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When Delay Diminishes Well-Being: Locus of Control as a Psychological Bridge Between Adolescent Procrastination and Life Satisfaction

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ABSTRACT

Adolescents' main self-regulatory problem is procrastination, and it affects their psychological well-being and health. This study used a mediation model of internal sense of agency to analyze the relationship between procrastination and life satisfaction in adolescents of Pakistan. The study was conducted on 800 school-going students in the age range of 13 – 19 years (Mean = 16.24 years, SD = 1.89) from secondary schools of Gujranwala in Pakistan, out of which 52% students were female and 48% were male. Three self-report scales were administered to all participants: the Pure Procrastination Scale (Steel, 2010), Locus of Control Scale (Rotter, 1966) and Multidimensional Students Life Satisfaction Scale (Huebner, 1994). For the mediation analysis, 5,000 iterations of resampling were used, following Preacher and Hayes (2008). The analysis showed that life satisfaction had a significant inverse correlation with procrastination ($r = -.46$, $p < .01$), and beliefs about external causality, a positive one ($r = .49$, $p < .01$). Further, there was a strong inverse correlation between life satisfaction scores and external causality beliefs ($r = -.53$, $p < .01$). The relationship was partially mediated by the indirect effect of procrastination on satisfaction ($\beta = -0.31$, SE =.05, 95-percent boot CI = -0.42, -0.22) and the effect accounted for 32.6 percent of the overall effect. Adolescents' beliefs of external causes partially mediate the relationship between their life satisfaction and procrastination. The conclusions indicate that there are immediate and indirect harmful effects of procrastination on people's subjective wellbeing, which increases external attribution and reduce people's sense of agency. Causality and procrastination interventions could be beneficial in improving adolescent life satisfaction.

Introduction

Adolescence is a significant developmental period with notable changes that impact the biology, cognition, and psychosocial components that shape the developmental trajectory for life-long well-being. During this time, patterns of behaviour may emerge

which involve task avoidance, as well as avoiding putting the necessary actions in place for expected outcomes, which can cause severe mental anguish and a drop in life satisfaction (Steel 2007). Task avoidance is an emerging and very common SLD for teenager groups which shows significant negative correlations with psychological health and academic performance. Through a comprehensive meta-analytical examination, Steel (2007) identified task avoidance as a strong predictor of poorer psychological adjustment, with this predictive factors being associated with higher levels of psychological strain and psychological anxiety, and with lower life satisfaction level. When adolescents have a number of conflicting demands on their academic and social lives, ongoing procrastination can exacerbate feelings of being vulnerable, resulting in a loop of poor performance, greater psychological distress, and even less competence.

The concept of sense of control, that is, the ability to act freely about situations or conditions that a person feels he/she can affect is a basic psychological principle. According to Rotter (1966), perceived control is manifested as general expectations regarding reinforcements in personal experience. People with an external sense of control tend to blame things on luck and more external causes, while people with an internal sense of control believe that they are controlling the circumstances. Research has validated negative correlations between external sense of control and contentment with school performance as well as with overall well-being in adolescent cohorts (Rodeberry & Renk 2010).

Recent experimental studies have begun to examine the relationship between task avoidance and sense of control. Rustamov et al. (2024) conducted a structural equation analysis which revealed that within the relationship between scholastic satisfaction and psychological adjustment, external sense of control was completely mediated by scholastic task avoidance, with behavioral deferral subsequently being found to possibly reduce scholastic satisfaction. In turn, internal sense of control has been identified as a beneficial influence as it reduces tendencies for task avoidance, and on enhancing wellness indices across domains (Rustamov et al. 2024). These findings suggest that concepts of personal agency may contain cognitive-behavioural components that explain the way self-regulatory function relates to adjustment outcomes.

