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Adolescent Woes? Approval Motivation, Test Anxiety, and the Role of Perceived Self-Control

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Abstract

The Association of Adolescents and Child Care in India (AACCI) conducts multicentric studies on youth behavior in India. Using openly accessible psychometric tools, the present study discusses the demographic-wise interrelationships between the Children's Perceived Self-Control (PSC), Martin-Larsen Approval Motivation (AM), and Friedben's Test Anxiety Scales (FTAS) administered to 712 students (Group-1: 10-14 yrs.; Group-II: 15-18 yrs.) from two Delhi-based schools. The survey-questionnaire included four demographic variables: age, gender, sibling status, and body mass index. Although mainstream literature has uniformly contented in favour of the benefits of PSC, one-way ANOVAs in the present study revealed that high PSC was associated with significantly high AM ($F[2,709] = 3.033$, $p = 0.049$), suggesting that people with high PSC may diligently weigh short- and long-term consequences, choosing behaviors that best align with their interests and enduringly valued goals. Further, this relationship was statistically significant for participants in the no siblings ($p = 0.005$) and underweight groups ($p = 0.031$). Participants with high PSC had the lowest FTAS scores; however, this relationship was not statistically significant. Lastly, AM and FTAS were negatively correlated ($r = -0.216$, $p<0.01$), especially for females, Group-II, and participants with siblings ($r = -0.278$, -0.292, and -0.244, respectively), clarifying distinct differences between AM and FTAS' subscales. The implications of findings were shared with the school management to conduct customized interventions using the WHO's Life Skills Education framework. The findings highlight the need for time-series interventional analysis to ascertain the direct and cumulative effects of intervention on the interrelationships between PSC, AM, and FTAS.

Introduction

Accompanied by racing thoughts, increased perspiration, nervous tension, and tingling sensations, anxiety corrodes the ability to "just be," taking away from the momentarily available cognitive capacity[1,2]. With continuous internal assessments, parental attention to and expectations of academic performance, increasing performance-related shame, and the fear of disappointing oneself and others over the last few decades, test anxiety has severely impacted students' well-being[2,3,4]. As a multidimensional construct, test anxiety encompasses several cognitive (disruption in effective self-control, thinking, problem-solving, and retrieval), affective (feelings of apprehension, fear, and discomfort), and physiological reactions (nervous dysregulation, physiological arousal, and psychosomatic complaints) observed in evaluative situations[5,6].

According to Pekrun's control-value theory (CVT), test anxiety results from a perceived loss of self-control (SC) over academic abilities and outcomes[7]. Whereas people with state test anxiety experience transitory anxious effects in specific test situations,

people with trait test anxiety experience anxiety in most evaluative situations[1,3]. SC refers to one's self-initiated ability to inhibit instinctual responses to choose adaptive ones, enabling the regulation of one's thoughts, emotions, and behaviors in light of their overarching and enduringly valued goals. Thus, perceived self-control (PSC) refers to one's perception of this self-initiated ability[8].

A perceived loss of SC may lead to the depletion of cognitive resources, the use of inflexible problem-solving strategies, poor self-regulation, and a subsequent decrease in test performance[7]. [Note: SC is interchangeably used with "self-regulation" in the strength of SC model[9].] Drawing upon the strength of SC, several studies have also employed a two-task paradigm to examine the effects of the depletion of SC on subsequent task performance[9,10,11]. Task 1 of the two-task paradigm requires participants in the experimental group to perform a task requiring SC, leading to the eventual depletion of SC strength; however, participants in the control group perform a task ensuring that their SC strength remains intact. Subsequently, Task 2 (performance task) draws upon SC strength for participants in both the groups. In an experiment conducted by Baumeister, Vohs, and Tice, for example, Task 1 comprised an amusing video-screening. Participants in the SC depletion (experimental) group were given instructions to restrict expressed emotionality. Contrarily, participants in the non-depletion (control) group watched the same video with no instructions. In Task 2, participants were administered a speed and performance test, requiring them to solve anagrams[11]. The aforementioned studies have reliably shown that participants in the SC depletion (vs. control) condition demonstrate lower SC in Task 2[9].

