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Why people think they procrastinate? A study on adults from Buenos Aires with the General Procrastination Scale

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Abstract

Procrastination is a common behavior involving the deliberate postponement of tasks, even when one foresees negative consequences. This behavior is also influenced by a person's mindset and beliefs, including views on success, failure, self-worth, instant gratification, and task importance. The aim of this study was to adapt and validate the General Procrastination Scale (GPS) to Argentinean population and explore the primary reasons people believe lead to procrastination. A total of 276 adults (52% females, 45% males, and 3% non-binary) (Mage = 32.64, SD = 11.34) took part in an online questionnaire-based study. A series of Confirmatory factor analysis resulted in a good fit for a single-factor model ($\chi 2/df$ = 1.58, CFI = 0.98, TLI = 0.98, RMSEA [CI 95%] = 0.05 [0.04, 0.06], SRMR = 0.07) with an adequate internal consistency (Omega = 0.88 [95% CI = 0.86, 0.90], Cronbach´s α = 0.89). Content validity yielded satisfactory results for coherence (0.95), relevance (0.88) and clarity (0.77) dimensions of the GPS. Further, face validity on pilot study indicated an acceptable comprehensibility and clarity by the respondents. Chi-square tests revealed significant associations between demographic data and procrastination reasons. Additionally, trait procrastination was higher in participants that agreed on feeling overwhelmed, fearing of failure and unpreparedness, poor time management skills, boredom and lack of motivation as reason to procrastinate. These findings have relevant practical implications, particularly in assessing trait procrastination. Exploring the reasons behind task delay enhances our understanding of the causes, offering valuable insights for developing effective interventions and treatments tailored to individual needs.

Keywords: trait procrastination, GPS, individual differences, Argentina

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Introduction

Procrastination is a common behavior where individuals intentionally delay tasks despite knowing the negative consequences associated with it (Steel, 2007). The adverse effects of procrastination have been extensively documented and comprises different areas of life (Milgram et al., 1988; Unda-López et al., 2022) and its complexity should not be reduced to pure laziness (Snehitha et al., 2021; Steel et al., 2001). Nowadays there is access to multiple distractors that, in the end, makes it even more difficult to brake from a cycle of distraction, search for immediate gratification, and more procrastination (Hofmann et al., 2009; Myrick, 2015; Wagner & Heatherton, 2015).

Several studies have highlighted the emergence of procrastination as a significant issue during the COVID-19 pandemic, with contextual factors like isolation measures contributing to increased procrastination in various areas such as academics, work, daily life, and health (Martín-Antón et al., 2023; Steel & Klingsieck, 2016; Van Eerde, 2003). Also, various affectations in the mental health of individuals were triggered exponentially during the pandemic related to depression, anxiety, and psychological distress (Unda-López et al., 2022). People had more time to think and contemplate things favoring rumination and constant worrying, which are the perfect recipe for procrastination.

The essence behind the procrastinator pattern has been thoroughly linked to self-regulatory failure (Steel, 2007, Svartdal & Løkke, 2022). Particularly, emotional regulation has been shown to play an important role on the extinguishing of this type of dilatory tendencies (Eckert et al., 2016; Sirois & Pychyl, 2013; Steel, 2007). Nonetheless, emotions are deeply connected to the way people think. For instance, the cognitive behavioral approach has constituted a large amount of evidence regarding the assumptions of belief systems operating from the base of many human conducts (Dryden & Neenan, 2004; Harrington, 2005). However, literature on the subject underscores the significance of comprehending the cognitive and metacognitive dimensions of procrastination. Furthermore, it sheds light on the existing knowledge gaps and the absence of precise information regarding how beliefs influence or regulate the cognitive processes in individuals who procrastinate (Fernie & Spada, 2008).

The elucidation herein underscores the evident necessity for apt instruments in evaluating procrastination within the broader populace. In this vein, the General Procrastination Scale (GPS), devised by Clarry Lay in 1986, emerges as a widely employed metric for appraising trait-based procrastination tendencies. According to Google Scholar, Lay's research on GPS has been cited over 1925 times as of October 2023. GPS was aimed at discerning individual variations in procrastination as the tendency to delay tasks essential for achieving specific goals. The GPS internal structure was originally conceived as a single-factor model, which was supported in the Spanish version (Díaz-Morales et al., 2006). Some researchers have reported a better fit for a two-factor model (Argiropoulou & Ferrari, 2015; Mariani & Ferrari, 2012), and some others have reported inadequate fit at exploring the psychometric properties of the GPS (Svartdal & Steel, 2017). A recent study found that a shorter 9-item version of the GPS had better psychometric properties than the original version (Sirois et al., 2019).

The aim of the present study was to adapt the GPS to Argentinian Spanish and collect evidence of its validity and reliability on local population. Moreover, different procrastination reasons among people were explored and their relationship with GPS score was also studied. Based on this information, the following hypothesis are formulated:

H1: The GPS in the Argentinian Spanish version exhibits adequate psychometric properties on individuals from the Metropolitan Area of Buenos Aires.

H2: Procrastination reasons are related to gender and age differently, so that men and younger individuals experience higher agreement on procrastination motives than females and older people.

