Mediating Role of Academic Self-Efficacy Between Insufficient Self-Control and School Dropout

Yıldız Kurtyılmaz[1], Bircan Ergün-Başak[2]
[1] Anadolu University, 0000-0003-0298-4579
[2] Anadolu University, 0000-0002-3569-3770

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Yıldız Kurtyılmaz[1*], Bircan Ergün-Başak[1]
[1] Anadolu University

Abstract

School dropout is a devastating problem leading to negative consequences not only for individuals but also society. Therefore, numerous preventive measures and interventions have been implemented, but the expected outcomes have not been obtained despite vigorous efforts. This may indicate that the dropout process is complicated and not limited to academic issues. Therefore, dropout should be addressed using a more comprehensive approach that integrates personnel as well as cognitive structures like schemas. Here, the relationship between dropout and its possible predictors—insufficient self-control schema and academic self-efficacy—was investigated with 365 high school students. Mediation analysis was conducted via the PROCESS macro. Academic self-efficacy was found to fully mediate the relation between insufficient self-control and dropout, and the indirect effect was also found to be significant. The findings were discussed in the framework of the literature.

Keywords: School dropout, Insufficient self-control, Academic self-efficacy

Introduction

School has a significant role in individuals' developmental processes. Schools not only enable individuals to be literate and learn arithmetic skills but also give them opportunities to participate in various social and cultural activities (Mahoney & Cairns, 1997). Thus, schools may be centers at which students acquire basic life skills and become prepared for life multidimensionally. Therefore, it is extremely important to ensure that all students have access to qualified education (Rumberger, 1987). Schooling can facilitate the academic and psychosocial developmental needs of individuals such as belongingness and socialization. Thus, it is possible to say that schooling results in healthy and productive individuals. Thus, various intervention programs and projects have been conducted to prevent school dropout (Prevatt & Kelly, 2003). Despite these programs and projects enabling all children to have an access to qualified education (Rumberger, 1987), many adolescents do not start either high school at all or drop out without completing high school education (Vallerand et al., 1997; White & Kelly, 2010). School dropout is thus a serious problem.

School dropout is defined as a process that emerges with disliking school as well as alienation and disengagement from school due to absenteeism, academic indifference, or failure (Christenson & Thurlow, 2004). It ends with leaving the education system without receiving a high school diploma (Alexander et al., 1997). Dropouts have some typical and common characteristics, and thus possible dropouts could be predicted by their primary school experiences. Dropouts experienced more absenteeism and academic failure compared to graduates, and this difference became increasingly evident from the fifth grade to high school. Moreover, the possibility of dropout among ninth grade students could be predicted with 85% accuracy when they failed three or more courses (Barrington & Hendricks, 1989). Thus, academic failure is one of the most significant indicators of dropout (Barrington & Hendricks, 1989; Rumberger, 2001). It is intensified by low academic self-efficacy (Lane et al., 2004). Academic self-efficacy is a significant predictor of school dropout.

Academic self-efficacy is defined as an individuals' beliefs in their capacities to fulfill academic task demands and achieve specific results (Bassi et al., 2007). It includes individuals' self-evaluation about how efficient they perceive themselves with regard to fulfilling tasks specific to a certain academic field (Dorman, 2001). When people have difficulties in reaching their academic goals, their academic self-efficacy belief determines how much

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effort they will spend, how long they will continue to strive, and their motivational levels (Bandura, 2001; Kassab et al., 2015). For example, individuals with a high level of academic self-efficacy are more likely to be motivated to cope with school-related difficulties and eventually be successful (Balkıs, 2011; Honicke & Broadbent, 2016). Thus, such a student's probability of choosing maladaptive behaviors like dropout decreases (Schunk & Pajares, 2002).

Academic self-efficacy is closely related with self-control (Bandura, 2001). Students who think that their academic success is under their control feel themselves efficacious in the face of academic difficulties; thus, their perceived level of control results in effort, persistence, and eventually achievement despite difficulties (Honicke & Broadbent, 2016). Thus, self-control is a self-efficacy determinant that can be stated as a protective factor against school dropout (Schunk & Pajares, 2002).

The relationship between self-control and dropout is shown in Strain Theory. According to Strain Theory, the failure to achieve academic goals or frustration at school leads to stress and eventually adaptation problems like delinquency. When children feel themselves under pressure due to the inability to fulfill requirements of academic life resulting from insufficient self-control, they react with either leaving school suddenly or exhibiting delinquent and aggressive behaviors (Agnew, 1992; Jarjoura, 1993) because self-control enables individuals to resist to the temptation to exhibit behaviors that are satisfying in the short-term but costly in the long run (Schweitzer & Sulzer-Azaroff, 1988).

Success in school requires delaying more entertaining activities such as friends and browsing social media because one must do homework and study to become successful. Thus, the desire for academic success can lead to conflicts in terms of balancing priorities. The level of self-control can determine how this conflict is resolved which alternatives are preferred (Duckworth et al., 2019). Self-control is acquired progressively after completing certain stages in developmental process as a result of an internalization of other directedness instructions (Flammer, 1995). Initially, the responsibility for personal regulation is left to adults especially primary care-takers (Duckworth et al., 2019). That is, external control or other-directedness instruction is needed before self-control is acquired. In other words, children can control themselves only through external instructions in early stages of development.

