



Effects of Academic Motivation on School Burnout in Turkish College Students

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Abstract

School burnout refers to psychological reactions to academic stress and loads and has been identified as a risk factor contributing to academic failure and subsequent mental health challenges. However, academic motivation, hope, and meaning in life can be potential combating factors against school burnout. This study aimed to examine the effects of academic motivation on school burnout in college students and explore mediator roles of hope and meaning in life. A path analysis was performed with the data collected from 544 Turkish college students to test the direct and indirect effects. The results showed that the direct effects from the three academic motivation variables to school burnout variables were larger than the indirect effects. Both mediators played roles in the relations between amotivation and efficacy and intrinsic motivation and efficacy. The last finding was that hope played more significant mediator roles than meaning in life. The results were discussed, along with implications for faculty, college counselors, and future studies.

Keywords Academic motivation · Hope · Meaning in life · Path analysis · School burnout

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School burnout is experienced as psychological reaction to chronic academic stress and loads (Gan et al., 2007). There are three dimensions of burnout: exhaustion, cynicism, and efficacy (Salmela-Aro et al., 2009a). School-related exhaustion refers to feelings of fatigue, strain, and tiredness about school. School-related cynicism is experienced as being distant from the school and losing interest in school. Lack of school-related efficacy or inadequacy can be defined as reduced feelings of competence and achievements in school tasks (Salmela-Aro et al., 2009a; Schaufeli et al., 2002). The literature showed that school burnout is negatively associated with academic performance and school engagement (e.g., May et al., 2015; Schaufeli et al., 2002). On the other hand, school burnout was found to be positively related to reduced attention capacity and problem-solving (May et al., 2015) and depressive symptoms (Salmela-Aro et al., 2009b). In addition, Bask & Salmela-Aro (2013) found that school burnout caused later school dropouts in high school students. Therefore, school burnout is a risk factor for reduced academic success and higher mental health issues.

Even though burnout was initially studied in the U.S., Canada, and Great Britain, the concept of burnout has drawn attention in the international literature (e.g., Charkhabi et al., 2013; Gan et al., 2007; Schaufeli et al., 2002). Walburg (2014) reviewed 16 studies concerning school burnout and concluded that "...the phenomenon is not geographically or culturally restricted" (p. 30). Although there are limited studies, the Turkish literature has documented that school burnout is positively related to lower levels of grade-point averages, to higher levels of course load (Küçüksüleymanoğlu & Eğilmez, 2013), to depression, anxiety, and stress (Seçer, 2015), and to perfectionism (Çam et al., 2014), and negatively associated with social support (Çam et al., 2014; Güngör, 2019).

Studies on burnout were first conducted on healthcare workers in Turkey. Capri et al. (2011) documented the occurrence of burnout in other occupations and school burnout. Due to the highly competitive examinations in the Turkish education system, students are required to have overloads (Capri et al., 2011). Because of stressful examinations and competition, school burnout can be a risk factor for Turkish college students. Therefore, it was worth examining school burnout in a Turkish sample because of academic and mental health issues. In addition, investigating school burnout in a Turkish sample is important for understanding school burnout from a cross-cultural perspective.

School burnout is a potential risk factor for students' academic success and mental health. Thus, it could be helpful to explore the variables related to school burnout for prevention and intervention (Walburg, 2014). Examining the factors that are positively or negatively related to school burnout will contribute to a better understanding of school burnout in Turkish college students. The previous studies examined relationships between the Turkish college students' school burnout and various factors such as gender, grade, social support, weekly workload (e.g., Çam et al., 2014; Gündüz et al., 2012; Ören & Türkoğlu, 2006; Tansel, 2015;). As the literature documented, there are various factors related to Turkish college students' school burnout.

In this regard, we considered academic motivation as potential combat against school burnout, as a person with higher levels of academic motivation tends to have a feeling of control over their behaviors and situation when dealing with challenges (David, 2010). According to self-determination theory, motivation, in general, refers to one's feelings of impetus and inspiration for doing something and being moved to do something (Ryan & Deci, 2000a, b) defined motivation as “energy, direction, persistence and equifinality-all aspects of activation and intention” (p. 69).

