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Research Article

What Drives the Strength of Will? Perceived Self-Control in Children and Adolescents

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I N F O

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A B S T R A C T

Background: One's locus of control substantially motivates the behavioural gratification of needs and orientation to long-term goals.

Objectives: As a part of the Association of Adolescent and Child Care in India's multicentric studies on youth behaviour, the current study aimed to assess the effects of sociodemographic factors like gender, age, sibling status, and body mass index on perceived self-control (PSC) among children and adolescents.

Methods: Participants (N = 964) for the study were children and adolescents between 10 and 18 years of age from English-medium co-ed schools in North India. PSC was assessed using the 11-item Children's Perceived Self Control scale by Laura Humphrey with high scores reflecting high PSC. One-way ANOVAs and t tests were conducted to test for demographic-based differences in PSC scores.

Results: Females had significantly higher PSC scores than males in the older age group ($p = 0.041$). Children with no siblings had lower interpersonal self-control ($p = 0.014$). PSC scores were the highest among children with obesity. BMI had a statistically significant effect on interpersonal self-control ($p = 0.044$), self-evaluation ($p < 0.000$), and total PSC scores ($p = 0.009$).

Conclusions: The findings may reflect the internalisation of systemic gender-stratified practices, perceived parental bias, sibling rivalry, and multifactorial effects of BMI on SC in Generation Z. They also suggest the importance of life skills education to initiate and sustain positive health behaviours in this cohort.

Keywords: Self-Control, Perceived Self-Control, Multicentric Research, Life Skills Intervention, Adolescent and Child Care

Introduction

The Freudian duality of human existence and consequential intrapsychic battles among the id, ego, and superego often account for individual differences in self-control. Individuals driven by the pleasure principle require spontaneity and affective reactivity for immediate gratification of needs, heavily drawing on the amygdala and basal ganglia for decision-making. Contrarily, individuals driven by the pragmatic principle of delayed gratification may be less influenced by momentary affective states. They are consistent and profoundly oriented to long-term goals, resorting to the anterior cingulate cortex and lateral prefrontal cortex for decision-making.[1,2]

Considering these individual differences, self-control (SC) can be defined as the self-initiated ability to inhibit instinctual responses to choose adaptive ones, enabling the regulation of one's thoughts, emotions, and behaviours considering their overarching and enduringly valued goals. Thus, perceived self-control (PSC) reflects one's subjective ability to resist these impulses.[3]

The empirical literature suggests that PSC is a protective factor against delinquent and self-destructive behaviours (for example, substance use, non-substance addiction, and self-harm) and is positively correlated with self-efficacy, academic performance, psychological well-being, and health-related quality of life. Inflexibly, high PSC can also lead to pathological perfectionism, excessive need for control, repressed needs, frustration, and subsequent psychosomatic distress (for example, gastrointestinal disturbances like constipation) as observed in obsessive-compulsive personality disorder.[4]

Several studies have also highlighted gender differences in PSC levels, in that, a developmental challenge facing boys is to move away from the endogenous or temperamental bias toward under-control, which is overtly manifested as aggression. Contrarily, the developmental problem posing girls is to move away from overcontrol that is socio-culturally developed to reinforce safe, compliant, and conservative behaviours. Positively, parental affection, guidance, and consistency have been shown to inhibit this aggression among boys; whereas, affective environments encouraging autonomy might alleviate the burden of overcontrol among girls.[5]

Although PSC is a play between intrapersonal adjustment and upbringing, sibling relationships have also considerably influenced PSC's development. Siblings have been shown to provide comfort during emotional arousal and model practices supporting emotional regulation. High PSC and self-esteem among healthy siblings (n = 100, 53 boys; age range: 8–19 yrs.) of children with cancer were negatively correlated with role overload, anxiety, and psychosomatic symptoms.[6] However, sibling rivalry, stemming from perceived parental bias and rejection can contribute to negative affect and conflict.[7]

Further, the positive correlation between ageing and PSC is mediated by emotional regulation.[8] As reported by parents and teachers, pre-schoolers with high SC exhibited lower negative emotional arousal and higher social competence.[9] Additionally, young adults (18–25 yrs.) showed a subsequent decrease in task performance after being depleted of emotion-regulation resources, which interfered with their state PSC.[8]

Another negative correlation strengthening with age among both sexes was observed to be that between PSC and body mass index (BMI). PSC has been associated with resistance against unhealthy eating behaviour and eating-related disorders but not with healthy habit formation.[10] A former study conducted by the Association of Adolescent and Child Care in India (AACCI) urged for classroom interventions to improve self-efficacy for subsequent lifestyle modifications among school children.[11]

