Article

The Roles of Academic Self-Efficacy and Intolerance of Uncertainty on Decisional Procrastination in University Students during the COVID-19 Pandemic

Elisabetta Sagone [ID] and Maria Luisa Indiana *

Department of Educational Sciences, University of Catania, 95124 Catania, Italy; esagone@unict.it
* Correspondence: mluisa.indiana@gmail.com

Abstract: Decisional procrastination has been one of the main phenomena analysed in university students, together with self-efficacy, during the COVID-19 pandemic. We examined the roles of academic self-efficacy and intolerance of uncertainty on decisional procrastination in 318 Italian university students. Furthermore, the mediating role of the intolerance of uncertainty on the relationships between academic self-efficacy and decisional procrastination was explored. The Academic Self-Efficacy Scale, the Decisional Procrastination Scale, and the Intolerance of Uncertainty Scale were used. Results: Decisional procrastination was predicted by the components of academic self-efficacy and the intolerance of uncertainty (prospective and inhibitory intolerance). Furthermore, the mediating role of the prospective intolerance of uncertainty was confirmed in the relationship between self-efficacy (self-engagement and self-oriented decision-making) and decisional procrastination. Conclusions: This study adds new evidence to findings in the analysis of the role of the intolerance of uncertainty in mitigating the relationships between the self-efficacy of students in the academic context and their tendency to procrastinate in decision-making processes, which has been poorly investigated to date by scholars in this research field. Future research will deal with a specific situation of procrastinating behaviours, such as the completion of a master's thesis or the respect for the deadline of an article's submission.

Keywords: decisional procrastination; uncertainty; academic self-efficacy

1. Introduction

This study is focused on the importance of self-efficacy in the academic context and the intolerance of uncertainty for reducing procrastination in decision-making processes. In the previous literature, some studies have confirmed negative relationships between self-efficacy and procrastination [1,2] and between procrastination and the intolerance of uncertainty [3–6]. However, very few studies have analysed the link between self-efficacy and the intolerance of uncertainty in university students. Due to this deficit, the purpose of this study is to explore the role of academic self-efficacy on decisional procrastination controlling for the intolerance of uncertainty in a group of Italian university students. A correlational study on the role that academic self-efficacy plays in the tendency of young people to procrastinate and their degree of intolerance of uncertainty was carried out during the COVID-19 pandemic.

1.1. The Importance of Self-Efficacy in the Academic Context

One of the crucial elements that induces individuals to engage in, or avoid, a behaviour is the perception of control over events or their beliefs about their ability to achieve the desired results through their actions [7]. From this definition, the concept of self-efficacy has aroused considerable interest in previous research, and it has been included in most theories of behaviours relevant to health. It takes a central position in the Social Cognitive Theory of Bandura [8], according to which self-efficacy is defined as a set of "beliefs in

one's capabilities to organize and execute the courses of action required producing given attainments" [9], and it is action-guiding aspect of self-conception [10,11]. In addition, from this perspective, perceived self-efficacy could be defined as a generative ability whose purpose is to orient individual cognitive, social, emotional, and behavioural sub-abilities efficiently to fulfil specific purposes. This suggests that success in dealing with risk situations also depends on people's belief to become "proactive agents" in recovering a sense of control in the presence of failures.

More empirical evidence has shown the crucial role of self-efficacy in the commitment, persistence, choices, and efforts of individuals in different life contexts [12,13]. Additionally, it has been demonstrated that people who express low levels of self-efficacy in completing or performing a particular task tend to avoid it; conversely, those who report high levels of self-efficacy feel themselves competent and inclined to obtain their purpose in life. These considerations are more evident in the academic context. So, increased self-efficacy is linked to improved academic achievement [14–18]. More specifically, academic self-efficacy is the belief of persons who can successfully accomplish academic tasks [19]. The scientific literature supports the relationship between students' self-efficacy beliefs about academic tasks and their academic achievement. Unsurprisingly, some researchers have investigated the role of the beliefs of academic self-efficacy in predicting the success and well-being of university students [20]. Specifically, Gutiérrez and Tomás [21] studied the relationships among academic self-efficacy, engagement, and subjective well-being in a sample of 870 Dominican university students; the results showed that both academic self-efficacy and engagement predicted high levels of students' subjective well-being. At the same time, academic self-efficacy is considered a protective factor for students' mental health. As reported by Grøtan and colleagues [22], symptoms of mental distress (such as anxiety, depression, and anti-social behaviours), academic self-efficacy, and study progress are negatively correlated. Moreover, students' ability to handle emotional stress during their studies is considered an important factor to reduce academic delay and dropout [23]. Heinrich and Gullone [24] reported that a sense of loneliness, usually linked to depression, is viewed as a risk factor for the progress of students in the academic context.

On the other hand, the previous literature has highlighted the importance of academic self-efficacy for learning and academic performance [25–28]. For example, a systematic review carried out by Honicke and Broadbent [28] reported that academic self-efficacy was positively correlated with academic performance, especially in the academic environment. Recently, the relationship between academic self-efficacy and adjustment was analysed in 546 Jordanian university students; the findings indicated that high levels of academic self-efficacy predicted better adaptation in students [29]. Other researchers analysed self-efficacy as a predictor of satisfaction with life and positive relations with peers in university students [30,31]. Additionally, in a group of 71 Canadian students, Wilcox and Nordstokke [31] observed that the more the students perceived themselves as able to successfully perform academic tasks, the more they reached high levels of satisfaction with life in the academic context.

There is a general consensus on the positive effects of self-efficacy in the life of individuals, even within an academic context. However, various studies have highlighted that it can be considered as a "protective factor" against two specific psychological variables that undermine the development of a good academic career, procrastination and the intolerance of uncertainty.

1.2. Procrastination in Academic Context

Firstly, it is important to specify the topic of procrastination. There are many definitions of this concept, but all agree that procrastination is an irrational tendency to delay tasks that should be completed [32] or "the unnecessary delaying of activities that one ultimately intends to complete, especially when done to the point of creating emotional discomfort" [33]. Successively, it was reported that postponing tasks is a result of behavioural manifestations, including a lack of promptness either in intention or behaviour [34]. As

reported by Ferrari, procrastination is "the purposive delay in the beginning and/or completion of an overt or covert act, typically accompanied by subjective discomfort" [35]. Finally, Steel defined procrastination as a "voluntary delay of an intended course of action despite expecting to be worse off for the delay" [36].

According to these definitions, different types of procrastination behaviour have been identified as having positive or negative effects on people's lives. It is possible to classify two forms of procrastination, "passive procrastination" (such as avoidant, arousal, and decisional procrastination), which is linked to high stress and discomfort due to this repeated postponement [37], and "active procrastination", defined as a tendency in individuals to intentionally decide to procrastinate, to use their strong motivation when they feel themselves under pressure, and to complete tasks before the deadline, achieving satisfactory results [38]. In relation to the current research, our attention was focused on passive procrastination, and specifically on "decisional procrastination". Ferrari and colleagues [39] defined decisional procrastination as a lack of ability to decide within a specified time period. For this type of procrastination, individuals intentionally choose to perform other tasks seen as less stressful for them and tend to underestimate the time required to complete the task, believing that they will meet the deadline. Decisional procrastination is related to a cognitive mechanism delaying the decision-making process to face stressful situations, thus reducing psychological pressure when dealing with different situations [40,41].