Academic motivation may be related to school burnout. Motivation refers to one's energy, willingness, and direction to do a job (Ryan & Deci, 2000a, b), so it appears that highly motivated students are more capable of handling school burnout. Previous studies also documented the association between motivation and school burnout (e.g., David 2010; Isoard-Gauthier et al., 2012; Pisarik, 2009; Zhang et al., 2013).

Even though motivation is generally considered a singular factor, people are driven or move to act for various reasons (Ryan & Deci, 2000b). In this sense, people vary on the orientation and the types of motivation (Ryan & Deci, 2000a; Smith & Karaman, 2019). Because self-determination theory has received immense attention in the literature and is mentioned with regard to the orientation, we addressed the academic motivation in this study based on the definition of self-determination theory (Ryan & Deci, 2000a, b). Therefore, motivation can be considered in the following types: intrinsic motivation, extrinsic motivation, and amotivation (Ryan & Deci, 2000a, b; Smith & Karaman, 2019). Intrinsic motivation refers to one's tendency for action and movement for inherent interest and satisfaction, while extrinsic motivation refers to action and performance for a separable outcome rather than inherent satisfaction (Ryan & Deci, 2000b). Amotivation represents the opposite side of intrinsic motivation, which refers to the lack of intention to do something (Ryan & Deci, 2000a; Pisarik, 2009).

School burnout may be related to overload (Gan et al., 2007), school-related challenges, and difficulties can lead to school burnout. On the other hand, a motivated student may be expected to be energized and resistant to school-related challenges and difficulties, so it is hypothesized that they can experience a lower level of school burnout. However, the differences in the types of academic motivation should be noted. According to self-determination theory, some types of extrinsic motivation can represent enriched motivation, and some can represent reduced forms of motivation. In addition, amotivation refers to a lack of motivation (Ryan & Deci, 2000a). Thus, school burnout is expected to be positively associated with extrinsic motivation and amotivation, while negatively associated with intrinsic motivation. Intrinsic motivation was negatively related to burnout (e.g., Isoard-Gauthier et al., 2012; Pisarik, 2009; Zhang et al., 2013), and amotivation and extrinsic motivation were positively associated with burnout (e.g., David 2010; Isoard-Gauthier et al., 2012; Pisarik, 2009; Zhang et al., 2013). Even though the directionality between academic motivation and school burnout may be ambiguous, the literature handled motivation as a predictor of school burnout (e.g., David 2010; Pisarik, 2009; Zhang et al., 2013). More importantly, the longitudinal studies (e.g., Isoard-Gauthier et al., 2012) showed that initial motivation was a predictor of burnout. Thus, we hypothesized that academic motivation is a predictor of school burnout.

Despite both theoretically and empirically validated relationships between the types of motivation and school burnout, there might be possible mediating variables explaining those relationships. A mediating variable explains and clarifies the relationship between an independent variable(s) and a dependent variable (Preacher & Hayes, 2004, 2008). In this sense, we considered hope and meaning in life as potential mediators. People's higher levels of hope are theoretically related to their greater levels of goal attainment and sense of achievement (Snyder et al., 1991), and the literature revealed a negative association between hope and school burnout (Boyacı & Özhan, 2018; Güngör, 2019). Thus, because of the relationships between hope and academic motivation (e.g. Piña-Watson et al., 2015) and school burnout (e.g. Boyacı & Özhan 2018; Güngör, 2019) hope was considered as a mediator between academic motivation and school burnout.

Similarly, meaning in life is addressed in existential theory and considered the primary motive of people's behaviors (Frankl, 1992), so it is theoretically possible to expect a negative association between meaning in life and school burnout. In addition, the literature showed that meaning in life is positively related to intrinsic motivation and negatively associated with amotivation and extrinsic motivation (Bailey & Phillips, 2016; Siwek et al., 2017; Utvær, 2014). Therefore, based on the theoretical and empirical validations, thereby justifying meaning in life as a potential mediator on the relationship between academic motivation and school burnout.