H3: Men and younger people are more prone to present higher trait procrastination on the GPS than females and older individuals.

H4: Trait procrastination is associated to all procrastination reasons in way that individuals that score higher on GPS conjunctly report a higher agreement on procrastination motives.

Method

Ethical considerations

This study contemplated several principles of research ethics and followed the procedures recommended by the American Psychological Association (APA) and the Council for International Organizations of Medical Sciences (CIOMS) of the World Health Organization. This included the principles established by the Declaration of Helsinki, the Code of Ethics established by the National Council of Scientific and Technical Research (CONICET; Res. D No. 2857/06), and the National Law 25.326 of Argentina. Finally, the procedures described in this study were evaluated and approved by the ethics committee of the Pontifical Catholic University of Argentina (Research Protocol N° 10092).

Participants and procedure

Participants (n = 276) were adults that resided within the margins of Buenos Aires (M_{age} = 32.64; SD = 11.34). A 52% (n = 144) identified as females, 45% (n = 125) as males, and 3% (n = 7) as non-binary. From the total sample, 1.8% (n = 5) did not hold a secondary degree, 10.1% (n = 28) did report having a secondary studies degree, 38.4% (N = 106) had incomplete tertiary/university studies and lastly, a 49.6% (n = 137) held a tertiary/university degree. A convenience sample of adults were online assessed for the purpose of this study. Additionally, 75% (N = 207) indicated to be currently working, against 25% (N = 69) that were unemployed. Also, 63.8% (N = 176) were currently studying, while 36.2% (N = 100) were not engaged in any educational program. Data from

participants were collected through volunteer sampling via advertisements, e-mail, and social media contact. Participants had to be between the ages of 18 and 65, reside within the margins of Buenos Aires, and have internet connection and an electronic device (PC, Laptop, Cellphone, Tablet) that would allow them to connect to internet, and agreeing to participate in an online study by answering a series of questionnaires. The Principal Investigator (IP) of this study was designated to operate under the role of Social Networks Responsible (RSS), to respond to audits by the regulatory authority or Access to Information Agency and became responsible for safeguarding the identification code of all participants, including any participant that had contacted and expressly indicated that they did not want their response protocol to be analyzed in the study.

Firstly, the process involved adapting and linguistically revising the GPS under the guidance of the International Test Commission [International Test Commission, 2017], to create a suitable version for the local population. Initially, the original English scale was translated into Argentinian Spanish by three proficient psychologists with advanced English language skills. Both versions were then compared with the Iberian Spanish version of the GPS (Díaz-Morales et al., 2006) by the research center's team to ensure that the final version incorporated regional linguistic nuances and specificities. Additionally, to provide evidence for face validity, ten adults from the general population were assessed online using the initial GPS version to evaluate its clarity, comprehensibility, and item wording familiarity. Participants were also asked to express their perspectives on the scale's intended measurement, suggest item inclusions or eliminations, and offer any other relevant observations. Secondly, three clinical psychology and psychometrics experts assessed the scale for coherence, relevance, and item clarity using a dichotomic scale (Yes-No) and provide with any additional observations. Agreement among experts was measured using Aiken indices.

Measures

The order of the instruments administered in the present study was as follows:

Sociodemographic survey: participants completed a questionnaire that collected information such as age, gender, residence, level of education and occupational status.

General Procrastination Scale (GPS; Lay, 1986): a univariate 20-item scale developed to assess global, trait-like, tendencies to procrastinate different types of tasks (e.g., "I often miss concerts, sporting events, or the like because I don't around to buying tickets on time"; "I often have a task finished sooner than necessary"). Participants respond using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Participants respond using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Lay (1986) reported an adequate internal consistency of the scale with Cronbach alpha of 0.82), and a test-retest procedure that has yielded satisfactory evidence of the reliability of the scale (Steel, 2007).

Questionnaire on reasons to procrastinate: the question "Why do you think you take longer than necessary to complete a task?" was asked pertaining to why people think they would engage in procrastination. A series of six reasons were provided as follows: a) I feel overwhelmed; b) I am afraid to fail; c) I feel I don't have what it takes to do what is asked of me; d) It is very difficult for me to organize my time to do what I have to do; e) What I have to do bores me; f) I do not feel motivated. These options were created according to some previous studies (Fernie & Spada, 2008; Ferrari et al., 1995; Ferrari & Díaz-Morales, 2007; Howell & Buro, 2009; Lay, 1986, 1988; Saleem & Rafique, 2012). Participants responded using a dichotomous scale (Yes - No). Categories were abbreviated as follows: a) overwhelmed; b) failure; c) unprepared; d) time; e) boredom; f) motivation.