At the next stage, children try to control themselves by repeating instructions that were previously given by others aloud. Finally, children control themselves through internalization of self-talk or their thoughts (Meichenbaum & Goodman, 1971). It can be stated that evolving of verbal self-instructions to the cognition in the form of schemas is an initial critical point in self-control development. This developmental process from self-talk to real self-control indicates the transformation of external control to internal control through cognitive constructs like schemas (Meichenbaum & Goodman, 1969). Since schemas provide the general framework for organizing and interpreting stimuli, self-talk and schemas are the main determiners of behaviors and reactions of individuals. Both self-talk and schemas are constructed on initial experiences and socialization processes of individuals (Bandura & Walters, 1963); thus, insufficient self-control schema also starts to be built up on the basis of parent's instructions and rules. Children construct their self-control schema by parent's instructions and feedback, and then elaborate with each new experience with friends and other social agents like schools (Flammer, 1995). Schemas are based on previous experiences and also project future possible behaviors. Therefore, self-control as a form of schema sets the preconceptions of individuals' self-control capabilities, renders predictability, and fosters the development of self-efficacy. Both self-control and academic self-efficacy make perseverance possible when difficulties and frustrations are experienced (Honicke & Broadbent, 2016; Kassab et al., 2015); thus, these constructs play an important role in academic contexts that lead to responsibilities and limitations on students. Thus, insufficient self-control schema predict both academic self-efficacy and dropout; thus, our goal was here to investigate the relationship patterns among these three variables.

Insufficient Self-Control and Dropout

Academic success entails the regulation and control of individuals' thoughts, emotions, and behaviors to engage in the academic activities that students find tedious. Thanks to self-control, individuals can pursue the courses of actions that are necessary for reaching their long-term outcomes instead of more pleasing activities that results in immediate gratification (Musci et al., 2021). Thus, individuals with an insufficient self-control schema are more likely to drop out school (Moffitt et al., 2011; Vitaro et al., 1999). Insufficient self-control is related to academic failure, problems in peer relations, and other behavioral problems at school like aggression (de Ridder et al., 2012; Jimerson et al., 2000). This can consequently lead to dropout (Alexander et al., 1997; Moffitt et al., 2011; Vitaro et al., 1999). According to Dynamic Developmental Model, individuals start school with their innate

characteristics, unique past experiences and attitudes, and the schemas formed in their first years of life (Jimerson et al., 2000). Therefore, this study addressed the role of insufficient self-control schema on dropout process. Insufficient self-control schema within the impaired limits schema domain is related to setting the boundaries, organizing oneself, regulating emotions, etc.

Schemas are the principles and rules individuals develop about themselves and the world as a result of an interactions with the environment and are formed from childhood (Young et al., 2003). These cognitive constructs include pervasive patterns comprising not only individuals' thoughts but also their memories, emotions, and bodily sensations of themselves and relationships with others (Rafaeli et al., 2010, p.13). If individuals' basic needs such as setting realistic limits (self-control) are not fulfilled in their relationships with primary care taker and environment, then they form dysfunctional schemas that are detailed and strengthened with each experience and maintained long-term. These cognitive patterns including insufficient self-control schema contain generalizations that are independent of circumstances (Oei & Baranoff, 2007); thus, insufficient self-control schema as a product of core schemas related to the self-concept is transferred to different areas of life (Hagger et al., 2010). The result is that individuals perceive that they do not have control over their emotions, thoughts, and behaviors (Huntjens et al., 2014). Individuals with this schema have difficulty in limiting themselves, setting realistic goals, and maintaining the effort to attain their goals (Rafaeli et al., 2010; Welburn et al., 2002).

An insufficient self-control schema causes individuals to have trouble in tolerating frustration because it leads individuals to find controlling themselves unnecessary and hence results in increased tendency to express their emotions and impulses in an exaggerated way rather than suppress these impulses if required. Thus, individuals who cannot control themselves avoid conflict and confrontation at all costs and refrain from taking responsibility at the expense of not achieving desires and developing personal integrity (Young et al., 2003). Therefore, these individuals prefer the easiest way of making no effort rather than coping with difficulties and bearing with patience to reach their long-term goals (Rafaeli et al., 2010). In contrast, academic success requires setting goals, making plans, and having effective time-management to attend and engage in learning activities (Meece & Eccles, 2010). Managing learning processes that bring success at school, comprise a set of skills requiring self-control. Individuals who can control themselves play an active role in managing their own learning processes by displaying skills such as monitoring and organizing oneself at metacognitive level and exhibiting behaviors such as regulating oneself, paying attention, and structuring learning environments (Zimmerman, 2013). They use the strategies appropriate for their learning style, make plans to correct deficiencies, and take responsibility for academic development while learning subject matter (Schraw, 1998). As a result, the possibilities of being satisfied with school life and being engaged in school increase as well (Schunk & Mullen, 2012). Accordingly, when the individuals cannot control themselves start school, they have difficulty in completing school tasks, and teachers perceive them as uninterested students. Consequently, these students have higher probability of experiencing various adaptation problems such as academic failure and absenteeism. In turn, they get disconnected with school and eventually face dropout (Rumberger & Lim, 2008).

