger between the mindfulness level measured by MAAS and the attention impulsiveness measured by BIS-11, associating the level of mindfulness and less difficulty in sustaining attention on a task and at the present moment, abilities that are already associated with mindfulness[34][22][17]. Both of these constructs, mindfulness and impulsiveness, share a focus on the present moment. However, the way of being in the present moment varies significantly between them[5]. Mindfulness, associated with attentional control and emotional regulation[17][35], may be a protective factor referring to impulsiveness[4], creating the possibility of a higher awareness of thoughts and feelings, and benefiting the relationship between those by developing a non-identification with them, promoting, thus, a space between the stimuli and action[34][22], giving one a better choice opportunity. In this way, it is believed that non-identifying with thoughts and feelings by being aware of them, may enable one to improved impulse control, inhibitory capacity, and decision-making ability. Therefore, according to[5], the level of mindfulness should be investigated when impulsivity is one of the main issues. Mindfulness and impulsivity are complex constructs and comprehension of them may grow in future studies with the use

of other scales, such as Five Facets Mindfulness Questionnaire Scale (FFMQ)[36] and the Impulsive Behavior Scale (UPPS-P)[37].

In agreement with that discussed, the correlations among levels of impulsiveness and self-compassion, suggesting that individuals who have higher levels of self-compassion tend to have lower levels of attention impulsiveness (r = -0.49; p < 0.01), may be aspects that also can be interpreted as protective. Since self-compassion, and all of its subtypes, are very close to the concept to mindfulness, and are related to a better relationship with one's self, it can be hypothesized that the self-compassion construct may relate to impulsiveness in the same way as mindfulness. Furthermore, it is assumed that the abilities associated with self-compassion, such as being gentle toward one's self and relating to thoughts and feeling without identifying with them, can benefit emotional regulation when it comes to reacting to negative stimuli, lowering the need to behave impulsively to avoid them.

The results are similar to that found in the literature when it comes to correlations between levels of mindfulness and anxiety (r = -0.52; p < 0.001) and depression (r = -0.47; p < 0.001)[15][38], reinforcing that those who have a higher level of mindfulness, being more aware of thoughts and feelings, and relating to them without identifying with them, tend to have lower levels of depression and anxiety.

Different from that predicted, the correlations found among the neuropsychological results and the self-reported measures were weak, even if significant. In contrast to that found by Keilp et al.,[14], who found weak but significant correlations between the TMT B (r = 0.26; p < 0.05) and BIS-11, this study did not find significant correlations between these two measures (r = 0.017; p = 0.87). The two studies are similar, referring to the STROOP task results, which were not significant in either of them (r = -0.13 in the present study, and r = -0.16 in Keilp and colleagues' study). In the present study, however, a weak significant correlation was found among the non-planning impulsiveness and the number of errors on the choice of FDT (r = -0.22; p < 0.05), an executive measure, indicating a possible relation between this ability and the executive capacity related to it, in agreement with that shown in the literature[39].

Some unexpected and curious results were found negatively correlating all of the impulsiveness subtypes and the number of omissions of the BPA test. Although they were weak and modest correlations (r varying from -0.33 to -0.21; and p varying from 0.001 to 0.05), they still draw attention by their frequency, suggesting that a higher level of impulsivity in those people is associated with a better result in a attention subtest, in other words, individuals with higher levels of impulsivity made fewer mistakes by omission. It is possible to hypothesize that, in those people, impulsiveness can act in a pre-alert way

that protects them from mistakes by omission, but it is not high enough to make them have a low inhibitory control, since they do not have a pathological impulsivity.

It is seen in the literature that higher levels of mindfulness are associated with better cognitive functioning[40][41][42]. As predicted, there correlations were found among levels of mindfulness and neuropsychological results. However, different from that imagined, these correlations were weak or modest ($\pm 0.21 \leq r \geq \pm 0.33$). A negative correlation was found among level of mindfulness (MAAS) and the number of errors of TMT B ($r = -0.22$; $p < 0.05$), suggesting that a higher level of mindfulness may be a protective factor for these types of mistakes that involve attention and executive functioning. However, these results should be carefully interpreted since they are weak correlations. In the same way, a positive correlation was found between the RAVLT A6, which requires attention and working memory, with levels of mindfulness ($r = 0.22$; $p < 0.05$), suggesting a better working memory associated with a higher mindfulness level.