Hence, early interventions to regulate PSC levels can protect against subsequent psychological distress. Life-skill training programs are excellent group interventions to empower adolescents to regulate PSC. Another efficient approach would entail making environmental changes and designing classroom interventions to foster the development of PSC. For example, the reduction of ambient noise levels in classrooms reduced hyperactivity and disruptiveness and improved attention and PSC among children with attention-deficit hyperactivity disorder (ADHD).[12]

Accordingly, AACCI modelled an approach to gauge and appropriately regulate PSC levels among children and adolescents (N = 964, M_{age} = 14.2 years, SD = 1.4 years) across three North Indian schools—as part of its multicentric studies on youth behaviour in India. AACCI explored and reported the primary linkages between sociodemographic variables and PSC. Subsequently, the findings from this survey were shared with the schools' management boards to design specific life skill interventions to regulate PSC levels in the cohort.

The aim of this study was to determine the primary linkages between PSC levels and demographic variables including gender (males and females), age (group I - 10–14 yrs. and group II - 15–18 yrs.), sibling status, and BMI (categorised as per the World Health Organization guidelines for Asian populations).[13] Considering the extant literature, we hypothesised that PSC levels would be higher among older girls, participants with siblings, and participants who had normal BMI.

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Materials and Methods

A cross-sectional study was conducted across three North Indian schools over a one-week (one-time data collection and analysis) period in July 2017. Participants included in the study were children (n = 964) between the ages of 10 and 18 years (grades V to XII) from three schools in North India—two schools in Delhi and one in Gurgaon. The population was selected via convenience sampling on account of the 4th and 5th authors' rapport with the schools. There was no exclusion criterion as the participants were assigned to the study by the respective schools' principals.

PSC was assessed using the 11-item Children's Perceived Self-Control Scale (CPSCS) by Humphrey.[14] Responses on the items were scored as 1 (yes) and 0 (no), and the total scores ranged from 0 to 11 with high scores reflecting higher PSC. The scale yielded three sub-scores: interpersonal SC (items 1–4), personal SC (items 5–7), and self-evaluation (items 8–9). The tool used was standardised and psychometrically sound with a reliability coefficient of 0.71.[14]

As part of its multicentric studies on youth behaviour in India, AACCI designed a questionnaire, which focused on collecting data pertaining to gender, age, sibling status, height, and weight (to calculate BMI). It also included psychometric tools like the Children's Perceived Self-control Scale (PSCS)[13], Martin–Larsen Approval Motivation Scale (MLAMS)[15], and Friedben Test Anxiety Scale (FTAS)[16] to gauge the participants' stratum of perceived self-control (PSC), approval motivation (AM), and exam anxiety (FTAS), respectively.

The 4th and 5th authors trained teachers from the selected schools to administer the questionnaire for data collection. Data was collected using the paper-pencil medium. AACCI has published individual papers for the scales, exploring their distinct relationships with the demographic variables for the same cohort. This paper contains results for PSC, which would then be used to design classroom interventions and shared with the school management board to redirect the cohort's locus of control.

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 and subsequently from students' parents. Informed written assent 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. This was not a clinical trial, and the participants were not patients.

The data were analysed using the IBM SPSS Software Version 29.0.0. BMI was calculated using weight (in kilograms) and height (in meters) as kg/m^2 and categorised 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.[13] t tests were conducted to assess gender-, age-, and sibling-status-based differences in PSC scores, and one-way ANOVAs were conducted to test for BMI-based differences in PSC scores. The statistical significance of the calculated coefficients was considered at $p < 0.05$.

Results

Participants (n = 964) included in this study were children from middle and high socioeconomic strata across three co-ed. English-medium schools (School 1: n = 346; School 2: n = 366; School 3: n = 252). The sample characteristics and age and gender distribution across schools have been enlisted in Tables 1 and 2, respectively.

Although the sub and total PSC scores were individually higher among females and the older age group, the gender and age differences for the total sample were not statistically significant ($p > 0.05$). However, an age-based analysis showed that older females (M = 4.842, SD = 1.562) had significantly higher total PSC as compared to older males (M = 4.544, SD = 1.650), $t(367) = 1.748$ at $p = 0.041$. Furthermore, there were no significant gender differences in interpersonal SC, personal SC, and self-evaluation scores between the two age groups ($p > 0.05$) (Table 3).