Previous empirical evidence has confirmed that university students adopt the most procrastinating behaviours, especially in the academic context [1,2,42–45] and in relation to writing a paper, studying for an exam, keeping up with the topics of the lessons, carrying out the assigned tasks, and participating in the lessons [46]. In line with these considerations, Sarirah and Chaq [1] reported a significant negative link between academic self-efficacy and decisional procrastination in students who were preparing their thesis. In a group of 120 Indonesian college students, it emerged that the more the students reported higher levels of academic self-efficacy, the less they postponed their decisions in completing their thesis. At the same time, Liu and colleagues [2] highlighted that academic self-efficacy was correlated positively with academic self-control and negatively with academic procrastination in terms of completing a paper. Some research has reported that both procrastination and self-efficacy are related to academic achievement and significantly predict it. Generally, students with a high level of procrastination have shown low levels of academic self-efficacy and reduced academic achievement [44,47]. For example, Balkis [44] investigated the mediator and moderator role of academic self-efficacy in predicting the effects of procrastination on academic achievement in a sample of 364 Turkish students. According to the initial hypothesis, the findings demonstrated that academic self-efficacy had a partial mediator role between academic procrastination and achievement. In addition, academic self-efficacy moderated the relationship between academic procrastination and achievement. Underlining this empirical evidence, Mutlu [44] studied the relationships among academic self-efficacy, motivation, and procrastination in a group of 390 Turkish university students. The more the students expressed high levels of academic self-efficacy, the more they were highly motivated during their academic career. Conversely, the more the students reported higher academic self-efficacy, the less they tended to procrastinate tasks, actions, and decisions within the academic context.

Similar results are also present in the Italian context. Procrastination has been investigated in association with other psychological topics, such as self-efficacy, psychological well-being, time management, stress, and fear of failure [48,49]. For example, Limone and colleagues [48] confirmed the relationship between procrastination and time management. The students who delayed their tasks or decisions in the academic context were the same who expressed worse time management during their academic career. Recently, according to the approach of Positive Psychology [50,51], Sagone and colleagues investigated the quality of life in terms of academic self-efficacy, psychological well-being, and resilience in different samples of Italian students [3,52–54]. For example, the authors examined aca-

demic self-efficacy, psychological well-being, and procrastination in a sample of 107 Italian university students belonging to different degree courses (scientific fields vs. humanities fields) [52] and found the following:

(1) Negative correlations between the tendency to procrastinate and psychological well-being (environmental mastery) in the students of both fields.

(2) Negative correlations for only the students in scientific fields between the tendency to procrastinate and academic self-efficacy; this means that the more the students tended to procrastinate, the less they perceived themselves as efficient in the management of crises or unexpected events through personal commitment (self-engagement).

(3) Finally, for only the students in humanities fields, positive correlations between all dimensions of academic self-efficacy and psychological well-being; this means that the more the students perceived themselves as highly efficient, the more they tended to be autonomous, to set goals for their personal growth, to have a positive attitude towards oneself, and to actively create functional environments for one's own development.

In addition, the same authors carried out further analyses about the relationships among academic self-efficacy, resilience, psychological well-being, and general and decisional procrastination using the Academic Self-Efficacy Scale (ASES), the Academic Resilience Scale (ARS), the Psychological Well-being Scales (PWBs), and the General Procrastination Scale (GPS) with a group of 272 Italian university students [53,54]. The results demonstrated that procrastinating behaviour was negatively related to the other psychological variables. The students who highly procrastinated scored lesser in psychological well-being (self-acceptance), in their perception of efficacy regarding their engagement to implement useful strategies to solve a critical situation and self-oriented decision-making, and, finally, in academic resilience (adaptive coping, time management, personal responsibility, and supportive relationships).

Despite the literature confirming how academic self-efficacy significantly affects procrastination in university students, further research has shown that the tendency to procrastinate is linked to another risk factor for academic success, namely the intolerance of uncertainty.

1.3. Relationships among Academic Self-Efficacy, Procrastination, and Intolerance of Uncertainty

As reported in the previous paragraphs, the intolerance of uncertainty is commonly considered a risk factor for the life of individuals. It is also emphasized in the academic context, where the intolerance of uncertainty appears to have a negative impact on the academic achievement of university students. The concept of uncertainty was studied by Birrell and colleagues [55], who defined it with two components, the "desire for predictability and active engagement in seeking certainty" (prospective intolerance of uncertainty) and the "paralysis of cognition and action in front of uncertainty" (inhibitory intolerance of uncertainty) [55]. Later, Carleton [56] defined the intolerance of uncertainty as an "individual's dispositional incapacity to endure the aversive response triggered by the perceived absence of salient, key, or sufficient information, and sustained by the associated perception of uncertainty" [56].

Traditionally, this concept has mainly been investigated in people with psychopathology, high levels of stress, emotional disorders, and anxiety because uncertainty was high and not well-tolerated [57–60]. However, an increasing number of studies have started to analyse the intolerance of uncertainty in the academic context in light of its relationships with other psychological variables [61–65]. In detail, high levels of uncertainty are linked to the use of negative coping strategies [63], and a high intolerance of uncertainty in decision-making processes is related to an increase in emotional worry and anxiety [61,65]. The negative effects of the intolerance of uncertainty on the school life of students have been observed [66–68]; it is positively associated with worry and social anxiety among adolescents, as well as with procrastination and an insecure attachment style [66,68]. This means that adolescents with secure attachment tend to procrastinate less and tolerate situations and feelings of uncertainty better.

In light of these findings, the consequences of uncertainty and procrastination have been estimated on the academic success of university students. Recently, Mansouri and colleagues [69] found that fear of failure, self-compassion, and intolerance of uncertainty play a mediating role in the relationship between academic procrastination and perfectionism. Further, Sagone and Indiana [3] investigated the effects of decision-making styles and the intolerance of uncertainty on procrastination in a group of 209 Italian psychology students, revealing that university procrastinators in their decisions are likely to use dysfunctional decision-making styles (doubtfulness and proxy) and are oriented toward the unacceptability of uncertainty. In addition, in a large sample of 717 Turkish university students, Uzun and Karatas [70] verified the presence of predictors of academic self-efficacy (positive beliefs about worry and internal locus of control). As confirmed, students' academic self-efficacy was positively predicted by their positive beliefs about worry and internal locus of control and adversely by their intolerance of uncertainty and external locus of control.

Several studies have explored the above-mentioned topics in relation to the current pandemic of COVID-19, revealing that academic life satisfaction has been damaged by students' inability to tolerate the uncertainty in reference to COVID-19 [71]. Further, Oral and Karakurt [72] demonstrated that the death of a loved one due to COVID-19 increased the levels of intolerance of uncertainty and decreased university students' hardiness. In addition, Doğanülkü and colleagues [73] discovered the mediating role of the intolerance of uncertainty in the correlation between procrastination and the fear of COVID-19 in a sample of 450 Turkish university students. Goyal and Sharma [74] also observed significant and positive relationships among the fear of COVID-19, the intolerance of uncertainty, and maladaptive decision-making.