Bertrams, Englert, and Dickhauser applied the aforementioned paradigm to the incidence of anxiety in a test situation among undergraduate students (n = 119, 75 women; age range: 17-36 yrs., M_{age} = 22.6 yrs., SD = 3.7 yrs.). Prior to the experimental manipulation of SC strength, there were no statistically significant differences in trait test anxiety and SC between the depletion and non-depletion groups. Task 1 required participants to transcribe a story for six minutes. Participants in the SC depletion (vs. non-depletion) condition were instructed to leave out the letters 'e' and 'n.' After the completion of Task 1, a test—as a perceived threatening situation—was announced to measure important aspects of the participants' intelligence, comparing individual performance levels against the group to receive individual feedback from the experimenter. The researchers hypothesized that SC would moderate the relationship between trait and state test anxiety, that is, high (intact) SC strength would aid in counteracting test anxiety induced by the threatening situation. In Task 2, individuals with high trait test anxiety were found to experience severe state anxiety in the SC depletion condition; however, trait test anxiety did not significantly predict state test anxiety in the non-depletion condition, $F(3,115) = 7.21$, $p < 0.001$, $R^2 = 0.16$, suggesting that interventions focusing on increasing SC strength may help to counteract test anxiety[12].

An explanation for the aforementioned results may be found in Tice and Bratslavsky's theoretical proposal, which states that the alteration of emotional expression (in gestures and mimicry) or experience (experiencing lower anxiety levels) is an aspect of SC, involving the substitution of a predominant emotional state by a different, currently non-predominant experience. Contrarily, participants in Bertrams et al.'s non-depletion group had higher SC (regulation) strength after Task 1, allowing them to effectively counteract their state anxiety when the threatening test was announced. However, participants in the experimental group showed an impaired ability to counteract their state anxiety, leading to the experience of heightened anxiety[13].

Several studies have also employed the Marlowe-Crowne Social Desirability Scale (MCSD) to demonstrate that individuals with high SC often override impulsive reactivity and tailor their expression to socially appropriate cues. Stavrova and Kokkoris demonstrated that the relationship between SC and MCSD was moderated by agreeableness, that is, individuals with high PSC and agreeableness used their self-regulatory resources to respond in a socially sanctioned manner[14]. However, it must be noted that the MCSD only measures a global need to seek approval and sustain a positive image across situations; it does not directly cater to the need to avoid negative evaluation, social rejection, and punishment. Contrarily, the Martin-Larsen Approval Motivation Scale (MLAMS) assesses approval motivation (AM), which comprises both the need to receive social reinforcement and dodge negative evaluations and social punishments[15]. Thus, it is essential to explore the relationship between PSC and AM.

Besides, the past few decades in India have witnessed increasingly fierce competition for competitive tests across academia, leaving professors, parents, and students under tremendous social and occupational pressure[2,4,5]. In consequence, it is critical to place emphasis on "test anxiety" as the fear of failing a test and suffering degradation in one's self-efficacy and social self-image. This anticipated loss may also be foreseen as a "degradation of one's social self-image" and an immediate threat accompanied by worries pertaining to diminishing social and occupational opportunities, especially among students graduating from high school and junior colleges[1,16]. Thus, one's performance ofttimes determines their self-worth, social image, and parental approval[14].

Positively, the empirical literature suggests that PSC is a protective factor against stress-induced self-destructive behaviors (for example, substance use, non-substance addiction, and self-harm). It is positively correlated with self-efficacy, academic performance, and psychological well-being. Inflexibly, high PSC can also lead to pathological academic perfectionism, repressed needs, frustration, and subsequent psychosomatic distress for example, gastrointestinal disturbances like constipation[17,18]. Thus, while mainstream research focusing on PSC has uniformly contended in favor of its benefits, Uziel and Hefetz have strongly argued that people with high PSC diligently weigh short- and long-term consequences, choosing behaviors that best align with their interests and enduringly valued goals[11]. Nonetheless, there is a considerable gap in the extant literature focusing on the interrelationships between PSC, AM, and trait test anxiety. Longitudinally, interventions based on the implications of interrelationships may be helpful to understand the direct effects of PSC on AM and FTAS.