Significance of Study

The research paper is relevant to the current body of knowledge by looking at how the mediating variable of external locus of control mediates between procrastination and life satisfaction in Pakistani high school students. The cultural context of Pakistan is a distinctive collectivistic culture with hierarchical social organization, which can impact the attributional style and behavioral regulation of adolescents (Uzun et al., 2022). The study concentrating on a Pakistani adolescent sample builds on the previous literature based on mostly Western and other collectivistic cultural settings, and offers evidence on the generalizability/cultural particularity of these psychological processes. The results can be applied in practice to educational interventions that can improve adolescent well-being by increasing perceived control, as well as decreasing procrastinatory behavior.

Literature Review

Procrastination and Life Satisfaction: Across different groups, there has been a consistent association between procrastination and poor psychological health. A meta analysis on the research and theoretical literature on procrastination conducted by Steel (2007) indicates that procrastination is negatively related to satisfaction with life, happiness and broader psychological functioning. At the adolescent level, delaying behavior is correlated with higher stress, anxiety and depressive symptoms which, in turn, reduces quality of life (Ferrari et al., 2017). According to a research conducted by Uzun et al. (2022), academic delay behavior was shown to be a significant factor for life satisfaction among young adults in developing countries with family context being a moderating factor between them. These findings imply that procrastination affects well-being in more complex ways than simply alone, but also in interaction with factors surrounding the importance of the context to the life satisfaction construct.

Locus of Control and Well-Being: The concept of perceived control and psychological adaptation have been well-studied in psychological research. A perceived threat of external control was found to be a risk factor for psychological stress and negative psychological outcomes (Roddenberry and Renk 2010), while a perceived threat of internal control was shown to support coping mechanisms and positive mental health outcomes. Outward-directed perceived control among youth is associated with a higher risk of academic problems, decreased self-competence and poor emotional regulation. The theory of self-determination (Deci & Ryan, 2000) suggests that autonomous motivation and perceived competence are antecedents to optimal psychological functioning.

Procrastination and Locus of Control: An interest in exploring the relationships between these psychological variables is the current focus of research. Evasive coping strategies indicated a relationship with delay behavior, as well as, external attributions, which indicates that people involved in delay behaviors might be trying to avoid responsibilities because that they can do nothing to influence outcome (Ferrari et al., 2017). Analysing and modelling of data carried out by Rustamov et al. (2020) have resulted

that academic delay behavior was the intermediary variable which determine relationship between PC and ACW in the given sample of young people of Azerbaijania, wherein the externally oriented PC produced negative influence and the internally oriented PC produced positive influence on the ACW outcomes. In this investigation we found considerable support for the degree to which perceived control is linked to delay behavior and satisfaction, supporting the interconnections hypothesized in this study.

The Mediating Role of Locus of Control: The theoretical explanation of locus of control as a mediator of the relationships between procrastination and life satisfaction is based on the assumption that procrastination can lead to a decrease in the perceived personal control. Chronic delaysers tend to receive negative feedback, poor performance consequences and social sanctions which can result in the assumption that their work is in vain and results are externally fixed. This mental reorientation towards external to internal attributions then reduces the satisfaction in life as people are helpless in their situations. This mechanism is supported by cross-cultural research, as Uzun et al. (2022) revealed the impact of the cultural context on the strength of the relationships between procrastination and perceived control and well-being.

Rationale and Research Gap

Although there are already established relationships between procrastination, locus of control, and well-being, the mediating effect of locus of control in the relationship between procrastination and life satisfaction in Pakistani adolescents is not fully studied. Past studies have mainly considered Western samples or analysed these variables separately as opposed to considering them as a mediation model. The gap currently examined in the present study is that a detailed framework of mediation is tested in a Pakistani learning setting. Moreover, knowledge about the applicability of the mediation effect to other cultural settings has significant consequences on the generalizability of theoretical frameworks and the creation of culturally-sensitive interventions.