Modest and weak correlations among neuropsychological measures and the subtypes of self-compassion, especially the over-identification subtype, related to non-identifying one's self to thoughts and feelings, and the measures of FDT and STROOP task, tests that evaluate the same cognitive functions: the EFs, attention, and inhibitory control, were also found. Even though these correlations were modest and weak, they were statistically significant and may suggest the hypothesis that the ability of non-identifying with thoughts and feelings, seeing them as mental events, and being able to "stop" ruminative thinking, without losing one's self to thoughts, can develop a metacognitive capacity related to attention, which beneficiates the executive process. Reinforcing these results and hypotheses, moderate correlations among the same subtype of self-compassion and results from the STROOP task 2, which also involve attention, were found.

Adding to the previous results and according to literature, the linear regression also showed an important association between the mindfulness construct and the impulsiveness construct, when it pointed to the attention impulsiveness as the best variable to predict the mindfulness level measured by MAAS. Additionally, it is important that the linear regression also points to neuropsychological results (TMT and RAVLT) to predict mindfulness levels, pointing, once again, to the association between these functions (attention, working memory) and mindfulness.

In relation to practical matters, the results of the present study reinforce the potential contribution of mindfulness practices to health in the college environment. Mindfulness practices, besides promoting

well-being and stress reduction, may have an effect on impulsivity and risky behaviors, as suggested in others studies with the same population[43][6].

5. Limitations

Although this study provides valuable insights into the associations between mindfulness, impulsivity, and neuropsychological functioning in a Brazilian non-clinical sample, several limitations should be acknowledged.

First, the sample size was modest (N = 84), which limits statistical power and the generalizability of the findings. Additionally, the sample was predominantly composed of female participants (85.7%), which may have introduced gender-related biases. Future studies should strive for more balanced and representative samples to explore potential sex-based differences in these psychological constructs.

Second, while widely used and validated, the neuropsychological instruments employed in this study were originally developed for clinical assessments. As such, they may lack sensitivity to detect subtle cognitive variations in healthy populations. The weak magnitude of some correlations observed may reflect this limitation. The use of more nuanced or ecologically valid neurocognitive measures—such as computerized reaction time tasks or process-oriented assessments—could enhance the sensitivity of future studies in non-clinical samples.

Third, the cross-sectional design precludes any causal inferences. Although mindfulness was found to be associated with lower impulsivity and better performance on some cognitive tasks, the directionality of these relationships remains unclear. Longitudinal and experimental studies are necessary to explore causal mechanisms.

Finally, the study relied on psychometric instruments that, although adapted and validated for Brazilian Portuguese, are still embedded in theoretical frameworks developed in Anglophone cultural contexts. While this does not invalidate their use, it does raise important questions about conceptual equivalence and cultural appropriateness. As noted by García-Campayo et al.[20], Latin populations may engage with mindfulness and compassion-based constructs in culturally specific ways that are not fully captured by existing measurement tools. This highlights the need for the development and validation of culturally sensitive instruments that reflect local understandings of mindfulness, impulsivity, and self-regulation.

Despite these limitations, this study offers a valuable contribution by providing empirical data from an underrepresented context and by reinforcing the importance of cultural variability in psychological

research. These findings serve as a foundation for future investigations into the interplay between mindfulness and executive functioning in Latin American populations.

6. Conclusion

This study identified significant negative correlations between dispositional mindfulness and all dimensions of impulsivity, as well as modest but meaningful associations between mindfulness, self-compassion, and selected neuropsychological measures in a non-clinical Brazilian university sample. These findings reinforce the hypothesis that mindfulness functions as a protective factor in the regulation of impulsive traits and in cognitive performance related to attention and executive functioning.

While the strength of the neuropsychological correlations was limited, the integration of both self-report and objective cognitive data contributes to a more comprehensive understanding of the multifaceted nature of mindfulness. Moreover, the cultural context in which this study was conducted is a critical element of its contribution. Given the specific sociocultural factors that shape how mindfulness and emotional regulation are perceived and practiced in Latin countries—such as religious values, family dynamics, and healthcare structures—this study offers culturally grounded evidence that complements and extends findings from previous research in high-income, English-speaking populations.

From a scientific standpoint, the current results highlight the importance of replicating and testing established psychological relationships in diverse populations. As emphasized in the philosophy of science, the strength and validity of psychological constructs grow through empirical accumulation across contexts, rather than through isolated novelty.

Future research should expand on these findings using larger, more diverse samples and culturally sensitive assessment tools, ideally combining longitudinal designs with intervention studies. Additionally, the development and validation of mindfulness measures tailored to Latin American cultural contexts remains a critical direction for advancing both theoretical understanding and practical application of mindfulness-based interventions in the region. By addressing these needs, future studies can help foster a more inclusive and globally relevant evidence base on mindfulness, impulsivity, and cognitive functioning.

Statements and Declarations

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