Data analysis

Descriptive statistics for items were estimated that included mean, standard deviation, skewness, and kurtosis. Data did not fit into normality assumptions (Kolmogorov-Smirnov tests); thus, non-parametric tests were used in this study. To test the association of each reason to procrastinate and the actual value of procrastination obtained in the adapted GPS, a series of chi-square tests of independence were conducted to assess the relationship between demographic data and procrastination reasons. All p values were adjusted with Bonferroni procedure to decrease type I error. To ensure that comparison groups were somewhat similar in size, non-binary cases were not included in this analysis, which was conducted with a total of 269 participants. Further, age was recoded into three categories: emerging adults (18-24 years, 26.4%, n = 73), young adults (25-44 years, 56.5%, n = 156), and middle-aged adults (45-65 years, 17%, n = 47). Spearman correlation was estimated to establish the relationship between GPS scores and age. Differences on trait procrastination for gender and age were estimated by U Mann-Whitney and Kruskal-Wallis tests, respectively. To test the single-factor GPS model a CFA was conducted implementing a robust mean-adjusted weighted least squares (WLSM) estimation method. Data did not fit multivariate normality assumption (Mardia´s test kurtosis = 10.92, p < 0.001). Considering the non-normality and ordinal nature of the data, and the reduced number of participants that constituted the final sample (around n = 200), WLSM was chosen as the estimation method due to its reported stability and precision in factor analysis compared to DWLS (DiStefano & Morgan, 2014). For model identification all parameters were set to load freely except for one item, which was fixed to 1. Model fit was evaluated through the standard indices, that is, the normed model chi-square ($\chi^2/df \leq 2.00$), comparative fit index ($CFI \geq 0.90$), Tucker-Lewis index ($TLI \geq 0.95$), root mean square error of approximation ($RMSEA \geq 0.06$) and its 90% confidence interval (CI), and standardized root mean square residual ($SRMR \geq 0.08$) and factor loadings above 0.30 (Marsh et al., 2004; Whitley & Kite, 2013). For internal consistency Cronbach´s Alpha and Omega with its 95% CI were estimated due to the use of ordinal data and the one single factor model. All the analysis were run on SPSS IBM® version .26 and R studio® version 2021.09.0.

Results

Content and face validity

Pertaining content analysis, all 20 items exhibited adequate values of Cohen´s Kappa coefficients, so that the dimension of coherence received a 0.95, relevance, a 0.88, and clarity, a 0.77. These results ensured the scale´s content validity within the aspects of items that assessed procrastination. Moreover, pilot study revealed a general good comprehension and acceptance of the scale; therefore, no further changes were made.

Internal factor Structure

A first CFA for the original one single factor was conducted and showed an overall good fit, with values close to what is suggested in the literature (χ^2/df = 2.23, *CFI* =0.95, *TLI* = 0.94, *RMSEA* [*CI* 95%] = 0.07 [0.06, 0.08], *SRMR* = 0.08). Nonetheless, item 1 ("I often find myself performing tasks that I had intended to do days before") did not surpass the minimum required for factor loading (< 0.30) for standardized parameters, which led to its removal. Later, a second CFA was conducted without this item. The results indicated a greater improvement of the model (χ^2/df = 1.58, *CFI* =0.98, *TLI* = 0.98, *RMSEA* [CI 95%] = 0.05 [0.04, 0.06], *SRMR* = 0.07). Fig. 1 displays all factor loadings for the final 19 items which were statistically significant (p < 0.001) and above 0.30.

Adequate levels of internal consistency were found for the Argentinian Spanish language GPS (alpha = 0.89, omega = 0.88 [95% CI = 0.86, 0.90]).

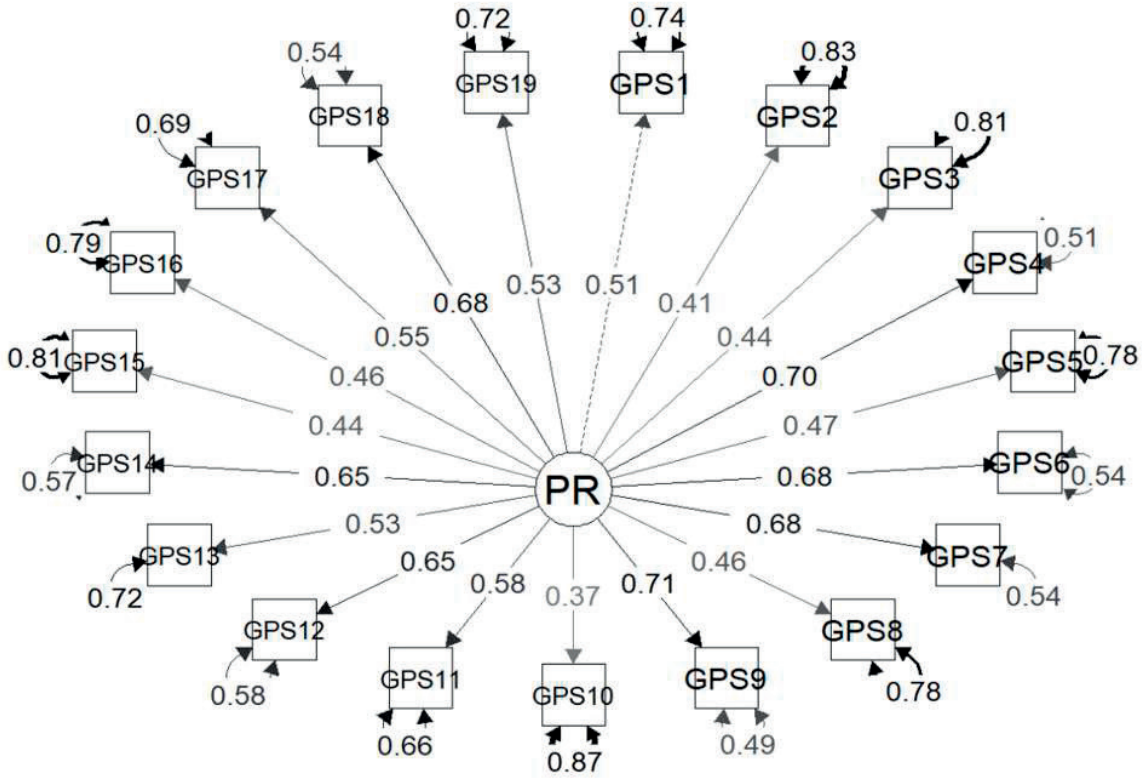
Procrastination reasons among participants