Insufficient Self-Control and Academic Self-efficacy

The formation of academic self-efficacy belief first begins in infancy. It is based on the family feedback on an individual's competencies and continues to be shaped by the feedback received from teachers and peers in the following years. Individuals take others' feedback into account, and they build cognitive scenarios related to their self-efficacy based on these feedbacks. Therefore, parents who do not set limits for their children often have no expectations for them and do not support them to set goals from early ages. These children thus think that limiting themselves is unnecessary. These parents prevent their children from setting goals, motivating themselves, and feeling efficacious. Individuals who do not gain autonomy are devoid of the experiences by which they can test their ability to control themselves so that they sustain insufficient self-control in a vicious circle (Rumberger & Lim, 2008). As a result, these scenarios shape individuals and determine their performances (Bandura, 1993). For example, it is more likely that individuals form success-oriented scenarios if their efficiencies are emphasized and valued by others while individuals build failure scenario if their skills are ignored and under-valued.

According to Bandura et al. (1996), academic self-efficacy is based on an individuals' own academic experiences or mastery expectations; their own and others' attributions to their achievements or verbal persuasion; and vicarious learning process (Bandura et al., 1996; Schunk, 1991). Individuals with an insufficient self-control schema are more likely to receive regular negative feedback about their academic competencies from their parents, teachers, and peers. They then develop low academic self-efficacy beliefs and perpetuate their beliefs via verbal persuasion (Bandura et al., 1996; Schunk, 1991). Therefore, academic self-efficacy is not shaped by the grades

obtained from the courses but the evaluations and attributions to the individuals' abilities (Bandura et al., 1996; Pajares, 1996; Schunk, 1991).

Since insufficient self-control schema impedes self-efficacy and increases the likelihood of experiencing learned helplessness and feelings of ineffectiveness, individuals do not trust themselves to do a task assigned to them (Rocchino et al., 2017) often perceive academic tasks as difficult and expect low success (Pajares, 1996). In turn, they choose negative coping strategies like avoidance (Rocchino et al., 2017). They further focus on negative results when asked to do an academic task (Bandura, 1993). They do not feel motivated enough to act (Bandura et al., 1996). Mastery expectations are the most important source of achievement, and these minimize academic experiences and undermine individuals' self-efficacy levels. Insufficient self-control schema may lead to maintenance and confirming negative self-efficacy beliefs by not fulfilling school requirements such as doing homework and following rules. Another possibility is the avoidance of the situation requiring self-control when the schema is activated so individuals rob themselves of an opportunity to control themselves and reach positive outcomes; eventually, these people fail to acquire self-efficacy (Dozois et al., 2009).

Students with an insufficient self-control schema think that they do not have control over their learning processes. They cannot manage their school-related tasks and feel academically inefficacious (Schraw, 1998). In addition, they try to make a decision about their self-efficacy levels by observing their similar peers instead of direct experiences. Thus, they predict that they will also have difficulties in self-control process and fail academically just like their peers. Finally, their academic self-efficacy is not probably supported via vicarious learning process (Schunk, 1991). In conclusion, self-control lays the foundations of academic self-efficacy regardless of the sources. Self-control in early childhood was found to be a precursor of academic self-efficacy even after 11 years (Musci et al., 2021). Insufficient self-control predicts academic self-efficacy.

Academic Self-Efficacy and Dropout

Individuals primarily develop academic aspirations depending on their academic self-efficacy and then set goals and make plans to reach these goals (Bandura, 1993). Thus, academic self-efficacy is positively related to academic engagement (Bassi et al., 2007; Zimmerman et al., 1992), attending school (Zajacova et al., 2005), and focusing on the benefits of school such as providing a good future (Bassi et al., 2007). Students with low levels of academic self-efficacy spent more time in relaxing activities such as sleeping, having a rest, and taking care of their physical appearance. They spend less time doing homework (Caprara et al., 2008). Research has indicated that low academic self-efficacy is a significant predictor of dropout and can mediate the relation between school performance and dropout (Alivernini & Lucidi, 2011) as well as academic procrastination and academic achievement (Balkıs, 2011). Not giving up goals and persevering in the face of difficulties and frustrations like academic failure are ensured through individuals' persistent and stable self-schemas that are not easily affected by daily experiences (Jimerson et al., 2000). In summary, individuals' perceptions of their competencies and whether they can control themselves affect school performance through their psychological investment on academic processes and cognitive efforts (Kassab et al., 2015); thus, school engagement decreases with rising chance of dropout (Schunk & Mullen, 2012).