Hope

According to Snyder et al.'s (1991) approach, hope is “a cognitive set that is composed of a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning ways to meet goals)” (p. 571). “Pathways” refers to one's ability to generate different ways to reach their own goals, while “agency” is about activating capacity to reach out to those determined goals (Snyder et al., 1997). The concept of hope has also received attention in Turkish literature Özer & Altun, 2011; Şahin et al., 2012; Tarhan & Bacanlı, 2015). Hope was found to be negatively related to school burnout in Turkish secondary school students (Boyacı & Özhan, 2018) and Turkish undergraduate students (Güngör, 2019). Experimental studies also showed that hope-based interventions were effective in enhancing life satisfaction and self-worth (Marques et al., 2011) and quality of life (Duggleby et al., 2007), and in reducing depression (e.g., Retnowati et al., 2015). We hypothesized that if a student is more academically motivated to do something, they are expected to be more hopeful, resulting in lower levels of school burnout. Investigating this mediating role can shed light on the potential central role of hope in preventing and mitigating school burnout in undergraduate students.

Meaning in Life

Meaning in life is defined as “the sense made of, and significance felt regarding, the nature of one's being and existence” (Steger et al., 2006, p. 81). Meaning in life

was addressed in two dimensions: the presence of meaning in life and the search for meaning (Steger et al., 2006). The presence of meaning in life refers to how purposeful people perceive their lives, while the search for meaning is about individuals' efforts to increase meaning in their lives (Dezutter et al., 2014; Steger et al., 2006). Dimensions of meaning in life was also validated in Turkish culture (Terzi et al., 2011). In this study, the presence of meaning in life was considered the indicator of meaning levels in life. The effects of meaning in life on mental health are well-documented (e.g., Dezutter et al., 2014; Güngör & Uçman, 2020). For example, there are various programs and interventions such as logotherapy (Frankl's meaning-based; Cho 2008), psychotherapy programs (e.g. Greenstein & Breitbart 2000), and group interventions (e.g. Kashaniyan & Koolae 2015) to enhance meaning in life, so meaning in life can be considered as a malleable variable. Even though there is a lack of empirical validation in the literature, meaning in life can potentially mediate the association between academic motivation and school burnout. Motivated students can be expected to have higher levels of meaning in their lives. Therefore, we hypothesized that when students have higher levels of academic motivation, they are expected to have greater levels of meaning in life, which in turn is expected to reduce school burnout. This study advances the literature by empirically investigating the mediating effects of hope and meaning in life, so the results will be important in preventing and intervening in school burnout. Overall, the following research questions were determined for the current study:

- What are the direct and indirect effects of the types of academic motivation on school burnout in college students?
- Does the presence of meaning mediate the effects of the types of academic motivation on school burnout?
- Does hope mediate the effects of the types of academic motivation on school burnout?

Methods

Participants and Procedure

The sample was all Turkish and consisted of 544 undergraduate students only. There were international students among the participants. However, we excluded those non-Turkish participants in the dataset. The data were collected during the 2020 spring semester, and this process was completed in four weeks. The form consisted of 59 items in total and some demographic questions. Of the sample, 73.8% (n=402) was female, and 23.2% (n=142) was male. The average age of participants was 21.65 (SD=2.54). There were 107 freshmen (19.7%), 5 sophomore (0.9%), 281 junior (51.7%), and 151 senior (27.8%) students in the sample. The students were from various programs, such as history, geography, psychology, the teaching of math & science, early childhood, guidance and psychological counselling, elementary education, and more.

After receiving the required ethical permission from the local Institutional Review Board, first, we created the survey on Google Forms web-based application. Then, the electronic link was sent to all students. A very first question asked to consent to participate (Yes/No), and the students were told that rejection of participating will not affect their grades, and they may stop participating at any time. The students filled the survey during regular class hours, and 20 min was given to them to complete the survey. We initially planned to collect data from multiple universities and started to collect data from the two institutions where the authors worked. However, the Turkish government closed all universities due to COVID-19 outbreak. Due to its speed, ease, and cost effectiveness, we had to use a convenience sampling method in the study, meaning that participation was voluntary. We reached approximately 560 students, and a very high proportion agreed to participate.