The distribution of responses for all the reasons contemplated to procrastinate can be appreciated in Fig. 2. In most categories, except for "motivation", participants were more likely to respond negatively to the item. Most contemplated reasons for participants to procrastinate were the following: a 52.2% exhibited an agreement on the lack of motivation (n = 145) being the reason they procrastinate, a 47.8% agreed on the feeling of being overwhelmed (n = 132), 39.5% considered that a task that is boring would lead them to procrastinate it more (n = 109), and lastly, a 30.1% considered that their poor time management skills was the reason behind their procrastination (n = 83). The remaining reasons reported a lower agreement, that is, experimenting a feeling of failure (27.2%, n = 75), and considering unprepared to finish a task (26.1%, n = 72).

Relationship between demographic data, procrastination reasons and GPS score

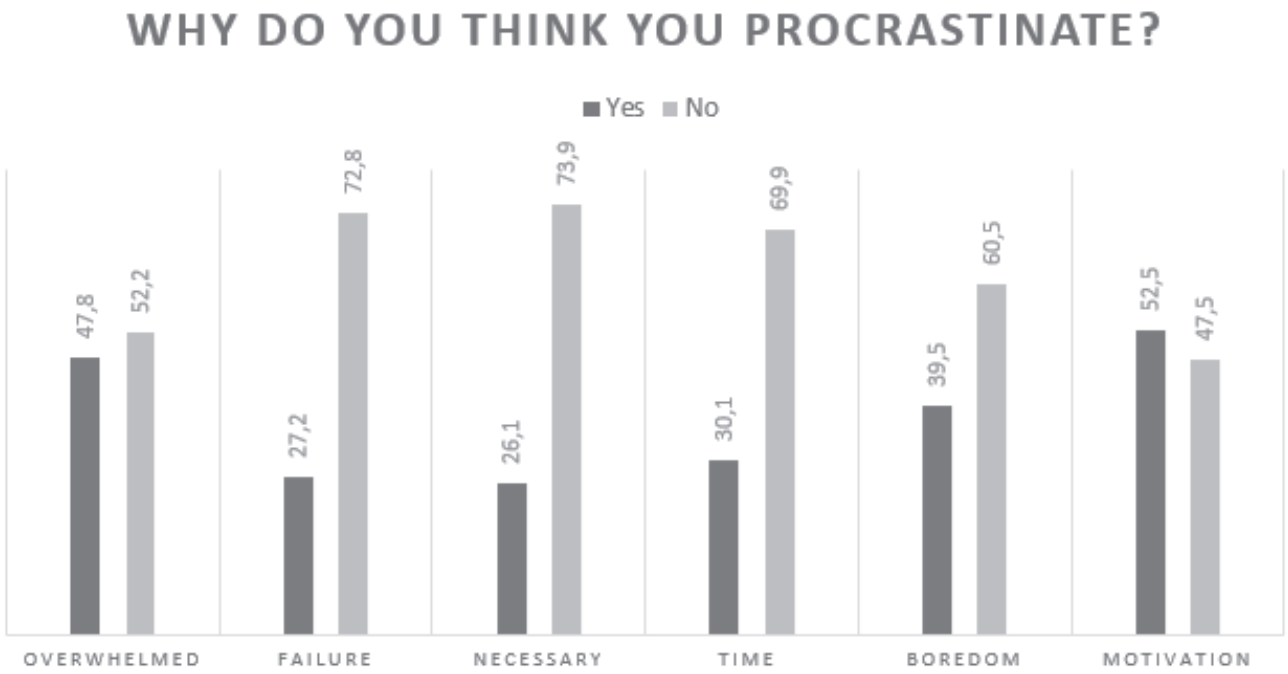
Table 1 shows frequency distribution among procrastination reasons according to demographic data (gender and age). Chi-square tests of independence showed that gender was associated

Fig.1. Confirmatory factor analysis of the re-specified single-factor model for the General Procrastination Scale (n = 276).