The Present Study

According to Social Cognitive Theory, individuals' academic self-efficacy expectations are shaped according to their first-hand experiences in an academic environment (personal accomplishments), the feedback they receive from observers (social persuasion), and vicarious experiences (through observation of others' performances); thus, an insufficient self-control schema increases the possibility of making negative evaluations about self-efficacy. People with this schema are not expected to be successful and improve their low self-efficacy as a result of the inability to control or delay their desires and impulses. They do not make an effort to achieve their goals. Individuals' academic self-efficacy decreases after they receive negative feedback as a result of their failures. At the same time, they observe their peers with insufficient self-control who withdraw and become unsuccessful due to intolerance to frustration and a failure in delayed gratification. This suggests that they lack the capacity to control their behaviors (Bandura, 1997). Since academic self-efficacy develops as a product of early schemas and is also related with dropout, it was intended to investigate the mediating role of academic self-efficacy between insufficient self-control schema and school dropout.

Method

Participants

Participants were students attending high schools at a mid-sized city. After obtaining informed consent and parental permission, data was collected from 436 voluntary high school students, but data of 57 participants were omitted due to missing items; 14 participants were also removed according to the Mahalanobis distance criterion for multivariate normality. Therefore, there were 365 high school students—118 (32.33%) of whom were females and 247 (67.67%) of whom were males. Five participants did not report their grades, 69 were freshmen, 95 were sophomores, 82 were juniors, and 114 were seniors. Ages ranged between 14 and 19. The mean age was 16.45 and the median was 17.

Instruments

School Dropout Factor of Risk Behaviors Scale

The school dropout factor of Risk Behaviors Scale developed by Gençtanırım-Kuru (2010) was used to determine school dropout tendencies of participants. The scale consists of six factors including 36 items for measuring risky behaviors. Factor loadings of a seven-item school dropout dimension changed between .57 and .76. Scores obtained from the subscale changed between 7 and 35. Higher scores implied a higher school dropout risk. Internal consistency coefficients for the scale and dropout factor were .91 and .83 in the first sample. Data analysis with another sample in the same study indicated that Cronbach alphas for the scale and dropout factor were .90 and .73, respectively. Test-retest analysis with a-two-week interval indicated the coefficient of .85 for the scale and .68 for dropout factor (Gençtanırım-Kuru, 2010). Internal consistency coefficients were obtained as .74 (Çetin, 2019) and as .73 (Özer et al., 2011) in other studies. Here, the internal consistency coefficient for school dropout was .84.

Insufficient Self Control Schema of Young Schema Questionnaire-Short Form (YSQ-S3)

Participants' perception of their self-control level was determined through insufficient self-control schema of YSQ-S3. Young (1991 as cited in Young, 1999) obtained 16 schemas under the six schema domains. The next revision study indicated 18 schemas clustered under five general schemas (Young, 1999). Insufficient self-control schema under the schema domain of Impaired Limits was utilized in this study. We used YSQ-S3, which is a six-point Likert type instrument containing 205 items. Validity and reliability studies were conducted with both clinical and non-clinical samples (Schmidt et al., 1995; Young, 1999) and similar schemas and schema domains were obtained. An insufficient self-control schema was found as a common factor in both clinical and non-clinical samples. The scores obtained from a five-item insufficient self-control schema change between five and thirty. This schema's internal consistency and test-retest reliability coefficients were found as .92 and .66, respectively (Schmidt et al., 1995). These values indicated that YSQ-S3 was reliable and valid. An adaptation study was conducted by Karaosmanoğlu et al. (2005) and insufficient self-control schema was found to have an internal consistency coefficient of .75. For the adolescent population, the YSQ-S3 was adapted by Sarıtaş (2007) with a factor loading of insufficient self-control schema under the Impaired Limits-Exaggerated Standards of .50. Cronbach's alpha coefficient for insufficient self-control was .51. The internal consistency coefficient was .49 in this study.

Academic Self-Efficacy Factor of Self-Efficacy Questionnaire

Data of academic self-efficacy was gathered by academic self-efficacy factor of Self-Efficacy Questionnaire in Youths developed by Muris (2001) and adapted by Çelikkaleli et al. (2006). The scale consists of 23 items under the social, emotional, and academic self-efficacy factors. This is a-five-point Likert scale, and the points obtained from the scale range from 23 to 115. Higher scores imply higher levels of self-efficacy. The academic self-efficacy factor included eight items. The internal consistency was .64., and the test-retest coefficient was .77 (Çelikkaleli et al., 2006). In another study, the internal consistency coefficient was .80 (Çelikkaleli & Gündüz, 2010). In this study, the internal consistency coefficient was .76.

Procedure

First, permissions for the use of all the scales in this study were received from the authors. Ethical approval was obtained from Research and Publication Ethics Committee of the University where researchers worked. We certified that the study was conducted according to ethical standards of Declaration of Helsinki. Participants answered a twenty-item booklet, and items were not expected to harm or cause discomfort not greater than their ordinary daily life. Despite this minimal risk, voluntary participants were provided a chance of withdrawing from survey at any time. In this framework, data were collected after taking informed consent and parental permission. School principals and the teachers at the school were informed about research process and permission for data collection process was obtained at first. Prospective participants were given an informed consent form and a parental permission form including detailed information about research process and ethical principles for parents' approval. One week later, researchers again went to the school and collected data from the students who were given parental permission and agreed to participate in this study. Participants were asked to answer self-reported instruments and three demographic questions (gender, age, grade level) during class hours.