Hypotheses

H_1: Procrastination is negatively related to life satisfaction among adolescents significantly. (Higher procrastination → Lower life satisfaction)

H_2: The connection between procrastination and external locus of control is significantly positive. (Higher procrastination → Greater externality/less perceived control)

H_3: External locus of control has a strong negative association with life satisfaction. (Greater externality → Lower life satisfaction)

H_4: Locus of control plays an important role in mediating the relationship between procrastination and life satisfaction.

Method

Participants: 800 adolescents (high school educational institutions of Gujrat) took part in the research. The sample size was 416 (52) females and 384 (48) males, aged 13-19 years. The sample size was selected through stratified random sampling to recruit participants at a variety of schools (both public and private) in Gujrat district, Punjab, Pakistan, and of various school types and grade levels. All the participants were in grades 9-12 and had lived in Gujrat at least one year before studying. Students diagnosed with a learning disability or severely mentally ill were not included in the study to reduce confounding effects.

Measures

To measure the study variables, three standardized self-report measures were used. A description of each instrument is below.

Pure Procrastination Scale (PPS): Steel (2010) has developed a Pure Procrastination scale with 12 items using a self-report approach to measure chronic procrastination tendencies. The items on the scale are rated on a 5-point Likert scale, with 1 = strongly disagree and 5 = strongly agree, and the higher the scores, the more procrastination a student is likely to demonstrate. There are items such as: 1 procrastinate 1 delay activities that aren't reasonably necessary 1 tend to be busy doing things I had scheduled 1 to days ago. High internal consistency ($\alpha = .91$) was obtained with this instrument in this investigation.

Locus of Control Scale: The Locus of Control Scale (Rotter, 1966) was a 40-item forced-choice scale that measures general expectations for internal and external LOC. For each item there will be two options, one for internal and one for external control. The maximum score is 40, with higher scores as a sign of higher external locus of control orientation. In this investigation, satisfactory internal consistency ($\alpha = .88$) was found.

Multidimensional Students' Life Satisfaction Scale (MSLSS): MSLS (Multidimensional Students' Life Satisfaction Scale) is a self-report 40-item scale that assesses life satisfaction on five scales related to family, friends, school, self and living environment (Huebner, 1994). The respondents use a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree); higher score values representing higher satisfaction with life. Some examples of samples include: My favorite things are to stay at home; I can make plans with good friends. Adopted scale exhibits good internal consistence degree in the investigation (α = .91).

Procedure

Prior to data collection, ethical approval was obtained from high schools. Parents/guardians of all the participants gave informed consent and assent was given by the adolescents themselves. The participants were told about the purpose of the study and that they could come out at any time without punishment since the study was voluntary. The privacy and anonymity were guaranteed.

The data was taken at normal school time in classrooms. Questionnaire packets with all the three measures were given out by research assistants, and a demographic information sheet. The standardized instructions were given both orally and in writing and the participants were asked to answer the questions in a truthful manner. The questionnaires were completed in about 20-25 minutes. The completed packets were taken as soon as they were completed and the participants were debriefed about the purpose of the study.

Data Analysis

The analysis of data was conducted using SPSS (Version 27). Descriptive statistics (means, standard deviations, ranges) and reliability coefficients (Cronbachs alpha) were computed as initial analyses. To examine bivariate relationships among the study variables, Pearson product-moment correlations were determined. Direct effects (H 1, H 2 and H 3) were examined using simple and multiple linear regression analysis. The indirect effect (H 4) was assessed through mediation analysis utilizing the resampling technique (Preacher and Hayes, 2008) with 5,000 resampling iterations and 95 percent confidence intervals. Statistical significance was established at $p < .05$.

Results

Table 1: Reliability Coefficients for All Study Measures

Scale	Items	Cronbach's Alpha
Pure Procrastination Scale	12	.91
Locus of Control Scale	40	.88
MSLSS	40	.93

Note. MSLSS= Multidimensional Students' Life Satisfaction Scale.