Internal consistency

Fig. 2. The frequency of response for each procrastination reason is expressed in percentages and based on a dichotomous response scale.



with feeling overwhelmed ($p_{adjusted}$ < 0.01) and boredom ($p_{adjusted}$ < 0.01). Women aligned more with experiencing overwhelmed as a procrastination motive (63% female; $p_{adjusted}$ < 0.01), while in men this was a negative association (37.01% male; $p_{adjusted}$ < 0.01). Being a male was positively associated with believing that boredom related to a task could lead to procrastination (61.2% male; $p_{adjusted}$ < 0.001) but was negatively associated with being a female (38.8%; $p_{adjusted}$ < 0.001). In the case of age, chi-square tests indicated that middle-aged adults were negatively associated to lack of motivation as a reason to procrastinate (6.9%, $p_{adjusted}$ < 0.001). There were no significant associations for emerging and young adults.

There were significant differences with a small effect size (< 0.50) on GPS score for all procrastination motives (see Table 2). Participants that agreed on the statement of why they would engage in procrastinating also scored significantly higher in trait procrastination. No differences were found for gender (U = 8185, p = 0.20; $M_{females}$ = 2.91; SD = .77; M_{males} = 3.05; SD = .68) and age groups ($\chi_{(2)}$ = 3.87, p = 0.14; $M_{emerging}$ = 3.08; SD = .82; M_{young} = 2.97; SD = .69; $M_{middle-aged}$ = 2.81; SD = .72) on procrastination. Nonetheless, GPS score and age exhibited a significant and negative association (rho = -0.18; p < 0.01).

Tab. 1. Demographic data across procrastination reason.

		Gender				Age					
		Female		Male		Emerging adults		Young adults		Middle-aged adults	
		n	%	n	%	n	%	n	%	n	%
Overwhelmed											
	Yes	80	63.0	47	37.0	43	32.6	68	51.5	21	15.9
	No	64	45.1	78	54.9	33	22.9	88	61.1	23	16
Failure											
	Yes	42	60.0	28	40.0	23	30.7	45	60.0	7	9.3
	No	102	51.3	97	48.7	53	26.4	111	55.2	37	18.4
Unprepared											
	Yes	40	58.0	29	42.0	20	27.8	46	63.9	6	8.3
	No	104	52.0	96	48.0	56	27.5	110	53.9	38	18.6
Time											
	Yes	48	61.5	30	38.5	24	28.9	47	56.6	12	14.5
	No	96	50.3	95	49.7	52	26.9	109	56.5	32	16.6
Boredom											
	Yes	40	38.8	63	61.2	30	27.5	69	63.3	10	9.2
	No	104	62.7	62	37.3	46	27.5	87	52.1	34	20.4
Motivation											
	Yes	67	47.5	74	52.5	44	30.3	91	62.8	10	6.9
	No	77	60.2	51	39.8	32	24.4	65	49.6	34	26.0

Tab. 2. Coefficients for U Mann-Whitney tests and effect size for GPS score among procrastination motives.

Dimensions	Comparing group (Mean values)		Mann-Whitney *U*	Effect size
	Group 1	Group 2		
Overwhelmed	2.82	3.15	7109**	0.252
Failure	2.86	3.29	5002**	0.336
Unprepared	2.88	3.24	5149**	0.299
Time	2.83	3.31	4945**	0.383
Boredom	2.89	3.10	7762*	0.147
Motivation	2.81	3.12	7226**	0.239

Note: $^{*}p < 0.05$; $^{**}p < 0.001$

Discussion

This study aimed to adapt and validate the General Procrastination Scale (GPS) for its use on adults from the AMBA (Metropolitan Area of Buenos Aires), and to explore the various reasons people believe lead them to procrastination. The need for valid measures to effectively assess this common phenomenon, which has a detrimental impact on people's lives and their surroundings, motivated the undertaking of this study. Consequently, this research provided robust evidence regarding the content, face and construct validity, and internal consistency of the GPS, as well as a clearer depiction of the cognitive aspects from a self-reported perspective what leads people to procrastinate.

A meticulous process was undertaken to align the Argentinian GPS items with the construct of trait procrastination as originally assessed by Lay (1986). Final items were expert-reviewed, ensuring relevance, clarity, and representativeness, while also optimizing the response experience for Argentinian Spanish speakers. The analysis of the internal structure of the GPS confirmed a 19-item and a single-factor model with an adequate fit and satisfactory internal consistency, along with Lay´s theoretical procrastination model (1986) and the Iberian Spanish version of the scale (Díaz-Morales et al., 2006). Original item 1 ("I often find myself performing tasks that I had intended to do days before") had to be removed due to its low factor loading. This was surprising, since a recent study on the psychometric properties of the GPS on a British and Canadian sample showed that this item had satisfactory factor loading (Sirois et al., 2019). It can be argued that dissimilarities in the internal structure of the scale and item parameters in other studies (Argiropoulou & Ferrari, 2015; Mariani & Ferrari, 2012; Sirois et al., 2019; Svartdal & Steel, 2017) might be related to the use of different estimations methods to explore the dimensionality of the scale. Finally, this overall positive outcome confirms the first hypothesis established related to the psychometric properties of the GPS on local population.