Accordingly, as part of its multicentric studies on youth behavior in India, the Association of Adolescent and Child Care in India (AACCI) conducted a survey to study the differences in AM and trait test anxiety among different PSC groups (3 levels: low, moderate, and high). Participants included students (n = 712) from grades V to XII, studying in two schools in Delhi, India. They were administered three psychometric tools, including the Children's Perceived Self-control Scale (CPSCS[19]), Friedben's Test Anxiety Scale (FTAS[1]), and the MLAMS[15], to gauge the participants' PSC, trait test anxiety (FTAS), and AM levels, respectively. Additionally, the survey gathered the participants' sociodemographic data, including gender, age, sibling status, and body mass index (BMI). In India, grades V-VIII/IX (Group I: 10-14 yrs.) are marked by a gradual increase in academic difficulty to prepare students for grades X and XII (Group II: 15-18 yrs.), which serve as important hallmarks for secondary and senior secondary education. The board examination results considerably influence the students' admissions to numerous undergraduate courses. Considering the variables of academic interest in the current study, the participants' grades served as the basis for the aforementioned age grouping. Additionally, siblings have shown to model emotional regulation practices and provide academic assistance and comfort during emotional arousal stemming from test anxiety. Contrarily, sibling rivalry, stemming from perceived parental bias and rejection has further shown to contribute to negative affect and conflict[20]. Thus, sibling status becomes a pertinent variable in the current study. To adopt a biopsychosocial approach to the study, we also wanted to study the germaneness of BMI to our variables of interest [21,22].

Materials and Methods

Aim

The current study aimed to investigate: (1) if PSC acts as a protective factor against exam anxiety, that is, children with high PSC have low FTAS scores; (2) if children with high PSC seek more approval and avoid negative evaluation from others, that is, children with high PSC have high AM scores; and (3) the relationship between approval motivation and FTAS sub-scale scores (social derogation, cognitive obstruction, and nervous tension). We further studied the demographic-wise (age-, gender-, sibling status-, and BMI-wise) relationships between the aforementioned scale scores.

Sample Size and Selection Criteria

Participants included in the study were children from 10 to 18 years (n = 712; M_{age} = 14.21 yrs., SD = 1.43) from two Delhi-based schools (Table 1). The sample was chosen using convenience sampling in accordance with the 3rd author's rapport with the school. There were no exclusion criteria; all students from grades V to XII were included in the study. The demographic variables studied included gender (males and females), age (group I: 10-14 yrs. and group II- 15-18 yrs.), sibling status, and BMI (Table 1).

Study Duration and Design

A cross-sectional study was conducted over a week's period (one-time data collection and analysis) in July 2017. The study assessed the differences in AM (DV_1) and FTAS (DV_2) among different PSC groups (IV at 3 levels: low, moderate, and high) using one-way ANOVAs. Correlation analyses were used to assess the relationships between AM and FTAS sub-scale scores.

Tools Used

Children's Perceived Self-Control Scale (CPSCS): PSC was assessed using the 11-item CPSCS by Humphrey (1982). Responses on the items are scored as 1 (yes) and 0 (no). The total scores range from 0 to 11, with high scores reflecting higher PSC. The scale yields three sub-scores—interpersonal SC (items 1-4), personal SC (items 5-7), and self-evaluation (items 8-9). A review of the extant literature did not yield specific PSC cut-offs. Thus, the three levels of the IV (PSC) were considered at 33.33% and 66.67%, respectively—low (scores 0-4), moderate (5-7), and high (8-11)[19].

Friedben's Test Anxiety Scale (FTAS): Exam anxiety was assessed using the 23-item FTAS by Friedman and Bendas-Jacob (1997). Responses on the items are scored as 1 (yes) and 0 (no). The total scores range from 0 to 23 with high scores reflecting high trait test anxiety. This scale yields three sub-scores—social derogation (items 1-8 cater

to fears of deprecation and social belittlement following anticipated test failure), cognitive obstruction (items 9-17 gauge the subjective difficulties with concentration, recall, effective problem-solving before and during evaluative situations), and nervous tension or tenseness (items 18-23 assess perceived emotional and bodily discomfort)[1,16].