Measures

Academic motivation survey. The English version of this survey was developed by Vallerand et al., (1992) and adapted and validated to Turkish by Unal-Karagüven (2012). The scale aims to measure students' three types of academic motivation: intrinsic motivation, extrinsic motivation, and amotivation. The survey is comprised of seven subscales as Intrinsic Motivation to Know (IMTK), Intrinsic Motivation to Accomplish (IMTA), Intrinsic Motivation to Experience Stimulation (IMES), Extrinsic Motivation External Regulation (EMER), Extrinsic Motivation Introjected Regulation (EMIN), Extrinsic Motivation Identified Regulation (EMID) and Amotivation (AMOT). In all subscales, there were four items, for a total of 28 items. In the beginning of the survey, the participants were asked the question of 'Why do you go to college?' One sample item for the intrinsic motivation subscale was that 'Because I experience pleasure and satisfaction while learning new things.' One sample item for the extrinsic motivation subscale was that 'Because with only a high-school degree I would not find a high-paying job later on.' One sample item for the amotivation subscale was that 'Honestly, I don't know; I really feel that I am wasting my time in school.' The students were asked to rate items. All survey items had seven response options from 1 = *Does not correspond at all* to 7 = *Corresponds exactly*. We grouped all intrinsic motivation items (e.g., 12 items) in the three subscales that measure intrinsic motivation (e.g., IMTK, IMTA, and IMES), and grouped all extrinsic motivation items (e.g., 12 items) in the three subscales that measure extrinsic motivation (e.g., EMER, EMIN, and EMID). Then, we calculated summated scores for intrinsic motivation, extrinsic motivation, and amotivation variables to obtain observed scores. In this study, the Cronbach alpha values were 0.92, 0.82, and 0.85, for the intrinsic, extrinsic motivation, and amotivation subscales, respectively.

Hope. The hope survey was originally developed by Snyder et al., (1991) to measure levels of hope and was adapted to Turkish by Tarhan and Bacanlı (2015). The survey is comprised of two subscales as pathways and agency, with four items in each subscale. One sample item for pathways subscale was that 'I can think of many ways to get out of a jam.' One sample item for agency subscale was that 'I energetically pursue my goals.' All survey items had eight response options from 1 = *Definitely false* to 8 = *Definitely true*. As consistent with the purpose of this study, we used the

total scores. Therefore, we calculated summated scores across the eight items (e.g., combining two scale items), and obtained single observed scores for each of the respondents. In the adaptation study, the Cronbach alpha value of the whole scale was 0.86, and in this study, it was 0.73. The internal consistency value we obtained was lower than the value in the adaptation study, however, it is still higher than the acceptable criteria of 0.70 (Lance et al., 2006).

Meaning in life. The meaning in life questionnaire (MLQ) was originally developed by Steger et al., (2006) to measure the presence and the search for meaning. Terz et al. (2011) adopted the MLQ into Turkish and validated it. The survey is comprised of two subscales as the presence of meaning and search for meaning. There were five items in each subscale, for a total of 10. One sample item for presence of meaning subscale was that ‘I understand my life’s meaning.’ One sample item for search for meaning subscale was that ‘I am looking for something that makes my life feel meaningful.’ All survey items had seven response options from 1=*Absolutely untrue* to 7=*Absolutely true*. One item in the subscale of the presence of meaning was negatively worded so, the responses given to this item were reversely coded. The two subscales are intended to measure two different but highly related domains. In this study, we only used the presence of meaning scale items. We calculated summated scores across the four items in the presence of meaning domain and obtained single observed scores for each respondent. In the adaptation study, the Cronbach alpha values were 0.83 for each of the subscales, and in our study, they were 0.87 and 0.85 for the presence of meaning and search for meaning scales, respectively.

Burnout. The English version of the Maslach Burnout Inventory-Student Scale (MBI-SS) was developed by Schaufeli et al., (2002), and adapted and validated into Turkish by Çapri et al., (2011). The scale aims to measure the levels of students’ burnout. The survey is comprised of the three subscales as exhaustion with five items, efficacy with four items, and cynicism with four items, for a total of 13 items. One sample item for exhaustion subscale was that ‘I feel emotionally drained by my studies.’ One sample item for exhaustion subscale was that ‘I can effectively solve the problems that arise in my studies.’ One sample item for cynicism subscale was that ‘I have become less enthusiastic about my studies.’ All survey items had seven response options from 0=*Never* to 6=*Always*. The efficacy items were reverse coded as in the original and validation studies. Therefore, higher scores in the efficacy dimension refer to reduced levels of school-related efficacy. The scores of items measuring the same sub-scale were summed to calculate observed scores for each variable. The Cronbach alpha values in the adaptation study were 0.76, 0.61, and 0.82 for the sub-scale of exhaustion, efficacy, and cynicism, respectively. In our study, they were 0.87, 0.65, and 0.80, respectively.