Associations with demographic data suggested a propensity among men to identify boredom as a driver of procrastination, whereas women tend to attribute procrastination to a sense of being overwhelmed. On one hand, this gender-based inclination can be elucidated by the assertion that men often exhibit a heightened proclivity for novelty-seeking behaviors, stemming from traits such as impulsivity, a penchant for risk-taking, and a desire for sensory stimulation (Cross et al., 2011). This explanation clarifies why tasks without excitement might not be sufficiently appealing to male audience. On the other hand, prior research posits that women, in comparison to men, may manifest reduced self-esteem and a susceptibility to experiencing heightened negative emotions, contributing to lower self-confidence and increased proclivity for procrastination (Dickerson & Taylor, 2000; McMullin & Cairney, 2004).

Similarly, being older was negatively associated to agreeing on lack of motivation as a procrastination reason. Notably, this association did not persist significant among the younger participants. Further, correlational analyses unveil an overall negative relationship between age and trait procrastination, signifying that younger individuals are more prone to displaying higher values of this trait. Literature on the subject underscores the pivotal influence of age in the realm of procrastination, particularly concerning self-control, a prominent constituent of self-regulatory processes (Ramzi & Saed, 2019). Consequently, while being young could signify encountering greater challenges in managing obligations when not intrinsically inclined to do so, potentially resorting to diversionary and avoidance strategies, as time passes, individuals might develop a more rigorous and responsible approach to tasks. These data also confirmed the role that motivation plays as a central impetus for procrastinatory inclinations (Steel & Weinhardt, 2017; Svartdal & Løkke, 2022).

Finally, while analyzing differences in trait procrastination according to demographic variables, it is noteworthy that trait procrastination did not exhibit discernible variance with respect to gender and age groups. These last results partially confirmed hypothesis two and three regarding differences on trait procrastination and procrastination motives according to age and gender since some dissimilarities on scoring were found but not in all procrastination reasons. This incongruity was not expected and suggests that, although procrastination tendencies may exhibit some degree of uniformity across demographic cohorts, the intrinsic motives and belief systems of individual participants may significantly contribute to the propensity for engaging in procrastination. Additionally, substantial variations in sample sizes may have obscured the nuanced nature of associations among variables.

Individuals that scored higher in trait procrastination in comparison to those with lower values exhibited a higher agreement on all procrastination reasons. That is, individuals were more likely to believe that factors like boredom, low motivation, feeling overwhelmed, poor time management skills, fear of failure, and a sense of unpreparedness contributed to their tendency to procrastinate. Confirming hypothesis

four and in consistency with prior studies, these negative emotions, thoughts, and beliefs signify a connection between procrastination and self-concept, where individuals associate failure with personal inadequacy and view the fear of failure as a potential threat to their well-being (Burka & Yuen, 2008; Ellis & Knauss, 1977; Ferrari et al., 1995). This adaptive mechanism is thought to operate as a protective measure, aiming to prevent substantial damage to self-esteem when failing to complete a task, as procrastination-related task avoidance has been linked to higher self-esteem (Feick & Rhodewalt, 1997). Likewise, the weight of striving for perfection, which is deemed maladaptive perfectionism, can also result in avoidance and decisional procrastination (Ellis & Knaus, 1977; Milgram & Tenne, 2000). Ulteriorly, individuals with low self-esteem and self-efficacy beliefs tend to display procrastination, reinforcing the existence of a negative life cycle (Ferrari & Díaz-Morales, 2007; Sirois & Pychyl, 2013).

The practical implications of the study on adapting and validating the General Procrastination Scale (GPS) for adults in the Metropolitan Area of Buenos Aires, as well as exploring the reasons behind procrastination beliefs, include the insights into cognitive aspects enable tailored interventions in clinical, educational, and workplace settings. This enhances understanding for psychologists, educators, and employers, fostering productivity and well-being. The findings also contribute to public awareness, guiding individuals to address procrastination tendencies. Policymakers can consider these insights when formulating policies related to mental health, education, and workplace productivity, offering a comprehensive approach to mitigating procrastination's detrimental impact on individuals and society.

Limitations and recommendations for future research

This study had several limitations. Firstly, the small sample size required the use of a specific type of estimator for conducting the CFA to obtain a more stable factorial solution. Also, as it was stated, large differences sizing among samples could have masked the nature of the association among age and procrastination reasons. Future research should include larger samples to conduct more comprehensive psychometric analyses of the GPS, including factorial invariance across genders and age groups. Secondly, this study examined the connection between procrastination motives and GPS scores, but the Argentinian version of the GPS needs further validation to establish its practical utility. Subsequent research should confirm the GPS's criterion validity. And thirdly, future research should adopt a comprehensive approach, incorporating mixed methods like focus groups and in-depth interviews, to allow participants to express their viewpoints openly and enhance the final analysis, thus yielding a more robust assessment of the causes of dilatory tendencies.

Conclusion

In conclusion, this study offers a reliable measure of trait procrastination for the accurate assessment of Buenos Aires population. This is of relevance since, until now, there were non-valid measures to evaluate procrastination out of the academic context. Additionally, by investigating the reasons that lead people to procrastinate, a more solid body of knowledge can be compiled for professionals to address and understand this behavior. In summary, the study's practical implications extend to various domains, including mental health, education, workplaces, and public awareness, providing valuable insights for improving assessment tools and developing targeted interventions to address procrastination in the studied population.