In conclusion, the analysis of the recent literature confirms the importance of exploring the role of academic self-efficacy on procrastination and the intolerance of uncertainty in academic contexts, especially during the current pandemic. This is useful for promoting specific interventions aimed at improving the quality of life of university students.

2. Materials and Methods

2.1. Objectives

This study is focused on the importance of self-efficacy and the intolerance of uncertainty in the academic context for reducing decisional procrastination. Specifically, the main purpose was to analyse the role of academic self-efficacy and the intolerance of uncertainty on decisional procrastination in university students. In line with the review of the recent literature, we expected to find the following:

-   Decisional procrastination is associated with high scores of the intolerance of uncertainty and low scores of academic self-efficacy (H^1);
-   The intolerance of uncertainty mediates the relationship between academic self-efficacy and decisional procrastination (H^2).

We tested the goodness-of-fit of three linear regression models, including the components of academic self-efficacy, the dimensions of the intolerance of uncertainty, and the independent variables (age, gender, and years of degree course) as predictors.

2.2. Sample

The sample was composed of 318 Italian university students (M = 21.02; sd = 1.3; age range: 20–27 years old), mainly females (89.9%), attending their second (63.2%), third (33.3%), and fourth years (3.5%) of the degree course of Psychology in the Department of Educational Sciences, University of Catania (Southern Italy).

2.3. Measures and Procedures

The Academic Self-Efficacy Scale (ASES: [18]) is a direct measure used to explore perceived self-efficacy in the academic context, and it includes 30 items valued on a 7-point Likert scale, ranging from 1 (not at all efficient) to 7 (completely efficient). This scale consists of the following four factors, (a) "self-engagement" (α = 0.81), relating to the ability to

engage to achieve set goals or find strategies to cope new situations (e.g., "Manage to achieve a fixed objective"); (b) "self-oriented decision-making"($\alpha = 0.79$), concerning the ability to make decisions and choice alternatives perceived as better for the individual (e.g., "Make a decision, with the risk of failing"); (c) "others-oriented problem solving"($\alpha = 0.78$), regarding the ability to express doubts, uncertainties, and disagreement with that said by others (e.g., "Express disagreement with the ideas of your teachers"); (d) "interpersonal climate" ($\alpha = 0.72$), linked to the ability to ask for help, to cooperate with others, and to find the best solution (e.g., "Ask other people for help to overcome difficulties"). The internal consistency was calculated using Cronbach's alpha ($\alpha = 0.90$) and the split-half method with the correction of the Spearman–Brown coefficient (0.86). The reliability of ASES in this study was very good. For construct validity, the CR for each factor was between 0.66 and 0.72, while the AVE was between 0.39 and 0.47. Furthermore, discriminant validity was assessed by comparing the square roots of the AVE and correlations between the factors. As reported in Table 1, all values of the square root of the AVE (reported in the diagonal matrix) were greater than those of the correlations between the factors of this construct, confirming this type of construct validity.

Table 1. Discriminant validity for ASES.

	Self-Engagement	Self-Oriented Decision-Making	Others-Oriented Problem Solving	Interpersonal Climate
Self-engagement	0.663			
Self-oriented decision-making	0.660 **	0.700		
Others-oriented problem solving	0.390 **	0.488 **	0.640	
Interpersonal climate	0.458 **	0.473 **	0.452 **	0.623

** $p < 0.001$.

The Italian version of the Decisional Procrastination Scale (DPS: [75]) was used to assess the tendency to procrastinate on a decision within a given period of time. The scale consists of five items assessed using a 5-point Likert scale ranging from 1 (equal to "not at all true of me") to 5 (equal to "always true of me"). The participants were directly asked to indicate the strategies that they used when making decisions: "I delay making decisions until it's too late", "I put off making decisions", "Even after I make a decision, I delay acting on it", "I don't make decisions unless I really have to", and "I waste a lot of time on trivial matters before getting to the final decision". The convergent validity was confirmed by the composite reliability (CR > 0.7) and the average variance extracted (AVE > 0.5). In detail, the value of the CR was equal to 0.81 and the value of the AVE was equal to 0.63. The internal consistency was calculated using Cronbach's alpha ($\alpha = 0.85$) and the split-half method with the correction of the Spearman–Brown coefficient (0.86). The original scale has a lower alpha value than in our study (0.65 vs. 0.85). The reliability of the DPS in this study is confirmed. The Italian version of the Intolerance of Uncertainty Scale (IUS-12: [67]) was applied to measure the responses to uncertainty and to ambiguous situations according to two different but highly related factors, "prospective intolerance" (IUS1: $\alpha = 0.85$) (e.g., "It frustrates me not having all the information I need") and "inhibitory intolerance" (IUS2: $\alpha = 0.89$) (e.g., "I must get away from all uncertain situations"). Each item was rated on a 5-point Likert scale from 1 ("not at all characteristic of me") to 5 ("entirely characteristic of me"). As reported in Sagone and Indiana's research [3], item no. 3 was excluded from the original scale [67] because of a reduced saturation coefficient. In addition, in this case, we assessed the convergent validity of this measure using the composite reliability and average variance extracted (for IUS1: CR = 0.83 and AVE = 0.52; for IUS2: CR = 0.76 and AVE = 0.54), confirming its adequacy. For discriminant validity, the square root of the AVE was greater than the correlations between the factors (see Table 2). The internal consistency was calculated using Cronbach's alpha ($\alpha = 0.91$) and the split-half method

with the correction of the Spearman–Brown coefficient (0.80). The reliability of the IUS in this study is very good. The value of Cronbach's alpha of the original scale was equal to 0.80, with the IUS1 equal to 0.68 and the IUS2 to 0.79; the values of this scale applied to our study are greater than those of the original one.

Table 2. Discriminant validity for IUS.

	Prospective Intolerance	Inhibitory Intolerance
Prospective intolerance	0.756	
Inhibitory intolerance	0.672 **	0.742

** $p < 0.001$.

2.4. Procedures and Data Analysis

Participants were chosen through a convenience sampling, and they were asked to fill out three specific measures about their academic self-efficacy, decisional procrastination, and intolerance of uncertainty, together with a socio-demographic section. During the COVID-19 emergency in Italy, they were invited to voluntarily participate in this investigation by individually completing a self-report and anonymous questionnaire administered online with the use of the Google platform, in approximately 15–20 min. Respondents who did not receive class credit for participation provided written informed consent prior to starting the data collection. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki for realizing research with human participants and approved by the local institutional independent ethics committee.

The patterns of associations among the variables of interest were assessed using the software SPSS 20.0, with bivariate and partial correlations (controlling for the intolerance of uncertainty) and linear regressions applied for estimating the role of academic self-efficacy and the intolerance of uncertainty on decisional procrastination using the bootstrapping method and 95% confidence intervals. The advantage of bootstrapping is that it is a straightforward way to derive the estimates of the standard errors and confidence intervals, avoiding the cost of repeating the study to obtain other groups of sampled data.