Data Analysis

For analysis, initially preliminary analyses such as descriptive statistics, skewness, kurtosis values for normality, VIF and tolerance values for checking multicollinearity problem were examined. Then, regression-based bootstrapping analysis was used to examine if academic self-efficacy mediated the relationship between insufficient self-control and dropout.

Results

Our goal was to investigate the mediating role of academic self-efficacy between insufficient self-control and dropout of high school students. Descriptive statistics were examined before analysis (Table 1). Assumptions of regression analysis were checked. First, the data was normally distributed when all scales were examined via graphics. Then, skewness and kurtosis values were taken into account, and values between +2.58 and -2.58 at .05 significance level indicated normality of data (Weinberg & Abramowitz, 2002, s. 79). Initial correlation coefficients between the variables were computed for regression assumptions.

Table 1. Descriptive statistics and correlation coefficients

Variables	1	2	Min	Max	M	SD	Skewness	Kurtosis
Insufficient self-control	-	-	5	30	16.49	4.51	.23	-.37
Academic self-efficacy	-.36**	-	8	38	25.01	5.38	-.23	-.10
School dropout	.18**	-.31**	7	27	11.62	4.30	.79	.55

N=365, **p<.01

As seen in Table 1, all the relationships between the variables of the study were found to be significant at .01 level. Dropout tendency increased with worse self-control. In contrast, academic self-efficacy levels decreased as insufficient self-control levels increased. Dropout levels increased as the academic self-efficacy levels decreased. When correlation coefficients were evaluated according to Cohen's effect sizes, the relationship between insufficient self-control and dropout was low. The relationships between insufficient self-control and academic self-efficacy relative to academic self-efficacy and dropout were moderate (Cohen, 2013). These correlation coefficients implied that the predictive relationship between variables could be examined.

Tolerance and VIF values were examined to check the multicollinearity problem. The tolerance values were higher than .20 (Menard, 1995), and the VIF values were lower than two (Myers, 1990); thus, we concluded that there is no multicollinearity problem. A scatter diagram of the relationship between standardized residuals and standardized predicted values was also examined, and residuals were scattered randomly (Field, 2009); thus, we concluded that the assumption of the homogeneity of variance was also met.

Regression-based bootstrapping analysis was used to examine if academic self-efficacy mediated the relationship between insufficient self-control and dropout. Mediation analysis was conducted via PROCESS macro v3.3 developed for SPSS by Hayes (2019). Model 4 template was used in analysis, and the significance of direct and indirect effects was tested by utilizing bias-corrected 95% bootstrap confidence intervals, and the interval not including zero implied a significant value (Hayes, 2013).

As seen in Table 2, insufficient self-control predicted dropout directly, and total effect of insufficient self-control on dropout was found to be significant (*B=.17, SE=.0492, t=3.389, p<.001, 95% CI [.07, .26]*). Standardized regression coefficient of insufficient self-control on dropout was .18 (*β=.18, p<.001*, see Figure 1). The results explained 3% of the variance in dropout unless academic self-efficacy was controlled (R^2 *Y,X= .03, F(1, 363)=11.49, p<.001*). Moreover, insufficient self-control was found to predict academic self-efficacy significantly (*B(a)=-.43, SE= .0584, t=-7.4065, p<.001, 95% CI [-.55, -.32]*). The confidence interval for regression coefficient of -.36 did not include zero (*β=-.36, p<.001*, see Figure1), so this standardized regression coefficient was significant. This explained 13% of the variance in a mediator of academic self-efficacy as seen in Table 2 (*R^2M,X=.13, F(1, 363)=54.86, p<.001*).

Table 2. Regression results for the mediation effect of academic self-efficacy between insufficient self-control and school dropout

Model	Estimate	SE	CI (lower)	CI (upper)
Model without mediator				
Intercept	8.8642	.8418	7.2088	10.5197
ISC ➔SD (*c*) (Total Effect)	.1669	.0492	.0700	.2637
Model with mediator				
Intercept	16.2357	1.5931	13.1028	19.3685
ISC ➔ ASE (*a*)	-.4324	.0584	-.5472	-.3176
ASE ➔SD (*b*)	-.2294	.0427	-.3133	-.1455
ISC ➔ SD (c')	.0677	.0509	-.0324	.1678
ISC ➔ ASE ➔SD Indirect Effect (*axb*)	.0992	.0248	.0550	.1520

Note. ISC (Insufficient Self-Control), ASE (Academic Self-Efficacy), SD (School Dropout)
Predicting Academic Self-Efficacy (Path a) *R^2M,X=.13, F(1, 363)=54.86, p<.001*
Predicting School Dropout *R^2 Y,X= .03, F(1, 363)=11.49, p<.001*
Predicting School Dropout *R^2 Y,MX=.10 F(2, 362)= 20.64, p<.001, Cohen's f²= .01*