Ethical approval

This study contemplated several principles of research ethics and followed the procedures recommended by the American Psychological Association (APA) and the Council for International Organizations of Medical Sciences (CIOMS) of the World Health Organization. This included the principles established by the Declaration of Helsinki, the Code of Ethics established by the National Council of Scientific and Technical Research (CONICET; Res. D No. 2857/06), and the National Law 25.326 of Argentina. Finally, the procedures described in this study were evaluated and approved by the ethics committee of the Pontifical Catholic University of Argentina (Research Protocol N° 10092).

Data availability statement

Datasets are available upon request to corresponding author.

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Authors' contribution

All authors contributed to the study.

Conflict of interest

The authors have declared that no conflict interests exist.

References

Argiropoulou, M. I., & Ferrari, J. R. (2015). Chronic procrastination among emerging adults: Factor structure of the Greek version of the general procrastination scale. *Hellenic Journal of Psychology, 12*(2), 85-104. https://doi.org/10.1037/t51312-000

Burka, J. B., & Yuen, L. M. (2008). *Procrastination: Why you do it, what to do about it*. Da Capo Press.

Cross, C. P., Copping, L. T., & Campbell, A. (2011). Sex differences in impulsivity: A meta-analysis. *Psychological Bulletin, 137*(1), 97–130. https://doi.org/10.1037/a0021591

Díaz-Morales, J. F., Ferrari, J. R., Díaz, K., & Argumedo, D. (2006). Factorial structure of three procrastination scales with a Spanish adult population. *European Journal of Psychological Assessment, 22*(2), 132–137. https://doi.org/10.1027/1015-5759.22.2. 132.

Dickerson, A., & Taylor, M. A. (2000). Self-limiting behavior in women: Self-esteem and self-efficacy as predictors. *Group & Organization Management, 25*(2), 191-210. https://doi.org/10.1177/1059601100252006

DiStefano, C., & Morgan, G. (2014). A comparison of diagonal weighted least squares robust estimation techniques for ordinal data. *Structural Equation Modeling: A Multidisciplinary Journal, 21*(3), 425-438. https://doi.org/10.1080/10705511.2014.915373

Dryden, W., & Neenan, M. (2004). *Counselling individuals: A rational emotive behavioural handbook.* Whurr Publishers.

Eckert, M., Ebert, D.D., Lehr, D., Sieland, B., & Berking, M. (2016). Overcome procrastination: Enhancing emotion regulation skills reduce procrastination. *Learning and Individual Differences, 52*, 10-18. https://doi.org/10.1016/j.lindif.2016.10.001

Ellis, A., & Knaus, W. (1977). *Overcoming procrastination.* Institute for Rational Living.

Feick, D. L., & Rhodewalt, F. (1997). The double-edged sword of self-handicapping: Discounting, augmentation, and the protection and enhancement of self-esteem. *Motivation and Emotion, 21, 147*-163. https://doi.org/10.1023/A:1024434600296

Fernie, B. A., & Spada, M. M. (2008). Metacognitions about Procrastination: A Preliminary Investigation. *Behavioural and Cognitive Psychotherapy, 36*(3), 359-364. https://doi.org/10.1017/s135246580800413x

Ferrari, J. R., Johnson, J. L., & McCown, W. G. (Eds.). (1995). *Procrastination and task avoidance: Theory, research, and treatment*. Plenum Press

Ferrari, J.R., & Díaz-Morales, J.F. (2007). Procrastination: different time orientations reflect different motives. *Journal of Research in Personality, 41*(3), 707-714. https://doi.org/10.1016/j.jrp.2006.06.006

Harrington, N. (2005). It´s too difficult! Frustration intolerance beliefs and procrastination. *Personality and Individual Differences, 39*(5), 873-883. https://doi.org/10.1016/j.paid.2004.12.018

Hofmann, W., Friese, M., & Strack, F. (2009). Impulse and self-control from a dual-systems perspective. *Perspectives on psychological science, 4*(2), 162-176. https://doi.org/10.1111/j.1745-6924.2009.01116.x

Howell, A. J., & Buro, K. (2009). Implicit beliefs, achievement goals, and procrastination: A mediational analysis. *Learning and Individual Differences, 19*(1), 151-154. https://doi.org/10.1016/j.lindif.2008.08.006

International Test Commission. (2017). *The ITC Guidelines for Translating and Adapting Tests* (Second edition). https://www.intestcom.org/page/16

Lay, C. H. (1986). At last, my research article on procrastination. *Journal of Research in Personality, 20*, 474–495. https://doi.org/10.1016/0092-6566(86)90127-3

Lay, C. H. (1988). The relationship of procrastination and optimism to judgments of time to complete an essay and anticipation of setbacks. *Journal of social behavior and personality, 3*(3), 201-214. https://psycnet.apa.org/record/1989-29404-001

Mariani, M. G., & Ferrari, J. R. (2012). Adult Inventory of Procrastination Scale (AIP): A comparison of models with an Italian sample. *TPM: Testing, Psychometrics, Methodology in Applied Psychology, 19*(1), 3-14. https://doi.org/10.4473/TPM19.1.1