Data Analysis

Based on the research hypotheses, we first developed the theoretical path analysis model given in Fig. 1. In the model, intrinsic motivation, extrinsic motivation, and amotivation are exogenous variables, meaning that these three variables are not caused by other variables (e.g., no arrows pointing to them), and the remaining variables are endogenous variables, meaning that those variables are caused by other

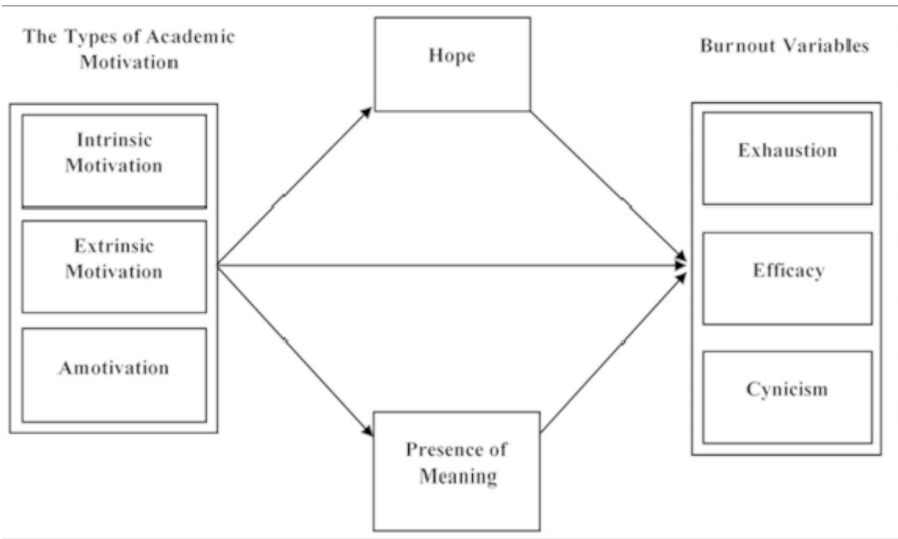


Fig. 1 Hypothesized Path Model

variables (e.g., arrows pointing to them). We hypothesized that there should be direct and indirect effects from each type of academic motivation (e.g., intrinsic motivation, extrinsic motivation, and amotivation) to exhaustion, efficacy, and cynicism. We also hypothesized that indirect effects are mediated through hope and the presence of meaning.

We assessed the normality of the variables by checking skewness and kurtosis values. They were all within the limits of -1 and 1. Furthermore, all univariate histograms, residual plots, and normal QQ plots indicated no serious non-normality problem. We also checked the multicollinearity assumption by examining variance inflation factor (VIF) and tolerance values. All VIF values were between 1 and 10, all tolerance values were higher than 0.10.

Theoretically, there should be similarity between the model implied covariance matrix (e.g., parameter estimates) and actual covariance matrix obtained from the collected dataset, called model fit (Marcoulides & Yuan, 2017). Otherwise, the relationships in the proposed model should be revised. The general criteria used to evaluate model fit in the literature is that chi-square: $p > .05$, Comparative Fit Index (CFI) > 0.95 , Tucker-Lewis index (TLI) > 0.95 , Root Mean Square Error of Approximation (RMSEA) < 0.06 and Standardized Root Mean Square Residual (SRMR) < 0.08 (Hooper et al., 2008; Kline, 2005). In this study, we failed to meet some of these model fit statistics. Due to encountering model fit problems in the hypothesized path model, we had to modify the hypothesized model by removing insignificant paths. We call this new model the selected path model (see Fig. 2). In the model, we allowed the correlated residuals between exogenous variables. The bivariate correlations amongst all variables are given in Table 1. We run both hypothesized and selected models in Mplus software version 7 (Muthen & Muthen, 1998–2012) and used the bootstrap with 5000 iterations to obtain confidence intervals for the esti-