Next, academic self-efficacy was put into regression model together with insufficient self-control, and we concluded that academic self-efficacy predicted dropout negatively (*B(b)=-.23, SE=.0427, t=-5.3764, p<.001, 95% CI [-31,-.15]*). The significant standardized regression coefficient was -.29 (*β=-.29, p<.001*, see Figure 1). In addition, the predictive power of insufficient self-control on dropout became non-significant (*B=.07, SE=.0509, t=1.3299, p=.1844, 95% CI [-.03, .17]*), and the standardized regression coefficient dropped to .07 (*β= .07, p=.1844*) when academic self-efficacy was controlled.
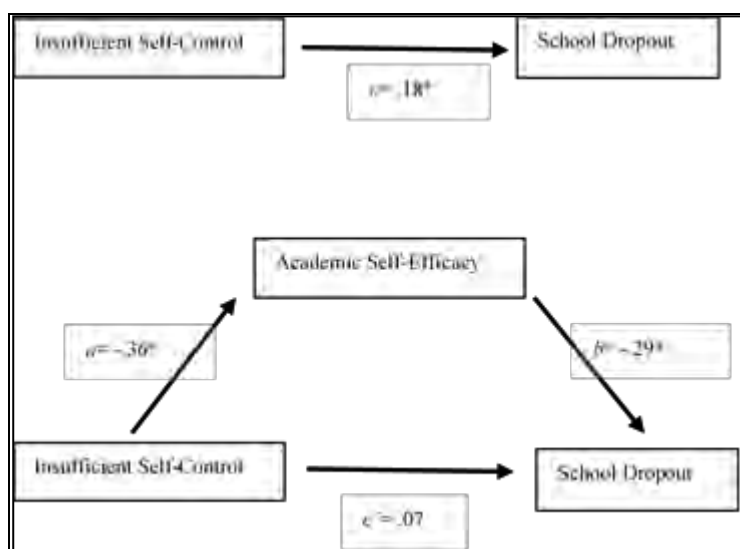
Note. Standardized Beta Coefficient Path, *p<.001
Figure 1. Mediation effect of academic self-efficacy between insufficient self-control and school dropout

These findings collectively indicated that academic self-efficacy fully mediated the relationship between insufficient self-control and dropout. To get an unbiased estimator of the mediating role of academic self-efficacy, bootstrapping analysis based on 10,000 rounds of data resampling with 95% confidence intervals was conducted.

Bias-corrected bootstrap results and confidence intervals not including zero (see Table 2) indicated that the indirect effect through academic self-efficacy was significant (*B (a*b)=.10, SE=.0240, 95% CI [.06, .15]*). That is, academic self-efficacy decreased as the level of insufficient self-control increased; the decrease in academic self-efficacy led to the rise in dropout levels. Insufficient self-control and academic self-efficacy collectively explained 10% of the variance in dropout (*β=.10, p<.0001*); 59% of the total effect of insufficient self-control on dropout was explained by academic self-efficacy (Preacher & Kelley, 2011).

Discussion

This study investigated the role of insufficient self-control and academic self-efficacy on dropout to contribute to the literature by providing additional information about the dropout risk of high school students. This study found that insufficient self-control led to dropout through academic self-efficacy. The students who left school stated some reasons for dropout such as long-term absenteeism, failure in school (Berktold et al., 1998; Bridgeland et al., 2006), and inability to cope with the academic demands (Rotermund, 2007). Dropout suggestions about preventing dropout included more rules and less freedom in school and more control by their families. These suggestions may be evaluated as indicators of their insufficient self-control (Bridgeland et al., 2006). These findings suggest that dropouts lack self-control, which makes following rules and taking responsibilities in school possible.

One of the most significant reasons of dropout is academic achievement status (Schunk & Mullen, 2012). Although academic success has cognitive determinants such as academic efficacy and cognitive capacity, psychosocial factors also affect achievement (Kassab et al., 2015; Teo et al., 1996). Some psychosocial factors such as impulse control problem and behavioral disorders as well as insufficient social skills and gang membership are predictors of academic failure and dropout (Cairns et al., 1989; Pittman, 1991). These findings are supported by the studies revealing that academic failure and behavioral disorders are indicators of dropout but not the main causes of it (Jimerson et al., 2000; Özer et al., 2011). These findings suggest that not only dropout but also predictors of dropout such as behavioral disorders and academic failure are based on the self-control schema.

The self-control schema is a persistent and long-lasting construct related to organizing oneself. Thus, it has pervasive effects on academics and social life and is resistant to change. Thus, insufficient self-control schema leads individuals to use dysfunctional coping strategies when they are faced with the situations that require them to control themselves (Young et al., 2003). Individuals not expected to control themselves react to frustration by acting out their negative feelings and impulses instead of limiting themselves. Alternatively, they avoid situations requiring them to control themselves. Since insufficient self-control schema like all the other schemas results in generalizations and provides a framework for all later experiences, school-related experiences may also be constructed according to this schema and perceived in a distorted way (Huntjens et al., 2014). Individuals with this schema think that they cannot control themselves in school, cannot bear frustration and even do not find it necessary to control their impulses and emotions so that they try to accommodate their academic perceptions, behaviors, and attitudes to this maladaptive schema and move towards a dropout process with their negative behaviors and attitudes towards school. In other words, insufficient self-control schema may lead individuals to strengthen their self-perception in a way that they cannot also control themselves in an academic environment via a self-fulfilling prophecy. These explanations indicate that insufficient self-control schema predicts academic self-efficacy.