Martín-Antón, L.J., Almedia, L.S., Sáiz-Manzanares, M.-C., Álvarez-Cañizo, M., & Carbonero, M. A. (2023). Psychometric properties of the academic procrastination scale in Spanish university students. Assessment & Evaluation in Higher Education, 48(5), 642-656. https://doi.org/10.1080/02602938.2022.2117791

Marsh, H. W., Hau, K. T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling, 11*(3), 320-341. https://doi.org/10.1207/s15328007sem1103_2

McMullin, J. A., & Cairney, J. (2004). Self-esteem and the intersection of age, class, and gender. *Journal of aging studies, 18*(1), 75-90. https://doi.org/10.1016/j.jaging.2003.09.006

Milgram, N.A.; Sroloff, B.; & Rosenbaum, M. (1988). The procrastination of everyday life. *Journal of Research in Personality, 22*(2), 197–212. https://doi.org/10.1016/0092-6566(88)90015-3

Milgram, N., & Tenne, R. (2000). Personality correlates of decisional and task avoidant procrastination. *European journal of Personality, 14*(2), 141-156. https://doi.org/10.1002/(SICI)1099-0984(200003/04)14:2<141::AID-PER369>3.0.CO;2-V

Myrick, J. G. (2015). Emotion regulation, procrastination, and watching cat videos online: Who watches Internet cats, why, and to what effect?. *Computers in human behavior, 52,* 168-176. https://doi.org/10.1016/j.chb.2015.06.001

Ramzi, F., & Saed, O. (2019). The Roles of self-regulation and self-control in procrastination. *Psychology Behavioral Science International Journal, 13*(3), https://doi.org/10.19080/PBSIJ.2019.13.555863

Saleem, M., & Rafique, R. (2012). Procrastination and Self-Esteem among University Students. *Pakistan Journal of Social & Clinical Psychology, 9*(3), 50-53. https://gcu.edu.pk/pages/gcupress/pjscp/volumes/pjscp2012july-8.pdf

Sirois, F., & Pychyl, T. (2013). Procrastination and the priority of short-term mood regulation: Consequences for future self. *Social and Personality Psychology Compass, 7*(2), 115–127. https://doi.org/10.1111/spc3.12011

Sirois, F. M., Yang, S., & van Eerde, W. (2019). Development and validation of the General Procrastination Scale (GPS-9): A short and reliable measure of trait procrastination. *Personality and Individual Differences, 146,* 26-33. https://doi.org/10.1016/j.paid.2019.03.039

Snehitha, M., Kumar, R. K., Srinivasulu, G., Deepthi, A., Prathyusha, V., & Prasanth, P. S. (2021). Procrastination: Serious Issue to Be Considered-A Review. *Journal of Medical and Dental Science Research, 8*(8), 01-05. https://www.questjournals.org/jmdsr/papers/vol8-issue8/Ser-1/A08080105.pdf

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133*(1), 65-94. https://doi.org/10.1037/0033-2909.133.1.65

Steel, P., Brothen, T., & Wambach, C. (2001). Procrastination and personality, performance, and mood. *Personality and indi-*

vidual differences, 30(1), 95-106. https://doi.org/10.1016/S0191-8869(00)00013-1

Steel, P., & Klingsieck, K. (2016). Academic Procrastination: Psychological antecedents revisited. *Australian Psychologist, 51*(1), 36-46. https://doi.org/10.1111/ap.12173

Steel P., & Weinhardt J. (2017). The building blocks of motivation. In Anderson N., Ones D. S., Sinangil H. K., Viswesveran C. (Eds.), *The Handbook of Industrial, Work and Organization Psychology* (pp.69-76). Sage

Svartdal, F., & Steel, P. (2017) Irrational Delay Revisited: Examining Five Procrastination Scales in a Global Sample. *Frontiers in Psychology, 8*: 1927. https://doi.org/10.3389/fpsyg.2017.01927

Svartdal, F., & Løkke J.A. (2022) The ABC of academic procrastination: Functional analysis of a detrimental habit. *Frontiers in Psychology, 3*(13), 1019261. https://doi.org/10.3389/fpsyg.2022.1019261

Unda-López, A., Osejo-Taco, G., Vinueza-Cabezas, A., Paz, C., & Hidalgo-Andrade, P. (2022). Procrastination during the COVID-19 pandemic: A scoping review. *Behavioral Sciences, 12*(2), 38 https://doi.org/10.3390/bs12020038

Van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences, 35(*6), 1401-1418. https://doi.org/10.1016/S0191-8869(02)00358-6

Wagner, D. D., & Heatherton, T. F. (2015). Self-regulation and its failure: The seven deadly threats to self-regulation. In M. Mikulincer, P. R. Shaver, E. Borgida, & J. A. Bargh (Eds.), *APA handbook of personality and social psychology, Vol. 1. Attitudes and social cognition* (pp. 805–842). American Psychological Association. https://doi.org/10.1037/14341-026

Whitley, B., & Kite, M. (2013). *Principles of Research in Behavioral Science*. Routledge.