Martin-Larsen Approval Motivation Scale (MLAMS): Approval motivation was assessed using the MLAMS by Martin (1982). This 5-point Likert scale has 20 items. The total scores range from 20 to 100 (M = 53.6, SD = 9.02) with high scores reflecting a greater need for social approval[15,23].

World Health Organization's Asian cut-offs for BMI: BMI was calculated using weight (in kilograms) and height (in meters) as kg/m^2 and categorized—as underweight (UW; BMI <18.5), normal weight (NW; BMI = 18.5-22.9), overweight (OW; BMI = 23-24.9), and obese (OT; BMI >25)—according to the WHO cut-off guidelines for Asian populations[24].

Procedure

As part of its multicentric studies on youth behavior in India, AACCI designed a survey questionnaire that focused on collecting data pertaining to gender, age, sibling status, height and weight (to calculate BMI), PSC, AM, and FTAS. The population was selected via convenience sampling. The 3rd author trained teachers from the two schools to administer the questionnaire for data collection in a classroom setting, using the paper-pencil medium over a one-week period in July 2017. AACCI has published individual papers for PSC (accepted for publication in the *Indian Journal of Clinical Psychology*), FTAS (accepted for publication in the *Journal of Anxiety and Depression*), and AM[23], exploring their relationships with demographic variables for the same cohort. Subsequently, the current study explored the interrelationships between the aforementioned variables.

Permissions and Ethical Considerations

Ethical clearance for this project was given by AACCI's Institutional Ethics Committee. Permission for conducting the current study was procured from the respective schools' principals. Permission from students' parents was also attained through the principals. Informed written assent (as legal consent can only be obtained from individuals above the age of 18 years) was obtained from students after explaining the rationale and benefits of the study in the language(s) that they could comprehend. The assent was part of the questionnaire and anonymity was maintained.

Statistical Analysis

The data were analysed using the IBM SPSS Software Version 29.0.0. One-way ANOVAs were conducted to assess the differences in AM and FTAS among age-, gender-, sibling-status-, and BMI-wise PSC groups. Additionally, Pearson's correlation was used to explore the strength of the cross-sectional relationships between AM and FTAS' subscale scores. The statistical significance of the calculated coefficients was considered at $p < 0.05$.

Results

All three co-ed. English medium schools comprised students from the middle and high socioeconomic strata. The sample characteristics have been enlisted in Table 1. Participants (n = 712; School 1: n = 346; School 2: n = 366) included in this study were children in grades V to XII from two schools in Delhi, India. The gender and age distributions for the sample have been highlighted in Table 2.

Table 1: Sample Characteristics (n = 712)

Demographic variables	Sub-demographic variables	N (%)
Gender	Male	362 (50.84%)
	Female	296 (41.57%)
	Missing data- Gender not mentioned[a]	54 (7.58%)
Age	Group I (10-14 years)	403 (56.60%)
	Group II (15-18 years)	294 (41.29%)
	Missing data- Age not mentioned[b]	15 (2.11%)
Sibling Status	Siblings	532 (74.72%)
	No siblings	180 (25.28%)
	Missing data	0 (0%)
BMI categories	UW (<18.5)	280 (39.33%)
	NW (18.5-22.9)	252 (35.39%)
	OW (23-24.9)	40 (5.62%)
	Obese (>25)	55 (7.72%)
	Missing data- BMI could not be calculated because height and/or weight were not mentioned[c]	85 (11.94%)

[a]We considered n = 658 (n = 712 - 54) to test for the differences in FTAS and AM among gender-wise PSC groups.
[b]We considered n = 697 (n = 712 - 15) to test for the differences in FTAS and AM among age-wise PSC groups.
[c]We considered n = 627 (n = 712 - 85) to test for the differences in FTAS and AM among BMI-wise PSC groups.