3. Results

Descriptive statistics, including the range of score, mean, and standard deviation of each variable considered are reported in Table 3. The results show that our sample reported average levels of decisional procrastination, average scores of prospective intolerance and inhibitory intolerance, high scores of self-engagement, high scores of self-oriented decision-making, high scores of interpersonal climate, and average scores of others-oriented problem solving.

Table 3. Descriptive analyses of the variables of interest.

Variable	Range	*Mean*	*sd*	Skewness	Kurtosis
ASES1	13–49	36.9	6.5	−0.657	0.262
ASES2	14–49	36.3	6.3	−0.639	0.459
ASES3	11–45	26.3	7.3	0.222	−0.511
ASES4	13–46	32.6	7.0	−0.556	0.115
IUS1	6–30	19.59	5.18	−0.142	−0.584
IUS2	5–25	13.47	5.07	0.085	−0.929
DPS	5–25	12.72	4.82	0.334	−0.731

Note: DPS = decisional procrastination; IUS1 = prospective intolerance; IUS2 = inhibitory intolerance; ASES1 = self-engagement; ASES2 = self-oriented decision-making; ASES3 = others-oriented problem solving; and ASES4 = interpersonal climate.

Bivariate correlations were performed to explore the associations among the scores of academic self-efficacy, decisional procrastination, and intolerance of uncertainty. The

results are reported in Table 4, indicating that (a) decisional procrastination was positively and strongly correlated with both prospective intolerance and inhibitory intolerance; (b) decisional procrastination was negatively and moderately correlated with self-engagement and self-oriented decision-making, respectively, while also poorly correlated with others-oriented problem solving and interpersonal climate. Additionally, prospective intolerance was negatively and poorly correlated with self-oriented decision-making, while inhibitory intolerance was negatively and moderately correlated with all factors of academic self-efficacy, but mainly with self-engagement and self-oriented decision-making.

Table 4. Bivariate correlations between the variables of interest.

Variable	IUS1	IUS2	ASES1	ASES2	ASES3	ASES4
IUS1	1					
IUS2	0.672 **	1				
ASES1	−0.132	−0.313 **	1			
ASES2	−0.249 **	−0.450 **	0.660 **	1		
ASES3	−0.187 **	−0.278 **	0.390 **	0.488 **	1	
ASES4	−0.106	−0.210 **	0.458 **	0.473 **	0.452 **	1
DPS	0.344 **	0.570 **	−0.431 **	−0.474 **	−0.308 **	−0.223 **

Note: DPS = decisional procrastination; IUS1 = prospective intolerance; IUS2 = inhibitory intolerance; ASES1 = self-engagement; ASES2 = self-oriented decision-making; ASES3 = others-oriented problem solving; and ASES4 = interpersonal climate. ** $p < 0.001$.

Applying the linear regressions with the enter method to analyse the role of academic self-efficacy and intolerance of uncertainty on decisional procrastination, we tested the goodness-of-fit of three models, including the components of self-efficacy (for Model 1: ANOVA $F(4313) = 27.199$, $p < 0.001$), the components of academic self-efficacy and the two dimensions of uncertainty, prospective and inhibitory intolerance (for Model 2: ANOVA $F(6311) = 36.075$, $p < 0.001$), and the components of self-efficacy, intolerance of uncertainty, and other independent variables (age, gender, and years of degree course)(for Model 3: ANOVA $F(9308) = 24.148$, $p < 0.001$). As reported in Table 5, Model 2 shows the best goodness-of-fit data with 39.9% of the explained variance in decisional procrastination. Based on the coefficient output using collinearity statistics, which obtained VIF values between 1445 and 2260, it can be concluded that there was no multicollinearity effect.

Table 5. Summary of regression models of decisional procrastination with academic self-efficacy and intolerance of uncertainty as predictors.

Models	*R*	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics		
					R^2 Change	F Change	*p*
1	0.508 [a]	0.258	0.248	4.18587	0.258	27.199 (4313)	0.000
2	0.641 [b]	0.410	0.399	3.74323	0.152	40.201 (2311)	0.000
3	0.643 [c]	0.414	0.397	3.75077	0.003	0.583 (3308)	0.626

Note: [a] Dependent variable: DPS = decisional procrastination; [b,c] Predictors: IUS1 = prospective intolerance; IUS2 = inhibitory intolerance; ASES1 = self-engagement; ASES2 = self-oriented decision-making; ASES3 = others-oriented problem solving; and ASES4 = interpersonal climate.

As verified, the independent variables included in Model 3 had no significant effect on the regression analysis.

We reported the values of bootstrapping and a 95% confidence interval for each model of regression, as shown in Table 6. The choice of the bootstrapping model for testing the models' stability and measurement error is confirmed by the suggestions of Buonaccorsi et al. [76] and Padilla and Veprinsky [77].

Table 6. Regression models using collinearity and bootstrapping.

Model		R	Adj R²	Standardized Coefficients			Collinearity Statistics		95% Confidence Interval	
				ß	t	Sig.	Tolerance	VIF	Lower	Upper
1	(Constant)	0.508 [a]	0.248		17.835	0.000			24.321	30,876
	ASES1			−0.215	−3.225	0.001	0.536	1.867	−0.265	−0.049
	ASES2			−0.317	−4.541	0.000	0.488	2.049	−0.365	−0.125
	ASES3			−0.101	−1.738	0.083	0.698	1.433	−0.148	0.010
	ASES4			0.071	1.199	0.231	0.684	1.462	-0.031	0.125
2	(Constant)	0.641 [b]	0.399		8.703	0.000			12.264	20.979
	ASES1			−0.200	−3.352	0.001	0.532	1.880	−0.244	−0.044
	ASES2			-0.137	−2.093	0.037	0.442	2.260	−0.221	0.007
	ASES3			−0.066	−1.263	0.207	0.692	1.445	−0.118	0.027
	ASES4			0.056	1.069	0.286	0.683	1.464	−0.038	0.107
	IUS1			−0.033	−0.564	0.573	0.540	1.853	−0.148	0.086
	IUS2			0.461	7.186	0.000	0.460	2.174	0.321	0.566
3	(Constant)	0.643 [c]	0.397		3.782	0.000			9.692	27.453
	ASES1			−0.204	−3.406	0.001	0.528	1.894	−0.247	−0.047
	ASES2			−0.135	−2.032	0.043	0.428	2.334	−0.216	0.014
	ASES3			−0.061	−1.149	0.252	0.679	1.473	−0.113	0.031
	ASES4			0.050	0.932	0.352	0.672	1.489	−0.042	0.102
	IUS1			−0.034	−0.561	0.575	0.534	1.873	−0.144	0.087
	IUS2			0.463	7.194	0.000	0.460	2.174	0.320	0.567
	Age			−0.038	−0.693	0.489	0.633	1.580	−0.581	0.238
	Gender			0.008	0.174	0.862	0.955	1.048	−1.334	1.383
	Years of degree course			0.071	1.315	0.189	0.651	1.536	−0.417	1.691

Note: [a] Dependent variable: DPS = decisional procrastination; [b,c] Predictors: IUS1 = prospective intolerance; IUS2 = inhibitory intolerance; ASES1 = self-engagement; ASES2 = self-oriented decision-making; ASES3 = others-oriented problem solving; and ASES4 = interpersonal climate.