School may be a threatening environment for individuals with insufficient self-control schema because self-control is a prerequisite for school adaptation and success (Finn, 1989). School schema probably trigger insufficient self-control schema, and individuals who think they cannot control themselves corroborate their low academic self-efficacy by avoiding tasks and responsibilities in school. Students who do not do homework, do not listen to lessons, and express anger via aggressiveness and/or antisocial behaviors against frustration due to lack of control often receive negative feedback about academic self-efficacy from their teachers and friends. This feedback may intensify their low academic self-efficacy (Linnenbrink & Pintrich, 2002; Schunk & Mullen, 2012).

An insufficient self-control schema is a construct that includes individuals' general and common evaluations about whether they can control themselves whereas academic self-efficacy includes their specific thoughts and perceptions of if they can achieve academic goals (Linnenbrink & Pintrich, 2002). In other words, a self-control schema is one component of academic self-efficacy and may be a building block of academic self-efficacy. Insufficient self-control determines academic performance and outcomes by setting the boundaries of academic self-efficacy. These explanations seem to account for how academic self-efficacy acts as a bridge between insufficient self-control and school dropout.

It may be stated that individuals' abilities to evaluate frustrations and difficulties at school as an opportunity not a threat for themselves depend on directly academic self-efficacy (Caprara et al., 2008) and indirectly self-control schema. Because The skills that motivate people to make an effort for being an active agent or having a sense of agency are symbolic processes and self-regulatory capacities that underlie academic self-efficacy. According to social cognitive theory, symbolic processes enable individuals to regulate and adapt to their environment through thinking via their cognitions at first and then reacting behaviorally. Symbolic processes allow planning and prediction before acting. This leads to regulation and continuity of behavior by providing scripts for situations and contexts. Symbolic processes refer to cognitive schemas in this framework. Therefore, an insufficient self-control schema plays an important role in the determination of academic self-efficacy acting as a symbolic process (Schunk & Mullen, 2012). Taking into account the fact that insufficient self-control schema leads individuals to think unwittingly that they cannot control themselves and then make them behave according to these thoughts, it becomes apparent how insufficient self-control predicts academic self-efficacy.

Although schemas provide a base for reactions and behaviors of individuals, they are expressed by information-processing procedures in cognitive system. Schemas set internal standards and goals, and information-processing procedures enable individuals to react consistently with these standards and goals (Schunk & Mullen, 2012). Based on this, it can be stated that insufficient self-control sets limits and standards of controlling oneself, and academic self-efficacy makes the achievement of these standards possible through information processing procedures. This explanation also sheds light on the finding that insufficient self-control predicts academic self-efficacy.

Academic self-efficacy including individuals' expectations of what they are capable of leads the learning process by affecting their goal-setting process, efforts, and persistence while trying to reach goals. This also impacts the way that they handle obstacles and eventually results in academic success or failure (Bandura, 1997). According to social cognitive theory, individuals do not react automatically but rather set a goal before taking an action. They then review and evaluate the strategies that they would use. If they make positive evaluations about strategies, then they take action. At the same time, they continuously review their behaviors and results of these behaviors and evaluate themselves to see if they need to reorganize their strategies and methods. Consequently, academic self-efficacy is related not only to the past but also to the future in terms of future goals and expectations (Schunk & Mullen, 2012). In this respect, academic self-efficacy functions as a mediator between the insufficient self-control schema and the school dropout.

When the academic self-efficacy of individuals with equivalent cognitive abilities are enhanced, they set bigger goals, become more flexible in terms of strategy and methods, and assess their performances more realistically regardless of actual performance (Caprara et al., 2008). However, individuals with a low academic self-efficacy cannot evaluate their performances realistically and overestimate their efforts (Hagger et al., 2010; Hutchinson et al., 2008); they misperceive their tasks as more difficult. All of these explanations suggest that individuals with low academic self-efficacy act with the misperception that they cannot obtain the desired outcome despite the great effort. They attribute their academic failure to their inability ignoring their lack of effort, and they give up (Sylva, 1994). Since individuals with low academic self-efficacy think that they cannot change the outcome and cannot be successful despite their demand for success and efforts, they may find going to school unnecessary and exhibit various behavioral disorders such as absenteeism and truancy (Bridgeland et al., 2006). These adaptation problems may lead to academic and social disengagement from school, low school performance, and consequently dropout.

In this research, academic self-efficacy fully mediated the relation between insufficient self-control and dropout. This finding is consistent with the views and the findings in the literature indicating that individuals' all adaptive and maladaptive reactions are based on schemas. The schema-focused cognitive approach explaining the relations between individuals' early maladaptive schemas and maladaptive behaviors provides evidence for how mediation relation operates. Because the schemas developed based on previous experiences of individuals direct all of the reactions by interacting with the current situation and experiences (Young, 1999). Considering that insufficient self-control schema tries to confirm itself by negatively affecting individual's self-regulation capacity, it may be stated that this schema manipulates academic self-efficacy and sharpens the perception of insufficiency in school via academic failure, absenteeism, and discipline problems. This finally results in dropout.