Preliminary Analyses: 800 adolescents (M = 16.24 years, SD = 1.89; 13 to 19 years; 52% female) enrolled in high school educational institutions of Gujrat took part in the study. All measures of the study were evaluated in terms of internal consistency reliability through Cronbach alpha (see Table 1). The Pure Procrastination Scale had an excellent reliability (=.91) and also was the Locus of Control Scale (=.88) and the Multidimensional Students Life Satisfaction Scale (=.93). All values were above the accepted coefficient of .70 (Nunnally, 1978) which indicated good internal consistency among the instruments.

Table 2: Descriptive Statistics

Variable	Mean	SD	Min	Max
Procrastination	34.82	8.41	12	60
External Locus of Control	103.47	14.89	54	165
Life Satisfaction	161.28	24.65	72	200

Note. N=800 for all variables

Participants on average had moderate procrastination (M = 34.82, SD = 8.41; possible range: 12-60) and external locus of control (M = 103.47, SD = 14.89; possible range: 40-200). The average level of life satisfaction was quite high (M = 161.28, SD = 24.65; the range is 40-200). There was a significant difference between all measures as shown by the standard deviation and the range of observed values, which shows that the range of adolescent experiences in all these constructs was well represented in the sample.

Table 3. Pearson Correlations Among All Study Variables

Variable	1	2	3
1. Procrastination	1		
2. External LOC	.49**	1	
3. Life Satisfaction	-.46**	-.53**	1

** p < .01

To test the zero-order relationships between procrastination and external locus of control and life satisfaction, Pearson product-moment correlations were calculated (see Table 3). Procrastination showed a significant moderate positive correlation with external locus of control, r = +.49, p =.01, and a significant moderate negative correlation with life satisfaction, r = -.46, p =.01. Life satisfaction was significantly and moderately negatively correlated with external locus of control, r = -.53, p <.01. These results gave preliminary evidence of Hypotheses 1-3.

Hypothesis Testing: Hypotheses 1-3 (Direct Paths). The direct relationships as defined in the Hypotheses 1 to 3 were tested using simple linear regression. In support of H_1, procrastination significantly negatively predicted life satisfaction, B = -0.95, SE = .08, β = -.46, t(798) = -11.88, p < .001, indicating that higher procrastination was associated with lower life satisfaction.

Table 4: Summary of Regression Analysis for Procrastination Predicting External Locus of Control

Predictor	B	SE	β	T	p
Constant	71.28	3.42	—	20.84	<.001
Procrastination	0.92	.06	.49	15.86	<.001

R^2 = .24

The procrastination variable was analyzed using a simple linear regression analysis to determine whether the external locus of control significantly predicted procrastination (see Table 4). The overall model was significant, F(1, 798) = 251.54, p < .001, R^2 = .24. Procrastination significantly and positively predicted external locus of control, B = 0.92, SE = .06, β = .49, t(798) = 15.86, p < .001, indicating that higher procrastination was associated with greater externality. These results confirm Hypothesis 2 (H_2).

Table 5: Summary of Regression Analysis for Procrastination and External LOC Predicting Life Satisfaction

Predictor	B	SE	β	t	p
Constant	214.15	4.76	—	44.97	<.001
Procrastination	-0.64	.08	-.22	-8.00	<.001
External LOC	-0.44	.05	-.42	-9.45	<.001