Considering the evidence in Model 2, self-oriented decision-making and self-engagement negatively predicted decisional procrastination, while prospective intolerance positively predicted decisional procrastination in our sample. Predictive values of interpersonal climate, others-oriented problem solving, and inhibitory intolerance were not significant in this study (with $p > 0.05$).

Prospective intolerance was the best predictor of decisional procrastination, followed by low self-engagement and self-oriented decision-making. The more the university students scarcely tolerated the uncertainty in their everyday lives, the more they procrastinated their decisions. Conversely, the less they perceived themselves as efficient in academic contexts (in terms of behaviours connected to self-image), the more they procrastinated in their decisions.

To estimate the contribution of the intolerance of uncertainty in the relationship between academic self-efficacy and decisional procrastination, we carried out separate partial correlations by controlling for the effects of prospective intolerance and those of inhibitory intolerance. The results indicate that, when the effects of prospective intolerance are not controlled for, two components of academic self-efficacy had strong and negative correlations with decisional procrastination (ASES1 and ASES2), and the remaining ones had weak and negative correlations (ASES3 and ASES4). However, when prospective intolerance was added to the equation, the negative correlations were reduced more, especially for ASES2 (from −0.474 to −0.427) and ASES3 (from −0.308 to −0.264) compared to ASES1 (from −0.431 to −0.414) and ASES4 (from −0.223 to −0.200). This finding suggests that prospective intolerance positively mediated the relationship between academic self-efficacy and decisional procrastination.

In analysing the effects of inhibitory intolerance on the relationship between academic self-efficacy and decisional procrastination, the results indicated that negative correlations were reduced especially more for ASES2 (from −0.474 to −0.297), ASES3 (from −0.308 to −0.189), and ASES1 (from −0.431 to −0.323) than for ASES4 (from −0.223 to −0.129).

This evidence suggests that inhibitory intolerance positively and significantly mediated the relationship between academic self-efficacy and decisional procrastination. As previously shown, less efficient university students with a high intolerance of uncertainty tended to procrastinate more than those with low intolerance.

4. Discussion

This investigation offers a relevant confirmation of the roles of self-efficacy and the intolerance of uncertainty in the academic context on decisional procrastination.

As initially hypothesized in H[1], the results indicate that decisional procrastination was positively and strongly associated with both the prospective intolerance and inhibitory intolerance of uncertainty. Furthermore, it was negatively and moderately associated with self-engagement and self-oriented decision-making, while poorly associated with others-oriented problem solving and interpersonal climate. Additionally, prospective intolerance was negatively and poorly correlated with self-oriented decision-making, while inhibitory intolerance was negatively and moderately correlated with all factors of academic self-efficacy, but mainly with self-engagement and self-oriented decision-making.

These findings suggest that these university students tended to enable procrastinating behaviours at a decisional level in relation to their inadequate ability to manage their control of uncertainty. It is noteworthy to think that the more students are unable to control and tolerate uncertainty, the more they will tend to postpone the decisions and choices that will be required to be made in their lives, not only academically but also daily. This behavioural pattern was frequently activated when individuals perceived themselves as poorly self-efficient both in general and in particular conditions and tasks. This reduced self-efficacy mainly depended on the internal and psychological aspects related to the image of oneself rather than by external factors or conditions. According to the authors, the explanation of this evidence derives from the factors mainly involved in the relationship between procrastination and the intolerance of uncertainty, that is, self-engagement and self-oriented decision-making.

The results of this study are in line with the findings obtained by Fourtounas and Thomas [62], Uzun and Karatas [70], Mansouri and colleagues [69], and, more recently, in the same academic context, by Sagone and Indiana [3].

Self-efficacy is one of the key factors for a positive perspective of life and helps all individuals to cope with problems and overcome difficulties. In an academic context, it is strongly and positively related to academic buoyancy [78,79], academic resilience [80], academic engagement [81], and so on. The dimensions of self that are present in the two different components of academic self-efficacy (that is, self-engagement and self-oriented decision-making) were involved in the three models of regression tested in this study and positively predicted the tendency to procrastinate on decisions and choices without respecting the deadlines, unlike those oriented toward others and an academic context. As previously indicated, these components can be considered the principal core of perceived academic self-efficacy. The authors of this concept and its relative measure defined these components as corresponding to the university students' personal engagement in achieving a goal and their personal ability to make decisions to accomplish the given academic goal, such as completing the course of study within the regular duration or completing a task within the deadlines. This evidence is valid both in high school students and university students, and it is in line with the results obtained by Klassen and colleagues [82], where Canadian university students who expressed high beliefs in their ability to regulate their learning reported the lowest levels of procrastination. Dogan [83] demonstrated that middle and high school students achieved high academic performance with high levels of self-efficacy and a sense of the purpose for their learning. Recently, Brando-Garrido and her colleagues [84] found the role of perceived competence as the only protective factor against academic procrastination, rather than resilient coping, self-esteem, and self-efficacy, as expressed by 237 Spanish nursing students. Furthermore, Mutlu [43] analysed the relationships among academic self-efficacy, academic motivation, and academic procrastination in

a sample of 319 university education students in Turkey, finding that academic motivation partially mediated between self-efficacy and academic procrastination. This last result could be used to compare the same effects of intolerance of uncertainty on the relationship between academic self-efficacy and decisional procrastination in our study.

As hypothesized in H^2, the intolerance of uncertainty was expected to serve as a mediator between academic self-efficacy and decision-making procrastination. From the obtained results, the current study confirmed the second hypothesis, adding new suggestions to the scientific literature and focusing on the negative role of the intolerance of uncertainty together with low levels of self-efficacy in the lives of individuals, and specifically, in the academic lives of university students, on reducing or increasing decisional procrastination. As found in the regression model applied to these data and carried out in order to verify the negative effects of uncertainty, the authors recognize that the intolerance of uncertainty (especially inhibitory tolerance) played the role of mediator in the relationship between academic self-efficacy and decisional procrastination during the period of the COVID-19 pandemic, even if it is plausible to think that the presence of this negative influence could be relevant both pre- and post-pandemic. Less self-efficient university students with a high intolerance of uncertainty tended to procrastinate their decisions more than those with high self-efficacy. Vice versa, highly self-efficient university students with a low intolerance of uncertainty procrastinated less than those with low self-efficacy. Additionally, even if the fear or worry about COVID-19 is not taken into consideration in the current study as a direct variable that affected the tolerance of uncertainty, it is possible to hypothesize the latent effect of this subjective variable on decisional procrastination. Several studies have shown its significant and direct effects [73,85,86] and its relations with the phenomenon of procrastination in an academic context [62]. Furthermore, it would be useful to investigate gender differences in relation to self-efficacy and the tolerance of uncertainty, as has emerged in some studies realized during the pandemic period [87].

The independent variables (age of participants, gender, and years of degree course) had no significant effects on the regression model with academic self-efficacy and the intolerance of uncertainty as predictors on decisional procrastination, even if these variables were unbalanced in this study.