Table 2: Gender and age distribution among two North Indian Schools (n = 712)

School	Gender[a]			Age[b]		
	Males	Females	Data missing- Gender not mentioned	Group I (10-14 years)	Group II (15-18 years)	Data missing- Age not mentioned
School 1	166 (23.31%)	155 (21.77%)	25 (3.51%)	161 (22.61%)	179 (25.14%)	6 (0.84%)
School 2	196 (27.53%)	141 (19.80%)	29 (4.07%)	242 (33.99%)	115 (16.15%)	9 (1.26%)
Total	362 (50.84%)	296 (41.57%)	54 (7.58%)	403 (56.60%)	294 (41.29%)	15 (2.11%)

[a]We considered n = 658 (n = 712 - 54) to test the differences in FTAS and AM among gender-wise PSC groups as 54 participants had not mentioned their gender.
[b]We considered n = 697 (n = 712 - 15) to test the differences in FTAS and AM among gender-wise PSC groups as 54 participants had not mentioned their age.

Table 3: Differences in AM and FTAS among PSC groups (n = 712)

		DV Scores				
DV	PSC Levels	N	Mean ± SD	df	F	*p*-value
AM	Low	376	57.444 ± 9.109	2, 709	3.033	0.049*
	Moderate	309	59.032 ± 7.897			
	High	27	59.148 ± 10.079			
Total FTAS Scores	Low	376	4.279 ± 2.323	2, 709	0.473	0.623
	Moderate	309	4.288 ± 2.174			
	High	27	3.852 ± 2.397			
Social derogation	Low	376	2.274 ± 1.897	2, 709	2.833	0.059
	Moderate	309	2.508 ± 2.127			
	High	27	1.667 ± 1.687			
Cognitive Obstruction	Low	376	3.229 ± 1.625	2, 709	2.656	0.071
	Moderate	309	3.006 ± 1.717			
	High	27	2.630 ± 1.779			
Tenseness	Low	376	9.782 ± 4.186	2, 709	1.809	0.165
	Moderate	309	9.803 ± 4.643			
	High	27	8.148 ± 4.605			

DV, Dependent variable; PSC, Perceived Self-Control; AM, Approval Motivation; FTAS, Friedman's Test Anxiety Scale
*p <0.05, **p <0.01, ***p <0.005, ****p <0.001.

Differences in AM and FTAS among PSC groups

A one-way ANOVA showed that there was a statistically significant difference in AM scores among the low (M = 57.444, SD = 9.109), moderate (M = 59.032, SD = 7.897), and high (M = 59.148, SD = 10.079) PSC groups, F (2, 709) = 3.033, p = 0.049. Surprisingly, AM increased with an increase in PSC. However, there were no statistically significant differences in total and sub-FTAS scores among the PSC groups (p >0.05; Table 3).

Further, there was a highly significant difference in AM scores of children with no siblings among the low (M = 56.196, SD = 10.290), moderate (M = 60.247, SD = 6.094), and high (M = 62.167, SD = 2.787) PSC groups, F (2, 177) = 5.473, p = 0.005. Similarly, there was a highly significant difference in AM scores of UW children among the low (M = 57.461, SD = 8.604), moderate (M = 59.704, SD = 7.104), and high (M = 63.400, SD = 7.635) PSC groups, F (2, 277) = 3.510, p = 0.031.

However, there were no statistically significant in AM scores among the age- and gender-wise PSC groups (p >0.05). Moreover, there were no statistically significant differences in total and sub-FTAS scores among the demographic-wise PSC groups (p >0.05).

Relationship between Approval Motivation and FTAS scores

Correlation analysis revealed a statistically significant weak negative correlation between AM and social derogation, r = -0.188, p <0.01. Similarly, there were statistically significant but weak correlations between approval motivation and cognitive obstruction (r = -0.155), tenseness (r = -0.12), and total FTAS scores (r = -0.216) at p <0.01.