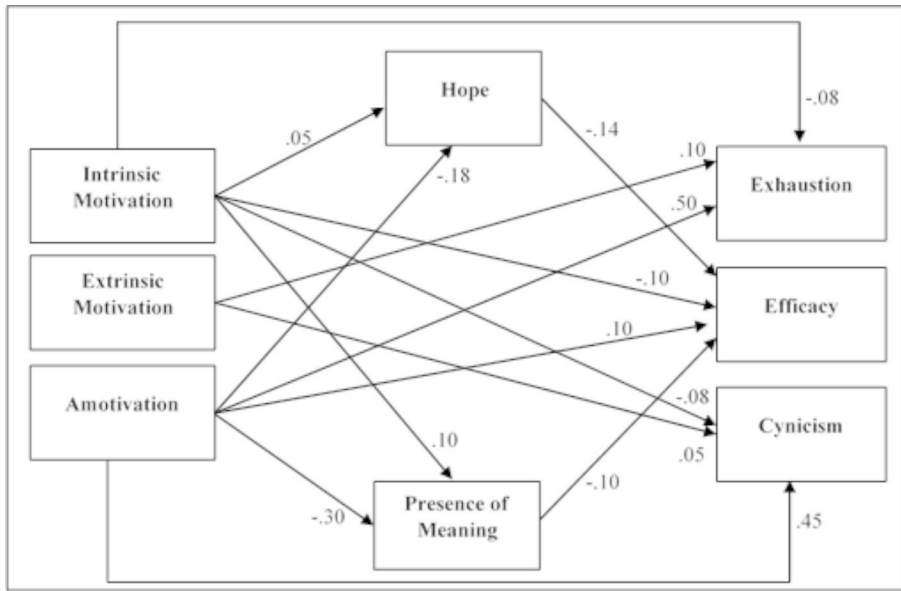


Fig. 2 Unstandardized Coefficients of The Paths in The Selected Path Model

Table 1 Bivariate Correlations, Means and Standard Deviations Amongst the Variables

Variable	1	2	3	4	5	6	7	8
1.Intrinsic	--							
2.Extrinsic	0.54*	--						
3.Amotivation	-0.36	-0.10*	--					
4.Hope	0.28*	0.14*	-0.31*	--				
5.POM	0.39*	0.13*	-0.39*	0.34*	--			
6.Exhaustion	-0.23*	0.02	0.44*	-0.22*	-0.23*	--		
7.Efficacy	-0.48*	-0.26*	0.36*	-0.34*	-0.38*	0.32*	--	
8.Cynicism	-0.34*	-0.07	0.53*	-0.19*	-0.23*	0.71*	0.38*	--
Means	58.30	61.10	8.58	49.65	27.29	16.84	7.78	10.39
SD	14.97	11.51	5.34	3.85	5.52	6.91	3.66	5.27

Note. * Significant at the 0.05 alpha level; POM=Presence of Meaning; SD=Standard deviation.

mated coefficients. Bootstrap method allows to obtain robust (e.g., reliable) results especially when the data deviates from normal distribution and/or sample size is less (Alfons et al., 2021). The sizes of the total, direct, and indirect effects of exogenous variables on endogenous variables are given in Table 2. The sizes of the total, direct, and indirect effects from endogenous variables to endogenous variables are given in Table 3.

Table 2 The Bootstrapped Sizes of Total, Direct and Indirect Effects of Exogenous Variables on Endogenous Variables

Exogenous Variable	Endogenous Variables				
	Hope	Presence of Meaning	Exhaustion	Efficacy	Cynicism
Intrinsic Motivation	0.05*	0.10*	<i>-.08*</i>	<i>-.08*</i>	<i>-.08*</i>
	--	--	--	<i>-.02*</i>	--
	0.05*	0.10*	-0.08*	-0.10*	-0.08*
Extrinsic Motivation	--	--	0.10*	--	0.05*
	--	--	--	--	--
	--	--	10*	--	0.05*
Amotivation	-0.18*	-0.30*	0.50*	0.10*	0.45*
	--	--	--	<i>.05*</i>	--
	-0.18*	-0.30*	0.50*	0.15*	0.45*

Note. Direct effects in regular text, indirect effects in italics, total effects in bold text. The symbol -- means the effect is not in the model; * $p < .05$; all effects are unstandardized effects.