R^2 = .39

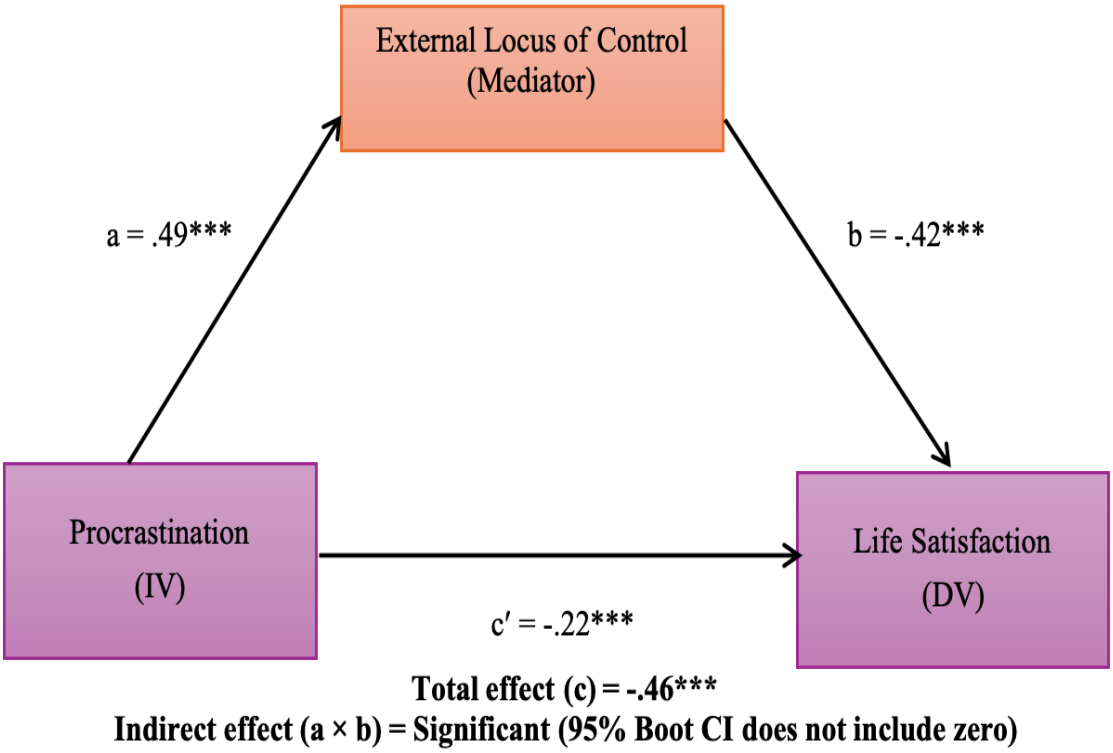
External locus of control significantly and negatively predicted life satisfaction, B = -0.44, SE = .05, β = -.42, t (797) = -9.45, p < .001, while procrastination also remained a significant predictor, B = -0.64, SE = .08, β = -.22, t (797) = -8.00, p < .001. The overall model explained 39% of the variance, F (2, 797) = 254.85, p < .001, R^2 = .39 (see Table 5), supporting Hypothesis 3 (H_3).

Table 6. Mediation Effects of External Locus of Control on the Procrastination-Life Satisfaction Relationship

Effect	B	Boot SE	95% Boot CI
Total	-.95	.08	[-1.11,-.79]
Direct	-.64	.08	[-.80,-.48]
Indirect	-.31	.05	[-.42,-.22]

Hypothesis 4 (Mediation). The bootstrapped mediation analysis (5, 000 resamples; Preacher and Hayes, 2008) showed that there was a significant indirect effect of procrastination on life satisfaction via external locus of control, B = -0.31, SE =.05, 95% CI = -0.42 -0.22) (See Table 6). The total effect was significant, B = -0.95, 95% CI [-1.11, -0.79], while the direct effect remained significant after including the mediator, B = -0.64, 95% CI [-0.80, -0.48]. The model explained 39% of the variance (R^2 = .39), with 32.6% of the total effect mediated, supporting partial mediation (H_4).

Figure 1 Mediation Model: Locus of Control as a Mediator Between



Note. PPS = Pure Procrastination Scale; MSLSS = Multidimensional Students' Life Satisfaction Scale. Values are standardized coefficients (β). *** p < .001

Discussion

The current paper has explored how the external locus of control mediates the association between procrastination and life satisfaction in 800 high school adolescents in Gujrat. The results presented are consistent with all four hypotheses, indicating that procrastination is notably correlated with low life satisfaction, both directly and indirectly, by affecting perceived control.