The limitations of this study refer to the unbalanced sample regarding gender, as it was mainly represented by female students, and regarding years of degree course. These are the main disadvantages of studies that use convenience sampling. However, the higher percentage of female students reflects the composition of the general population in this type of course of study in an Italian cultural context (that is, a psychology degree course). Another limit of this study was due to the lack of other variables to select the participants, such as different types of degree courses (psychology, pedagogy, engineering, law, and so on). To verify if these relationships are present in the general population of university students, future studies will select participants from different degree courses at the University of Catania (Italy) for a more balanced gender and cultural composition.

5. Conclusions

Future research could deepen the role of academic self-efficacy in self-oriented training used to strengthen academic performance in university students who report significant difficulties to start or finish degree courses and to complete their thesis. The next study, already in progress, will be focused on the analysis of a specific situation of decisional academic procrastination, that is, the completion of a final thesis. Often, university students are afraid to perform inadequately and to not meet the expectations of their professors, underestimating the time it will take for the different stages of their thesis to complete it. University students need to feel inspired before they can write it, and sometimes overestimate how motivated they will become in the future. They mistakenly believe that they need to have the right mindset to work. Probably, all these aspects will be linked to the different components of academic self-efficacy.

The next study will involve participants from different degree courses, with a more balanced gender composition, and considering other variables as direct or indirect factors responsible for decisional procrastination in the academic context. The promotion of resilience, self-efficacy, social support, and the tolerance of uncertainty for the future, instilling an optimistic mindset among students, could be the best guideline for avoiding or reducing the phenomenon of procrastination.

References

1. Sarirah, T.; Chaq, S.A. Academic self-efficacy as a predictor toward decisional procrastination among college students preparing a thesis in Indonesia. *J. Adv. Res. Soc. Sci. Humanit.* **2019**, *4*, 23–28.
2. Liu, G.; Cheng, G.; Hu, J.; Pan, Y.; Zhao, S. Academic self-efficacy and postgraduate procrastination: A moderated mediation model. *Front. Psychol.* **2020**, *11*, 1752. [CrossRef]
3. Sagone, E.; Indiana, M.L. Role of Decision-Making Styles and Intolerance of Uncertainty on Procrastination During the Pandemic. *J. High. Educ. Theory Pract.* **2022**, *22*, 14–27.
4. Orellana-Damacela, L.E.; Tindale, R.S.; Suarez-Balcazar, Y. Decisional and behavioral procrastination: How they relate to self-discrepancies. *J. Soc. Behav. Pers.* **2000**, *15*, 225–238.
5. Ferrari, J.R.; Dovidio, J.F. Examining behavioral processes in indecision: Decisional procrastination and decision-making style. *J. Res. Pers.* **2000**, *34*, 127–137. [CrossRef]
6. Yildiz, M.; Eldeleklioglu, J. The Relationship between Decision-Making and Intolerance to Uncertainty, Cognitive Flexibility and Happiness. *Eurasian J. Educ. Res.* **2021**, *91*, 39–60. [CrossRef]
7. Bandura, A. *Self-Efficacy: The Exercise of Control*; Freeman: New York, NY, USA, 1997.
8. Bandura, A. *Self-Efficacy in Changing Societies*; Cambridge University Press: New York, NY, USA, 1995.
9. Bandura, A. *Social Learning Theory*; Prentice-Hall: Englewood Cliffs, NJ, USA, 1977.
10. Bandura, A. *Social Foundation of Thought and Action: A Social Cognitive Theory*; Prentice-Hall: Englewood Cliffs, NJ, USA, 1986.
11. Pajares, F. Self-efficacy beliefs in academic settings. *Rev. Educ. Res.* **1996**, *66*, 543–578. [CrossRef]
12. Pajares, F.; Schunk, D. The development of academic self-efficacy. *Dev. Achiev. Motiv. USA* **2001**, *7*, 1–27.
13. Pajares, F.; Valiante, G. Students' Self-Efficacy in Their Self-Regulated Learning Strategies: A Developmental Perspective. *Psychologia* **2002**, *45*, 211–221. [CrossRef]
14. Pajares, F.; Urdan, T.C. *Academic Motivation of Adolescents*; Information Age Pub.: Greenwich, CT, USA, 2002.
15. Britner, S.L.; Pajares, F. Sources of science self-efficacy beliefs of middle school students. *J. Res. Sci. Teach.* **2006**, *43*, 485–499. [CrossRef]
16. Di Giunta, L.; Alessandri, G.; Gerbino, M.; Kanacri, P.L.; Zuffiano, A.; Caprara, G.V. The determinants of scholastic achievement: The contribution of personality traits, self-esteem, and academic self-efficacy. *Learn. Individ. Differ.* **2013**, *27*, 102–108. [CrossRef]
17. De Caroli, M.E.; Sagone, E. Generalized self-efficacy and well-being in adolescents with high vs. low scholastic self-efficacy. *Procedia-Soc. Behav. Sci.* **2014**, *141*, 867–874. [CrossRef]
18. Sagone, E.; De Caroli, M.E. Locus of control and academic self-efficacy in university students: The effects of Self-concepts. *Procedia-Soc. Behav. Sci.* **2014**, *114*, 222–228. [CrossRef]
19. Schunk, D.H. Self-efficacy and academic motivation. *Educ. Psychol.* **1991**, *26*, 207–231. [CrossRef]
20. Gore, P.A. Academic Self-Efficacy as a Predictor of College Outcomes: Two Incremental Validity Studies. *J. Career Assess.* **2006**, *14*, 92–115. [CrossRef]
21. Gutiérrez, M.; Tomás, J.M. The role of perceived autonomy support in predicting university students' academic success mediated by academic self-efficacy and school engagement. *Educ. Psychol.* **2019**, *39*, 729–748. [CrossRef]
22. Grøtan, K.; Sund, E.R.; Bjerkeset, O. Mental health, academic self-efficacy and study progress among college students—The SHoT study, Norway. *Front. Psychol.* **2019**, *10*, 45. [CrossRef]

23. Storrie, K.; Ahern, K.; Tuckett, A. A systematic review: Students with mental health problems. *Int. J. Nurs. Pract.* **2010**, *16*, 1–6. [CrossRef]

24. Heinrich, L.M.; Gullone, E. The clinical significance of loneliness: A literature review. *Clin. Psychol. Rev.* **2006**, *26*, 695–718. [CrossRef]

25. Cassidy, S. Exploring individual differences as determining factors in student academic achievement in higher education. *Stud. High. Educ.* **2012**, *37*, 793–810. [CrossRef]

26. Richardson, M.; Bond, R.; Abraham, C. Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychol. Bull.* **2012**, *138*, 353–387. [CrossRef]

27. Galyon, C.E.; Blondin, C.A.; Yaw, J.S.; Nalls, M.L.; Williams, R.L. The relationship of academic self-efficacy to class participation and exam performance. *Soc. Psychol. Educ.* **2012**, *15*, 233–249. [CrossRef]

28. Honicke, T.; Broadbent, J. The influence of academic self-efficacy on academic performance: A systematic review. *Educ. Res. Rev.* **2016**, *17*, 63–84. [CrossRef]

29. Abood, M.H.; Alharbi, B.H.; Mhaidat, F.; Gazo, A.M. The relationship between personality traits, academic self-efficacy and academic adaptation among university students in Jordan. *Int. J. High. Educ.* **2020**, *9*, 120–128. [CrossRef]

30. Altermatt, E.R. Academic support from peers as a predictor of academic self-efficacy among college students. *J. Coll. Stud. Retent Res. Theory Pract.* **2019**, *21*, 21–37. [CrossRef]

31. Wilcox, G.; Nordstokke, D. Predictors of university student satisfaction with life, academic self-efficacy, and achievement in the first year. *Can. J. High. Educ.* **2019**, *49*, 104–124. [CrossRef]

32. Lay, C.H. At last, my research article on procrastination. *J. Res. Pers.* **1986**, *20*, 474–495. [CrossRef]

33. Lay, C.H.; Schouwenburg, H.C. Trait procrastination, time management. *J. Soc. Behav. Pers.* **1993**, *8*, 647–662.

34. Schouwenburg, H.C.; Lay, C.H.; Pychyl, T.A.; Ferrari, J.R. *Counseling the Procrastinator in Academic Settings*; American Psychological Association: Washington, DC, USA, 2004.