Table 3 The Bootstrapped Sizes of Total, Direct and Indirect Effects from Endogenous Variables to Endogenous Variables

Endogenous Variable	Endogenous Variables		
	Exhaustion	Efficacy	Cynicism
Hope	--	<i>-.14*</i>	--
	--	--	--
	--	-0.14*	--
Presence of Meaning	--	-0.10*	--
	--	--	--
	--	-0.10*	--

Note. Direct effects in regular text, indirect effects in italics, total effects in bold text. The symbol -- means the effect is not in the model; * $p < .05$; all effects are unstandardized effects.

Results

Results of Model Fit

The fit indices of the hypothesized model were chi-square: $\chi^2(1)=24.38$ and $p < .001$, CFI=0.98, TLI=0.45, RMSEA=0.20 and SRMR=0.02. Some of the model fit indices of the hypothesized model were not acceptable, so we had to remove all insignificant direct and indirect effects specified from the hypothesized model. The fit indices of the selected path model were $\chi^2(8)=36.3$ and $p = .29$, CFI=0.98, TLI=0.92, RMSEA=0.06 with a 90% CI of [0.02, 0.08] and SRMR=0.03. The amount explained variances for the endogenous variables of exhaustion, efficacy, and cynicism were 0.21, 0.31, and 0.31, respectively. The amount explained variances for the mediator variables of hope and presence of meaning were 0.13 and 0.22, respectively.

Results of Total, Direct and Indirect Effects from exogenous variables

Intrinsic motivation. Intrinsic motivation had significant total effects on hope (0.05), presence of meaning (0.10), exhaustion (-0.08), efficacy (-0.10), and cynicism (-0.08). Thus, the effect of intrinsic motivation was roughly the same size on all the endogenous variables (e.g., small effect). The 0.05 effect on hope, 0.10 effect presence of meaning, -0.08 effect on exhaustion, and -0.08 effect on cynicism were entirely direct effects as specified in the model. The -0.10 effect on efficacy was partially indirect (-0.02) and partially direct (-0.08). The direct, indirect, and total effects were significant. As specified in the selected model, the indirect effects were through both hope (-0.01, $p < .001$) and the presence of meaning (-0.01, $p < .001$). In summary, hope and meaning in life played a mediator role in the relationship between intrinsic motivation and efficacy. However, both mediators did not significantly affect the relationships between intrinsic motivation and the other two endogenous variables, exhaustion and cynicism.

Extrinsic motivation. Extrinsic motivation had significant total effects on exhaustion (0.10) and cynicism (0.05). Both effects were direct effects as specified in the model. There were no significant indirect effects from extrinsic motivation to exhaustion, efficacy, or cynicism. In other words, both hope and meaning in life did not play mediator roles on the relationships between extrinsic motivation and any of the endogenous variables.

Amotivation. Amotivation had significant total effects on hope (-0.18), presence of meaning (-0.30), exhaustion (0.50), efficacy (0.15), and cynicism (0.45). The effect of amotivation on the three variables was similar in size. The -0.18 effect on hope, -0.30 effect presence of meaning, 0.50 effect on exhaustion, and 0.45 effect on cynicism were entirely direct effects as specified in the model. The 0.15 effect on the efficacy was partially indirect (0.05) and partially direct (0.10). The indirect effects were through hope (0.02, $p < .001$) and presence of meaning (0.03, $p < .001$). In summary, both hope and the presence of meaning played a mediator role in the relationship between amotivation and efficacy. However, both mediators did not significantly affect the relationships between amotivation and the other two endogenous variables, exhaustion and cynicism.

Results of Total, Direct and Indirect Effects on exogenous variables

Efficacy. Efficacy was affected by hope and presence of meaning with total effects of -0.14 and -0.10, respectively. Both effects were significant direct effects, so efficacy was not indirectly affected by both mediators, as specified in the model. Hope and meaning in life played mediating roles between intrinsic motivation and amotivation and efficacy.

The other two endogenous variables, exhaustion, and cynicism, were not affected by any mediator variables, as shown in the model. This means that hope and meaning in life did not play any mediating roles for intrinsic motivation, extrinsic motivation, and amotivation.