Additionally, the correlations between AM and social derogation, cognitive obstruction, tenseness, and total FTAS scores were statistically significant and stronger among participants in group II: 15-18 yrs. (r = -0.250, -0.230, -0.157, and -0.292, respectively) as compared to those in group I: 10-14 yrs. (r = -0.131, -0.142, -0.120, and -0.177, respectively) at p <0.05. Similarly, the correlations were stronger among females (r = -0.246, -0.177, -0.205, and -0.278, respectively) as compared to males (r = -0.149, -0.144, -0.094, and -0.181, respectively) at p <0.05.

However, the correlation between AM and tenseness was not statistically significant among males, r = -0.094, p >0.05.

Furthermore, the correlations were statistically significant and stronger among participants with siblings (r = -0.215, -0.172, -0.157, and -0.244, respectively) at p <0.05. However, the relationships among the aforementioned variables were not statistically significant among participants with no siblings (p >0.05).

Discussion

The present study yielded three important findings. In accordance with Uziel and Hefetz's[25] argument that people with high PSC diligently weigh short- and long-term consequences, choosing behaviors that best align with their interests and enduringly valued goals, the present study's first finding—that participants with high PSC had a strong need to seek social approval and dodge negative evaluations from other people (Table 3)—could be interpreted in two ways. The "bright side" of PSC echoes that high PSC facilitates adherence to socially sanctioned norms such as communal cohesion and empathic concern. On the other hand, the "dark side" of PSC entails that individuals with high PSC best serve their self-interests by adhering to socially sanctioned norms and exhibiting prosocial behaviors. In this context, AM may be defined as a form of interpersonally oriented SC, such that individuals with high PSC may overclaim conventionally approved positive attributes to attain interpersonal acceptance[14,25,26].

In addition to PSC's prospective ability to influence AM, the aforementioned explanations call for further attention to the plausible bidirectionality of this relationship. Furthermore, it would be interesting to observe whether these adolescent behaviors would be reversed in collectivist cultures that value modesty over positive self-presentation. Shifting focus from a systemic (specifically, collectivist) to a person-centered lens, the need for social approval among adolescents with high PSC may, in turn, lead to repressed needs and engagement in self-sacrificial behaviors, paving the way for interpersonal frustration and disappointment. Accordingly, we encourage further research to qualitatively examine the association between PSC and approval motivation in terms of both impression management and self-deception.

An interesting variable for further study may be agreeableness, which refers to the adolescents' orientation toward affiliation, which comprises the needs for communion, belongingness, and harmony in interpersonal relationships[14]. Individuals with no sibling and high PSC (and plausibly high agreeableness) may be better able to use their self-regulatory resources to seek peer affiliation. However, with different communities redefining and revolutionizing the salience of social norms in the recent past, high agreeableness combined with the dark side of PSC could lead to severe confusion regarding one's identity and core values[17]. For example, Generation Z's sociocultural wokeness in favor of plump body types and fat phobia may surpass that for lean body types, leading to perceived alienation of "thinness" among UW individuals[2]. This may be a plausible explanation for the need for social approval among participants in the UW group. The self-talk of an individual with high PSC and high AM, for example, may look like "I am good at athletics and I would like you to acknowledge it." This may especially manifest among children who are underweight and have no siblings, striving for visibility to counteract perceived alienation. Additionally, it would have been interesting to check on the participants' economic stability or affluence, which seems to be the mediating variable that could have led to both, lower body weight and approval motivation.

Second, individuals with high PSC were found to have the lowest total and sub-FTAS scores; however, this relationship was not statistically significant (Table 3). Contrarily, the extant literature has consistently appealed for the protective role of SC strength in reducing state test anxiety among individuals with high trait test anxiety[12]. However, a plausible statistical explanation for the present study's finding could be the close proximity in FTAS scores between the low and moderate PSC groups. It would be interesting to further study the longitudinal and moderating effects of positive (verbal and non-verbal) reinforcement from parents, professors, siblings, and peers on the relationship between PSC and FTAS[27,28].