35. Ferrari, J.R. Procrastination. In *Encyclopedia of Mental Health*; Friedman, H., Ed.; Academic: San Diego, CA, USA, 1998; Volume 3, pp. 281–287.

36. Steel, P. The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychol. Bull* **2007**, *133*, 65–94. [CrossRef]

37. Steel, P.; Ferrari, J. Sex, education and procrastination: An epidemiological study of procrastinators' characteristics from a global sample. *Eur. J. Pers.* **2013**, *27*, 51–58. [CrossRef]

38. Chun Chu, A.H.; Choi, J.N. Rethinking procrastination: Positive effects of "active" procrastination behavior on attitudes and performance. *J. Soc. Psychol.* **2005**, *145*, 245–264. [CrossRef]

39. Ferrari, J.R.; Diaz-Morales, J.F.; O'Callaghan, J.; Diaz, K.; Argumedo, D. Frequent behavioral delay tendencies by adults: International prevalence rates of chronic procrastination. *J. Cross Cult. Psychol.* **2007**, *38*, 458–464. [CrossRef]

40. Pychyl, T.A.; Morin, R.W.; Salmon, B.R. Procrastination and the planning fallacy: An examination of the study habits of university students. *J. Soc. Behav. Pers.* **2000**, *15*, 135–150.

41. Mann, L.; Burnett, P.; Radford, M.; Ford, S. The Melbourne Decision Making Questionnaire: An instrument for measuring patterns for coping with decisional conflict. *J. Behav. Decis.* **1997**, *10*, 1–19. [CrossRef]

42. Sagone, E. *Carpe Diem. Procrastinazione e Correlati Psicologici nel Ciclo di vita*; Franco Angeli: Milano, Italiy, 2020.

43. Mutlu, A.K. Academic Self-Efficacy and Academic Procrastination: Exploring the Mediating Role of Academic Motivation in Turkish University Students. *Univers. J. Educ. Res.* **2018**, *6*, 2087–2093.

44. Balkıs, M. Academic efficacy as a mediator and moderator variable in the relationship between academic procrastination and academic achievement. *Eurasian J. Educ. Res.* **2011**, *45*, 1–16.

45. Odaci, H. Academic self-efficacy and academic procrastination as predictors of problematic internet use in university students. *Comput. Educ.* **2011**, *57*, 1109–1113. [CrossRef]

46. Solomon, L.J.; Rothblum, E.D. Academic procrastination: Frequency and cognitive-behavioral correlates. *J. Couns. Psychol.* **1984**, *31*, 503–509. [CrossRef]

47. Balkis, M.; Duru, E. Prevalence of academic procrastination behaviour among pre-service teachers, and its relationships with demographics and individual preferences. *J. Theory Pract. Educ.* **2009**, *5*, 18–32.

48. Limone, P.; Sinatra, M.; Ceglie, F.; Monacis, L. Examining procrastination among university students through the lens of the self-regulated learning model. *Behav. Sci.* **2020**, *10*, 184–194. [CrossRef]

49. Cerniglia, L. An exploratory study on adaptive psychopathological risk and problematic use of the web associated with procrastination in university students. *Int. J. Dev. Educ. Psychol. INFAD Rev. Psicol.* **2019**, *1*, 41–48. [CrossRef]

50. Seligman, M.E.P.; Csikszentmihalyi, M. Positive psychology: An introduction. *Am. Psychol.* **2000**, *55*, 5–14. [CrossRef]

51. Seligman, M.E.P. *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*; Free Press: New York, NY, USA, 2002.

52. Sagone, E.; Indiana, M.L. Cogli l'attimo!: Relazioni tra procrastinazione, auto-efficacia accademica e benessere psicologico negli studenti universitari. In Proceedings of the XIX Congresso Nazionale della SIO, "Orientamento Inclusivo e Sostenibile: Ricerche, Strumenti, Azioni", Catania, Italy, 17–19 October 2019.

53. Sagone, E.; Indiana, M.L.; De Caroli, M.E.; Falanga, R. Quali relazioni esistono tra procrastinazione, resilienza accademica, percezione di autoefficacia e benessere psicologico negli studenti universitari? Un'indagine esplorativa. In *Carpe Diem. Procrastinazione e Correlati Psicologici nel Ciclo di vita*; Sagone, E., Ed.; Franco Angeli: Milano, Italy, 2020.

54. Sagone, E.; Indiana, M.L. Are Decision-Making Styles, Locus of Control, and Average Grades in Exams Correlated with Procrastination in University Students? *Educ. Sci.* **2021**, *11*, 300–312. [CrossRef]

55. Birrell, J.; Meares, K.; Wilkinson, A.; Freeston, M. Toward a definition of intolerance of uncertainty: A review of factor analytical studies of the Intolerance of Uncertainty Scale. *Clin. Psychol. Rev.* **2011**, *31*, 1198–1208. [CrossRef]

56. Carleton, R.N. Into the unknown: A review and synthesis of contemporary models involving uncertainty. *J. Anxiety Disord.* **2016**, *39*, 30–43. [CrossRef] [PubMed]

57. Shihata, S.; McEvoy, P.M.; Mullan, B.A.; Carleton, R.N. Intolerance of uncertainty in emotional disorders: What uncertainties remain? *J. Anxiety Disord.* **2016**, *41*, 115–124. [CrossRef]

58. Pawluk, E.J.; Koerner, N. The relationship between negative urgency and generalized anxiety disorder symptoms: The role of intolerance of negative emotions and intolerance of uncertainty. *Anxiety Stress Coping* **2016**, *29*, 606–615. [CrossRef] [PubMed]

59. Sternheim, L.C.; Fisher, M.; Harrison, A.; Watling, R. Predicting intolerance of uncertainty in individuals with eating disorder symptoms. *J. Eat. Disord.* **2017**, *5*, 1–9. [CrossRef] [PubMed]

60. Shapiro, M.O.; Short, N.A.; Morabito, D.; Schmidt, N.B. Prospective associations between intolerance of uncertainty and psychopathology. *Pers. Individ. Diff.* **2020**, *166*, 110210. [CrossRef]

61. Jacoby, R.J.; Abramowitz, J.S.; Buck, B.E.; Fabricant, L.E. How is the Beads Task related to intolerance of uncertainty in anxiety disorders? *J. Anxiety Disord.* **2014**, *28*, 495–503. [CrossRef]

62. Fourtounas, A.; Thomas, S.J. The cognitive factors driving checking versus avoidance and procrastination: The roles of intolerance of uncertainty, desire for predictability and uncertainty paralysis. *J. Obs. Compuls. Relat. Disord.* **2016**, *9*, 30–35.