Relationship between Sibling Status and PSC

The mean interpersonal SC scores were significantly higher for children with no siblings (M = 1.844, SD = 1.031) as compared to children with siblings (M = 1.692, SD = 1.072), $t(962) = 2.210$, $p = 0.014$. However, there were no significant differences in personal SC, self-evaluation, and total PSC scores between the two groups ($p > 0.05$) (Table 4).

Relationship between BMI and PSC

Surprisingly, participants who were obese had the highest PSC scores. One-way ANOVAs also revealed that BMI had a statistically significant effect on interpersonal SC, $F(3, 754) = 2.718$, $p = 0.044$, self-evaluation, $F(3, 754) = 7.588$, $p < 0.000$, and total PSC, $F(3, 754) = 3.860$, $p = 0.009$. However, BMI had no statistically significant effect on personal PSC (Table 5).

A gender-based analysis revealed that PSC scores were the highest among both males and females who were obese and lowest for those who were underweight. One-way ANOVAs showed that BMI had a statistically significant effect on self-evaluation in males $F(3, 407) = 2.690$, $p = 0.046$, and in females, $F(3, 294) = 5.468$, $p = 0.001$. Additionally, there was a statistically significant effect of BMI on interpersonal SC among females, $F(3, 294) = 3.779$, $p = 0.011$. However, BMI had no statistically significant effects on personal SC and total PSC for males and females ($p > 0.05$).

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An age-wise analysis suggested that PSC scores were the highest among the participants who were obese and lowest for those who were underweight for both age groups. Further, one-way ANOVAs showed that BMI had a statistically significant effect on self-evaluation in groups I and II ($F(3, 404) = 7.588$, $p = 0.051$, and $F(3, 335) = 3.189$, $p = 0.024$, respectively). However, BMI had no statistically significant effect on interpersonal SC, personal SC, and total PSC scores for both age groups ($p > 0.05$).

Table 1.Sample Characteristics (N = 964)

Demographic Variables	Sub-Demographic Variables	n (%)
Gender†	Male	474 (49.17)
	Female	361 (37.45)
Age‡	Group I (10–14 years)	483 (50.10)
	Group II (15–18 years)	403 (41.80)
Sibling status	Siblings	559 (57.99)
	No siblings	405 (42.01)
BMI categories§	UW (< 18.5)	340 (35.27)
	NW (18.5–22.9)	306 (31.74)
	OW (23–24.9)	47 (4.87)
	OT (> 25)	65 (6.74)

UW: Underweight, NW: Normal weight, OW: Overweight, OT: Obese
†We considered n = 835 (n = 964 - 129) to test for the effects of gender on PSC as 129 participants had not mentioned their gender.
‡We considered n = 886 (n = 964 - 78) to test for the effects of age on PSC as 78 participants had not mentioned their age.
§We considered n = 758 (n = 964 - 206) to test for the effects of BMI on PSC as 206 participants had not mentioned their height and/ or weight.
Of the three schools, the missing data were mainly from School 3.

Table 2.Gender and Age Distribution across Three North Indian Schools (N = 964)

School	Gender†			Age‡		
	Males n (%)	Females n (%)	Data Missing - Gender Not Mentioned n (%)	Group I (10–14 Years) n (%)	Group II (15–18 Years) n (%)	Data Missing - Age Not Mentioned n (%)
School 1	166 (17.22)	155 (16.08)	25 (2.59)	161 (16.7)	179 (18.57)	6 (0.62)
School 2	196 (20.33)	141 (14.63)	29 (3.01)	242 (25.1)	115 (11.93)	9 (0.93)
School 3	112 (11.62)	65 (6.74)	75 (7.78)	80 (8.30)	109 (11.31)	63 (6.54)
Total	474 (49.17)	361 (37.45)	129 (13.38)	483 (50.10)	403 (41.80)	78 (8.09)

†We considered n = 835 (n = 964 - 129) to test for the effects of gender on PSC.
‡We considered n = 886 (n = 964 - 78) to test for the effects of age on PSC.
Of the three schools, the missing data were mainly from School 3.