Additionally, Friedman and Bendas-Jacob[1] elaborated on the definition of test anxiety as the fear of failing a test and suffering degradation in one's self-efficacy and social self-image and be perceived as an immediate threat and is accompanied by worries pertaining to diminishing social and occupational opportunities. This anticipated loss may be foreseen as a "degradation one's social self-image." Thus, the final finding—a statistically significant but weak negative correlations between AM and social derogation, cognitive obstruction, and total FTAS scores—is, in fact, not surprising but intrigues us to understand AM as a different beast from test anxiety or the anticipated degradation one's social self-image. Whereas the latter leads to anxious vigilance, holding an individual on a permanent high alert against possible humiliation, social belittlement, and fear of depreciation; approval motivation refers to the interpersonal desire to elicit positive perceptions and an incentive to acquire social approval in addition to escaping disapproval[1,15].

Thus, the findings of the present study have modest implications for regulating PSC levels, supporting Uziel and Hefetz's[25] proposition that individuals could be further trained to regulate their PSC levels and weigh short- and long-term consequences to choose behaviors that best

align with their interpersonal, academic, and occupational goals. Special consideration must be given to the downside of high PSC, which refers to the imperative need for social approval and dodging social criticism that may underly socially sanctioned behaviors (such as altruism and test performance). Thus, allowing permission for expression, freedom of choice, and co-regulation must precede the training for self-regulation[27]. The findings from the present study were then used as the basis to customize the WHO's Life Skills Education framework to regulate PSC levels for different groups in this cohort. Accordingly, subsequent research may impose time-series interventional analysis, which could be used to ascertain the direct and cumulative effects of intervention on the interrelationships between PSC, AM, and FTAS.

However, the current study has the following limitations despite its striking findings and large sample size. First, the findings of this study may be specific to this cohort owing to the convenience sampling method of sample selection. Further, AACCI heavily relied on the cooperation of school teachers who were trained to administer the questionnaire to the cohort via a paper-pencil mode of data collection. In this process, several participants missed providing demographic data—which was missed by the teachers—that was crucial to this study (Tables 1 and 2). Thus, the findings need to be replicated while considering the recommendations for further study mentioned in this section to check for their generalizability to the larger population.

Conclusions

With its aim to study the differences in AM and FTAS among three PSC groups in addition to the relationship between AM and FTAS, the present study yielded three important findings. First, children and adolescents with high PSC had a strong need to seek social approval and dodge negative evaluations from other people. This finding has diverged from mainstream literature, supporting Uziel and Hefetz's[25] proposition that people with high PSC may diligently weigh short- and long-term consequences, choosing behaviors that best align with their interests and enduringly valued goals. Second, individuals with high PSC had the lowest total and sub-FTAS scores; however, this relationship was not statistically significant, which may be explained by the close proximity in FTAS scores between the low and moderate PSC groups. Third, there was a statistically significant but weak negative correlation between AM and sub- and total FTAS scores; this relationship was especially stronger among females, participants in group II (15-18 yrs.), and participants with siblings, clarifying the distinct differences between AM (the desire to seek social approval and dodge negative interpersonal evaluations) and test anxiety (anticipated degradation of one's self-efficacy and social self-image). The findings highlight the need for time-series interventional analysis to ascertain the direct and cumulative effects of intervention on the interrelationships between PSC, AM, and FTAS.

List of Abbreviations

Pekrun's control-value theory, CVT

Self-control, SC

Perceived self-control, PSC

Marlowe-Crowne Social Desirability Scale, MCSD

Martin-Larsen Approval Motivation Scale, MLAMS

Approval motivation, AM

Association of Adolescent and Child Care in India, AACCI

Body mass index, BMI

Children's Perceived Self-control Scale, CPSCS

Friedben's Test Anxiety Scale, FTAS

World Health Organization, WHO

Underweight, UW

Normal weight, NW

Overweight, OW

Obese, OT

Authors' Contributions

SYB, the corresponding author, was involved in envisaging, planning, supervising the implementation of the project in addition to writing the paper. JNM conducted statistical analysis and was actively involved in writing the research paper. LB collected the data for the project. SM was involved in reviewing literature. SJ was involved in critically reviewing the tables. AS interpreted the statistical analyses. The final draft was critically reviewed and finalized by all the co-authors.

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Conflict of Interest

There was no personal, organizational, or financial conflict of interest with regards to design, conduct, supervision, reporting, and presentation of data.

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