In sum, individuals with insufficient self-control schema think that they cannot control themselves in academic life, cannot meet the expectations of school system, and cannot delay their gratification to be engaged in academic studies. In this framework, from the first time the students enter school, they may try to convince not only themselves but also their families and teachers that they cannot meet academic expectations; thus, they should not

have any expectation from themselves. Thus, they do not fulfill academic responsibilities and activities that ensure school engagement. They fail academically because they do not try. At the same time, they cannot follow the institutional principles and rules that enable social engagement with school, and consequently show maladaptive behaviors causing disciplinary problems and absenteeism (Rumberger & Larson, 1998). As a result, individuals' academic self-efficacy levels decrease directly and immediately afterwards. As academic self-efficacy levels decrease, expectations of being successful decrease as well. They are unwilling to make necessary efforts and become disengaged from school. Individuals who do not feel belonging to school reduce expectations of their families primarily and their teachers over time and thus confirm their negative perceptions of themselves by receiving negative feedback from their families and teachers about their sufficiency. In this way, they confirm and verify insufficient self-control schema via dropout resulting from low academic self-efficacy.

Conclusions and Implications

This study investigated the sequential relation between academic self-efficacy and insufficient self-control, which were the potential predictors of school dropout that lead to negative consequences for not only individuals but also society. The results indicated that insufficient self-control predicted dropout through the agency of academic self-efficacy. This finding is important and reveals that dropout is a phenomenon that cannot be limited to only academic life, and that individuals' developmental processes, early life experiences, and cognitive constructs based on these experiences and psychological factors play an important role in explaining school dropout. In this context, indicating that the early maladaptive schemas also predict dropout makes an important contribution to the literature because most variables studied in the literature such as absenteeism, truancy, and academic failure are late indicators of dropout. These refer to the last phases of dropout process, and thus interventions to these problems are generally late and ineffective. They cannot refrain potential dropouts from leaving school without earning a diploma. In conclusion, identifying potential dropouts as early as possible is critical (Jimerson et al., 2000) for prevention because the schemas are consolidated and become increasingly rigid by each experience in the developmental process; thus, it is less likely to change schemas and reach effective results through these late interventions. Thus, it is critically important to implement interventions as the first indicators of dropout problem are observed. As possible indicators of insufficient self-control, adaptation problems during preschool period – e.g., impulse-control disorder, oppositional-defiant disorder and lack of self-regulation- may be regarded as primary signs of dropout, and these symptoms may provide opportunity for identification of at-risk individuals. Furthermore, carrying out prevention studies employing early intervention programs for at-risk individuals in terms of dropout can increase the effectiveness of the studies intending to decrease the psychological, social, and economic costs of dropout.

Although politicians and institutions such as ministries have crucial roles in preventing dropout, this study indicates the importance of immediate preventive measures taken at an individual level by counselors, teachers, families, etc. Implementing interventions for those considered to be at risk of dropout before symptoms become more severe may also decrease the likelihood of other psychological problems and adjustment disorders because both dropout and adjustment disorders result from a lack of self-regulation skills. Parental trainings on parenting attitudes and parent-child relationships may be implemented for parents in the scope of primary prevention studies because early maladaptive schemas based on relationships with primary care-takers are the main causes of many psychological problems like dropout. Moreover, preschool and primary school teachers may be given in-service training to support their students to develop their self-regulation and self-control skills and academic self-efficacy. School counselors may conduct both individual and group counseling to have students change their self-control perception from negative to more positive. Counselors may be given trainings about schema therapy as well as cognitive behavioral therapy to handle dropout more effectively.

This study investigated whether early experiences and insufficient self-control predicted dropout via the variable of early maladaptive schema. Since early maladaptive schemas show indirect effect of parental attitudes, studies taking parental attitudes as another variable may be carried out to find out the direct effect of parents' attitudes on school dropout. This study is a cross sectional study on high school students. Considering this limitation, longitudinal studies starting from early childhood years may be conducted.

Studies that compare dropouts and the non-dropouts may be carried out to examine the patterns of dropout process. Qualitative studies that interview both the at-risk students and the individuals who already dropped out of school may be conducted to comprehend this issue thoroughly. Consequently, this research will make prevention and intervention efforts more effective by providing more detailed and comprehensive explanation of dropout process. It will eventually reduce negative consequences of dropout at both individual and societal levels and enhance individuals' mental health.

Author (s) Contribution Rate

All authors contributed to the study (100%) conception and design, data collection, and analysis; they all read and approved the final manuscript.

Conflicts of Interest

The authors have no competing interests to declare that are relevant to the content of this article.

Ethical Approval (only for necessary papers)

Ethical permission (26/04/2022-298249) was obtained from Research and Publication Ethics Committee of the university researchers worked.

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