Interpretation of Findings: The findings were consistent with prior studies, showing that there was a significant negative correlation between life satisfaction and procrastination (Uzun et al., 2022). Teenagers who reported more procrastination had lower levels of well-being, which corroborates the theoretical assumption that procrastination brings about psychological distress and worsens the general quality of life (Steel, 2007). The results are consistent with the existing body of literature that suggests that procrastination negatively affects academic and personal functioning in young cohorts (Rustamov et al., 2024).

The research also found out that procrastination was a strong predictor of external locus of control, implying that habitual procrastinators would explain results through external forces that they have no control over. It is a theoretically significant association since procrastination tends to be a result of and a contributor to a sense of helplessness concerning one's situation (Ferrari et al., 2017). The intermediate effect size (o =.49) suggests that this correlation is practically important in the comprehension of adolescent psychological functioning. External locus of control, in its turn, turned out to be a powerful negative predictor of life satisfaction, with a significant effect size (-.42). This result supports the studies that show that adolescents who view their lives as being in the hands of external forces, including fate, chance, or influential people, report poorer well-being than those who have an internal orientation (Roddenberry & Renk, 2010). These direct effects were consistent, which formed a strong base to test the mediation hypothesis.

The primary finding of this research demonstrated that procrastination exerts a substantial mediated consequence on life satisfaction by way of an external locus of control. Bootstrapped mediation analysis was employed to establish that the mediated pathway demonstrated statistical significance (B = -0.31, 95% Boot CI [-0.42, -0.22]), revealing that the pathway functioned as a

partial mediator. The psychological mechanism accounted for approximately 32.6% of procrastination's cumulative influence on life satisfaction. This suggests that procrastination diminishes subjective well-being through partially undermining the perceived agency individuals experience in directing their lives during adolescence.

These findings correspond with research by Rustamov et al. (2024), who substantiated the proposition that scholastic procrastination functioned as a mediating variable in the association between locus of control and educational satisfaction among Azerbaijani adolescents. Their investigation similarly demonstrated that an external locus of control maintained an inverse relationship with well-being outcomes, whereas an internal locus of control demonstrated a favorable association with positive psychological outcomes. The current investigation expands upon this scholarship by systematically examining the mediating influence of locus of control within the procrastination-satisfaction relationship within a cohort of Pakistani adolescents, thereby contributing to comparative cultural understanding regarding these interconnected psychological phenomena.

The converging evidence of several studies also supports the mediation model. Sirois (2014) established that procrastination is a predictor of stress levels due to a lack of self-compassion, and Berber Çelik and Odacı (2020) established that the insecure attachment styles indirectly reduce subjective well-being by influencing procrastination. Shogren et al. (2006) have defined locus of control as a fundamental positive psychology construct that has a significant positive correlation with life satisfaction among adolescents, showing that hope and optimism that are directly related to internal control orientation are direct predictors of increased well-being. All these studies imply that the mediation pathway that we have found is a subset of a larger nomological network where procrastination causes various negative psychological conditions such as external control beliefs, insecure attachment patterns, less self-compassion, and increased stress which together undermine adolescent well-being. The fact that we had a partial mediation (32.6%) in our model suggests that although locus of control is a significant explanatory mechanism, these other pathways probably have additional explanatory power.

Yang (2021) added a more nuanced cultural approach by exploring self-regulation as a moderator between procrastination-life satisfaction relationship between Chinese and British samples. Importantly, Yang discovered that self-regulation greatly mediated the adverse impact of procrastination on life satisfaction but the moderation effect was only noteworthy in the Chinese sample but not the British sample. This observation has significant implications on how we interpret our findings in the Pakistani cultural context. Pakistan is also a collectivist society similar to China, in general, whereby self-control, family pressure, and social harmony are held in high esteem. It is reasonable to assume that the negative impact of procrastination on life satisfaction among Pakistani adolescents can be also moderated by individual differences in self-regulatory capacity. Although this moderation effect was not observed in our study, the findings of Yang indicate that the magnitude and character of the procrastination-satisfaction relationship might be different in different cultural settings and that the next generation of research in Pakistan should examine the possible moderators of this relationship including self-regulation, parental involvement, and cultural values.