Table 3.Mean PSC Scores: Gender-Based Differences in Two Age Groups (N = 821)

Age	Gender†	t Test	PSC Scores			
			Interpersonal Self-Control	Personal Self-Control	Self-Evaluation	Total PSC Scores
Group I: 10–14 years	Males	M ± SD (n = 247)	1.530 ± 1.054	0.964 ± 0.847	0.842 ± 0.707	4.073 ± 1.663
	Females	M ± SD (n = 205)	1.541 ± 1.031	1.044 ± 0.893	0.912 ± 0.687	4.156 ± 1.781
	t value		0.113	0.979	1.063	0.513
	p value		0.455	0.164	0.144	0.304

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Group II: 15–18 years	Males	M ± SD (n = 217)	1.940 ± 1.014	0.935 ± 0.761	1.051 ± 0.695	4.544 ± 1.650
	Females	M ± SD (n = 152)	1.993 ± 1.013	1.013 ± 0.806	1.138 ± 0.662	4.842 ± 1.562
	t value		0.497	0.942	1.213	1.748
	p value		0.310	0.173	0.112	0.041*

*p < 0.05
PSC: Perceived Self-Control
†We considered n = 835 (n = 964 - 129) to test for the effects of gender on PSC and n = 886 (n = 964 - 78) to test for the effects of age on PSC as 129 and 78 participants had not mentioned gender and age, respectively. Likewise, we considered n = 821 (n = 964 - 143) to test for the effects of gender on PSC among age groups as 143 participants had not mentioned their age and gender.

Table 4.Sibling Status-Based Differences in Mean PSC Scores (N = 964)

Sibling Status	t Test	PSC Scores			
		Interpersonal Self-Control	Personal Self-Control	Self-Evaluation	Total PSC Score
Siblings	M ± SD (n = 559)	1.692 ± 1.072	1.00 ± 0.866	0.993 ± 0.706	4.381 ± 1.715
No siblings	M ± SD (n = 405)	1.844 ± 1.031	0.946 ± 0.782	0.988 ± 0.605	4.398 ± 1.648
t value		2.210	1.001	0.113	0.150
p value		0.014*	0.158	0.455	0.440

*p < 0.05
PSC: Perceived Self-Control

Table 5.BMI-Based Differences in Mean PSC Scores (N = 758)

Variable	BMI (n)†	PSC Scores			
		M ± SD	df	F	p Value
Interpersonal self-control	UW (340)	1.653 ± 1.074	3, 754	2.718	0.044*
	NW (306)	1.758 ± 1.021			
	OW (47)	1.809 ± 1.076			
	OT (65)	2.046 ± 1.037			
Personal self-control	UW (340)	0.974 ± 0.825	3, 754	0.030	0.993
	NW (306)	0.980 ± 0.805			
	OW (47)	0.957 ± 0.806			
	OT (65)	1.000 ± 0.771			
Self-evaluation	UW (340)	0.891 ± 0.663	3, 754	7.588	< 0.000*
	NW (306)	1.095 ± 0.711			
	OW (47)	0.936 ± 0.673			
	OT (65)	1.246 ± 0.751			
Total PSC scores	UW (340)	4.200 ± 1.688	3, 754	3.860**	0.009*
	NW (306)	4.497 ± 1.591			
	OW (47)	4.511 ± 1.864			
	OT (65)	4.877 ± 1.644			

UW: Underweight, NW: Normal weight, OW: Overweight, OT: Obese
†PSC: Perceived Self-Control *p < 0.05, **p < 0.01
†We considered n = 758 (n = 964 - 206) to test for the effects of BMI on PSC as 206 participants had not mentioned their height and/ or weight.

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Discussion

The current study yielded three important findings. First, the total PSC scores were significantly higher for females as compared to males in the older age group. Second, participants with siblings had lower interpersonal SC as compared to participants with no siblings. Third, BMI had a statistically significant effect on interpersonal SC, self-evaluation, and total PSC but not on personal SC. PSC scores showed an overall increase with increasing BMI. The standard deviations from the mean strongly indicate that these findings are not the outcome of outliers.

Sex has long been known to be a significant predictor of PSC levels owing to its interaction with systemic gender-stratified socialisation practices in several countries across the globe. Several studies indicate that girls score higher on predictive factors such as attachment and parental monitoring and are more likely to be verbally and physically punished for deviant behaviour. These patriarchal expectations may be internalised and manifest over time in the form of socio-emotional risk aversion and high PSC among most women in India. Contrarily, boys are likely to receive more severe and ineffective forms of physical punishment, which may be counterproductive. Moreover, they might even internalise and adopt reckless behaviours out of defiance.[5,17] Additionally, increasing exposure to and internalisation of these collectivist and culturally-ingrained gendered norms could substantially explain high PSC scores among females as compared to males in the older group in the current study.