63. Xu, T.; Hu, P. A Serial Mediation Model between Intolerance of Uncertainty and Academic Procrastination. *Univ. China Educ. J.* **2018**, *58*, 103450.

64. Dugas, M.J.; Buhr, K.; Ladouceur, R. The role of intolerance of uncertainty in etiology and maintenance. In *Generalized Anxiety Disorder: Advances in Research and Practice*; Heimberg, R.G., Turk, C.L., Mennin, D.S., Eds.; Guilford Press: New York, NY, USA, 2004.

65. Jensen, D.; Kind, A.J.; Morrison, A.S.; Heimberg, R.G. Intolerance of uncertainty and immediate decision-making in high-risk situations. *J. Exp. Psychopathol.* **2014**, *5*, 178–190. [CrossRef]

66. Boelen, P.A.; Vrinssen, I.; van Tulder, F. Intolerance of uncertainty in adolescents: Correlations with worry, social anxiety, and depression. *J. Nerv. Ment. Dis.* **2010**, *198*, 194–200. [CrossRef]

67. Bottesi, G.; Ghisi, M.; Novara, C.; Bertocchi, J.; Boido, M.; De Dominicis, I.; Freeston, M.F. Intolerance of uncertainty scale (IUS-27 e IUS-12): Due studi preliminari. *Psicoter. Cogn. Comport.* **2015**, *21*, 345–365.

68. Yildiz, B.; Iskender, M. The secure attachment style oriented psycho-educational program for reducing intolerance of uncertainty and academic procrastination. *Curr. Psychol.* **2021**, *40*, 1850–1863. [CrossRef]

69. Mansouri, K.; Ashouri, A.; Gharraee, B.; Farahani, H. The Mediating Role of Fear of Failure, Self-Compassion and Intolerance of Uncertainty in the Relationship Between Academic Procrastination and Perfectionism. *Iran. J. Psychiatry Clin. Psychol.* **2022**, *28*, 34–47. [CrossRef]

70. Uzun, K.; Karatas, Z. Predictors of Academic Self Efficacy: Intolerance of Uncertainty, Positive Beliefs about Worry and Academic Locus of Control. *Int. Educ. Stud.* **2020**, *13*, 104–116. [CrossRef]

71. Odacı, H.; Kaya, F.; Aydın, F. Does educational stress mediate the relationship between intolerance of uncertainty and academic life satisfaction in teenagers during the COVID-19 pandemic? *Psychol. Sch.* **2022**, *60*, 1514–1531. [CrossRef]

72. Oral, M.; Karakurt, N. The impact of psychological hardiness on intolerance of uncertainty in university students during the COVID-19 pandemic. *J. Community Psychol.* **2022**, *50*, 3574–3589. [CrossRef]

73. Doğanülkü, H.A.; Korkmaz, O.; Griffiths, M.D.; Pakpour, A.H. Fear of COVID-19 lead to procrastination among Turkish university students: The mediating role of intolerance of uncertainty. *BMC Psychol.* **2021**, *9*, 1–8. [CrossRef]

74. Goyal, D.; Sharma, U. Emotion, Cognition, and COVID-19: A Study Exploring the Association Between Fear of COVID-19 Intolerance of Uncertainty and Decision-Making in Indian Adolescents. *J. Indian Assoc. Child Adolesc. Ment.* **2022**, *18*, 92–99. [CrossRef]

75. Nota, L.; Soresi, S. Italian adaptation of Melbourne Decision Making Questionnaire of Leon Mann. *GIPO* **2000**, *1*, 38–52.

76. Buonaccorsi, J.P.; Romeo, G.; Thoresen, M. Model-based bootstrapping when correcting for measurement error with application to logistic regression. *Biometrics* **2018**, *74*, 135–144. [CrossRef] [PubMed]

77. Padilla, M.A.; Veprinsky, A. Correlation attenuation due to measurement error: A new approach using the bootstrap procedure. *Educ. Psychol. Meas.* **2012**, *72*, 827–846. [CrossRef]

78. Sadoughi, M.; Hesampour, F. The mediating role of happiness in the relation between hope and academic self-efficacy with academic buoyancy among students. *RRJ* **2019**, *8*, 21–30.

79. Safa, J.S.; Esfhani, M.D.; Poordel, M. Development of a Model of Academic Buoyancy based on with School Connection, Family's Emotional Atmosphere, Motivation, Self-efficacy and Academic Engagement of Students. *J. Couns. Res.* **2021**, *20*, 652–667.

80. Tamannaeifar, M.R.; Arbabi Ghohroudi, F. Relationship between Self-regulation and Self-efficacy with Students' Academic Buoyancy: Mediating of Academic Resilience. *J. Educ. Psychol. Stud.* **2022**, *19*, 148–170.

81. Fakharian, J.; Yaghoobi, A.; Zargham Hajebi, M.; Mohagheghi, H. Predicting Academic Buoyancy based on Family Emotional Climate, Academic Engagement, and Academic Self-Efficacy. *Med. J. Mashhad Univ. Med. Sci.* **2020**, *63*, 2391–2401.

82. Klassen, R.M.; Krawchuk, L.L.; Rajani, S. Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination. *Contemp. Educ. Psychol.* **2008**, *33*, 915–931. [CrossRef]

83. Dogan, U. Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *Anthropologist* **2015**, *20*, 553–561. [CrossRef]

84. Brando-Garrido, C.; Montes-Hidalgo, J.; Limonero, J.T.; Gómez-Romero, M.J.; Tomás-Sábado, J. Relationship of academic procrastination with perceived competence, coping, self-esteem and self-efficacy in nursing students. *Enferm. Clín.* **2020**, *30*, 398–403. [CrossRef] [PubMed]

85. Bakioğlu, F.; Korkmaz, O.; Ercan, H. Fear of COVID-19 and Positivity: Mediating Role of Intolerance of Uncertainty, Depression, Anxiety, and Stress. *Int. J. Ment. Health Addict.* **2021**, *19*, 2369–2382. [CrossRef]

86. Satici, B.; Saricali, M.; Satici, S.A. Intolerance of Uncertainty and Mental Wellbeing: Serial Mediation by Rumination and Fear of COVID-19. *Int. J. Ment. Health Addict.* **2022**, *20*, 2731–2742. [CrossRef] [PubMed]

87. Cuadrado, E.; Rich-Ruiz, M.; Gutiérrez-Domingo, T.; Luque, B.; Castillo-Mayén, R.; Villaécija, J.; Farhane-Medina, N.Z. Regulatory emotional self-efficacy and anxiety in times of pandemic: A gender perspective. *Health Psychol. Behav. Med.* **2023**, *11*, 2158831. [CrossRef] [PubMed]