Combined, these four studies; Sirois (2014), Berber Çelik and Odacı (2020), Shogren et al. (2006), and Yang (2021) and the background research of Rustamov et al. (2024) and Uzun et al. (2022) all find a common conclusion: procrastination negatively affects adolescent life satisfaction in a number of interrelated ways, such as a decrease in perceived control, an increase in stress, a decrease in self-compassion, insecure attachment patterns, and, perhaps, culturally moderated mechanisms based on self-regulation. The current research adds to this emerging body of evidence by specifically pinpointing the external locus of control as a key mediator in a Pakistani adolescent sample, thus extending the cross-cultural generalizability of these psychological processes and the need to implement culturally sensitive, multi-component interventions to address both procrastinatory behaviors and the control beliefs that perpetuate them.

Implications

The results have strong practical implications on educational and psychological interventions aimed at enhancing the well-being of adolescents. The elements that enhance the internal locus of control like goal-setting workshops, training in self-regulation and cognitive restructuring techniques should be included in school-based programs that reduce procrastination. Teachers and counselors can find it useful to know that interventions to combat procrastination might not be enough, but perceived control should also be included in the interventions in order to maximize the increase in life satisfaction. Moreover, timely assistance to adolescents with high procrastination levels and external locus of control might be achieved by identifying them at an early age, which might help to avoid the cascading consequences on mental health and academic performance. These implications are consistent with the recent suggestions of the significance of promoting perceived control in the educational environment (Uzun et al., 2022; Rustamov et al., 2024). The psychological processes connecting procrastination and well-being should also be sensitized

to parents and teachers so that they can offer the right support and guidance that can lead to behavior change and internal perceived control among the adolescents.

Limitations and Future Directions

There are some methodological limitations that need to be noted in this investigation: The main disadvantage of the cross-sectional method is that it limits the ability to specify the direction of causality between the variables under study. Logical sequence and causal ordering then would follow from prospective/experimental methods. Secondly, because these data are self-reported, and the instruments used were measured, there is a potential for methodological artifacts and for social desirable distortions, which have been shown to be psychometrically valid. Thirdly, participant recruitment was restricted to secondary educational institutions (schools) from Gujrat; thus, the study's results have constraints in generalizability over and beyond that of certain regions (other parts of Pakistan), other educational institutions (colleges or universities).

Further research should include cross-cultural and culture sensitive comparisons across a variety of sociocultural and socioeconomic environments for the applicability of the procrastination model. Also, the use of a methodological framework based on qualitative approaches could lead to better understanding of the perception of the phenomenological aspects of procrastinatory behavior and perception of behavioral regulation in younger groups. Exploring of the possible moderating factors such as sex, developmental stage or educational attainment; would improve the comprehension of the contextual factors affecting the pathway of mediation. Further, empirical research using an intervention approach is necessary to determine if psychological control-focused interventions are effective in reducing the associated costs of procrastination for subjective well-being.

Conclusion

The findings of the present study have validated procrastinatory tendency and subjective well-being of Pakistani adolescents through behavioral attribution patterns. The results highlight the importance of attributional processes in psychological and behavioral aspects of psychological adjustment in youth. Procrastinatory behavior has direct negative impacts on subjective well-being, as well as ancillary negative impacts which occur indirectly via the external attributional patterns created by procrastinatory behaviors and the reduction in behavioral agency. Such findings are relevant to understanding adolescent adjustment processes and shed light on the psychologically related processes of internal behavioral attributions and reduced procrastinatory engagement for therapeutic interventions aimed at improving such processes.

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