Several studies have also highlighted the protective role of siblings in emotional regulation and coping with parental rejection.[8] However, a divide in parental affection, gender bias, internalised parental expectations/ rejection, and comparison between siblings can lead to displaced aggression and sibling rivalry. Several children might resort to impulsive and negative attention-seeking behaviours on the one hand and unconsciously manifest psychosomatic symptoms with primary and secondary gains on the other. These intense negative emotions may be further dismissed by parental figures, creating a push and pull between familial resentment and the need for affiliation, considerably explaining low interpersonal SC among children with siblings in the current study.

Another striking finding of the current study was that children with obesity had the highest sub and total PSC scores, and children who were underweight had the lowest interpersonal SC, self-evaluation, and total PSC scores. Overall, BMI had a statistically significant effect on interpersonal SC, self-evaluation, and total PSC. However, only 40% of the participants in the current study had normal weight as per the WHO guidelines for the Asian population (Table 1).

The last few decades have witnessed a worldwide shift from full-bodied plumpness—as the crux of an ideal feminine figure (especially in Western Europe until the 19th century)—to the cultural idealisation of thinness with appropriate curves. The empirical literature suggests that children and adolescents who are obese or underweight experience weight stigmatisation (societal devaluation in the form of rejection, teasing, and bullying) and body dissatisfaction, leading to mood disturbances, poor self-esteem, and compromised psychological well-being.[13,18] This stigma is tolerated and propagated in society based on the unsubstantiated belief that stigma and shame motivate children to regulate their weight. Contrary to popular belief, weight stigma contributes to internalised weight stigmatisation, maladaptive eating-related behavioural changes, and poor health-related quality of life.[19] This could explain low interpersonal SC and self-evaluation among children who were underweight.

Individuals with obesity are further labelled as 'lazy,' 'unmotivated,' and 'lacking in willpower and discipline'. However, the sociocultural wokeness of Generation Z might empower individuals to accept their body type and shift their locus of control inward to avoid the internalisation of weight stigma. This wokeness might either lead individuals to adopt an action-oriented approach to adopt healthier lifestyles or to remain comfortable in dysfunctional patterns that seem familiar. This may account for the significant effects of BMI on interpersonal SC and self-evaluation but not on personal SC.

One also needs to turn to the findings with comparisons across age, wherein, only self-evaluation is higher for participants with obesity in both age groups. However, there are no significant differences in the other scores for either group. However, the drift towards higher mean scores as the weight category goes up cannot be ignored. It would have been interesting to check on the participants' economic stability or affluence, which seems to be the single mediating variable that could have led to both, higher body weight and self-evaluation. On the other hand, there is also ample literature to show that poorer families are more at risk for unhealthy weight gain due to the unavailability and inaccessibility of healthy lifestyle options such as physical activity and food.

Several studies have also highlighted the role of PSC as a protective factor against unhealthy eating behaviour rather than fostering and sustaining healthy eating.[10] Bhave et al. stressed upon the importance of self-efficacy in initiating lifestyle modifications and adopting healthy behaviours. Subsequent research with this cohort needs to further explore the role of PSC and self-efficacy in the individual differences in the sociocultural impact of body positivity.[13] This could be significant to paediatricians and

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behaviour therapists working with sociocultural and lifestyle conditions such as polycystic ovary syndrome (PCOS), eating disorders, and secondary mood disturbances. It would also be interesting to check for PCOS as a moderator in the significant effect of BMI on interpersonal SC among females in the current study.

The research framework of this project and findings of the current study have thus, shed light on the importance of PSC and sociodemographic variables underlying it. Accordingly, AACCI adopted and customised the WHO's Life Skill Education framework to regulate PSC levels for different groups in this cohort.

Limitations

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. Specifically, teachers in schools 1 and 2 were more meticulous and the missing data was lesser (gender: 2–3%; age: 0–1%) as compared to that for School 3 (gender: 7.78%; age: 6.54%). Further, the findings of this study may be specific to this cohort. Thus, they need to be replicated to check for their generalisability to the larger population.

Conclusion

One's locus of control can be a considerable factor in regulating motivation, need for gratification, academic and occupational performance, satisfaction, and overall health-related quality of life. This study showed that PSC was significantly higher among females in the older age group, highlighting the internalisation of systemic gender-stratified socialisation practices. Children without siblings had significantly low interpersonal SC, which may be due to sibling rivalry and perceived parental bias/ rejection. PSC scores showed an overall increase with increasing BMI, indicating the plausible mediating effects of several variables. These results were used as the basis to customise the WHO's Life Skills Education framework to regulate PSC levels for different groups in this cohort.

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