Discussion

This study aimed to examine the effects of the types of academic motivation on the dimensions of school burnout in Turkish undergraduate students. We hypothesized that three types of academic motivation predict three dimensions of burnout variables. We also hypothesized that hope and meaning in life mediated those relationships. The results showed that intrinsic motivation negatively predicted all dimensions of school burnout, both directly and indirectly. As expected, amotivation had positive direct and indirect effects on all dimensions of school burnout. However, extrinsic motivation was found to be positively related to only two dimensions of school burnout; exhaustion and cynicism. Overall, many of our hypotheses were supported. We detailed the meaning of these findings in the following sections.

First, the results revealed that intrinsic motivation had direct negative relationships with exhaustion, cynicism, and efficacy. These findings are theoretically expected because intrinsic motivation is defined as inherent wishes to do something (Ryan & Deci, 2000b) and is considered an important factor for high-quality learning (Ryan & Deci, 2000a). Therefore, intrinsically motivated students tend to experience lower levels of exhaustion, cynicism, and efficacy in their schoolwork. Previous studies also found that intrinsic motivation was negatively related to school burnout (Pisarik, 2009; Zhang et al., 2013). The findings of this study regarding intrinsic motivation were consistent with the literature. Furthermore, the results showed that highly intrinsically motivated students also reported high levels of hope and the presence of meaning, which in turn made them have lower levels of exhaustion and efficacy issues in their schoolwork. Thus, in addition to the direct effects of intrinsic motivation, hope and the presence of meaning played central roles between intrinsic motivation and the efficacy dimension of school burnout.

The results revealed that amotivation had positive direct relationships with exhaustion, cynicism, and efficacy. These findings supported the hypotheses that the undesirable effects of amotivation on school burnout. Theoretically, unmotivated students are expected not to have the energy and intention to do something or to pursue their goals (Ryan & Deci, 2000a; Pisarik, 2009). Since amotivation represents the opposite side of intrinsic motivation, its interpretation was reverse to the interpretation made on intrinsic motivation. The finding related to amotivation was also consistent with the literature (e.g., David 2010; Zhang et al., 2013). Regarding mediating effects, the results showed that students with higher levels of amotivation had lower levels of hope and presence of meaning, leading them to have higher levels of efficacy issues.

Regarding the effects of extrinsic motivation on school burnout, there were positive direct effects on exhaustion and cynicism, consistent with the literature (David, 2010; Pisarik, 2009; Zhang et al., 2013). As the levels of extrinsic motivation increased, the levels of exhaustion and cynicism were escalated. Even if extrinsic motivation refers to the existence of motivation, according to self-determination theory, extrinsic motivation can represent diminished forms of motivation (Ryan & Deci, 2000a). Thus, this finding supports that the importance of being inherently motivated and ones as helpful in being action-oriented were more emphasized to tend to take actions (Ryan & Deci, 2000a, b). However, as contradicting the hypotheses, no significant relationship was found between extrinsic motivation and efficacy. This can be explained as

that extrinsic motivation is about being energized or driven by an external reason (Ryan & Deci, 2000b), while efficacy is more about thoughts and beliefs about self-functioning in school tasks (Salmela-Aro et al., 2009a). In addition, extrinsic motivation was not significantly related to hope or meaning in life.

The results showed that both hope and the presence of meanings had partial mediator effects for intrinsic motivation and amotivation. Even though the direct effects from intrinsic motivation and amotivation to hope were smaller than the direct effects to the presence of meaning, total effects through hope were higher than the total effects through the presence of meaning. Thus, we concluded that hope played a major mediating role than the presence of meaning. According to Snyder et al., (1991), hope produces different ways and activates the energy to reach out goals. On the other hand, meaning in life is about one's general perception of their lives (Steger et al., 2006). As the findings showed, both hope and meaning in life were significant partial mediators. Hope, as consistent with the theoretical definition, was found to have a bigger effect on school burnout. However, both variables played no mediator roles between extrinsic motivation and any of the burnout dimensions.

In addition, such mediating effects were partial. It meant that the direct effects of motivation were significant, which showed the importance of motivation on school burnout besides hope and meaning in life.

Implications

The results showed that intrinsic motivation was negatively associated with school burnout, while amotivation and extrinsic motivation were positively associated with school burnout in Turkish undergraduate students. In addition, the effects of intrinsic motivation and amotivation on efficacy were mediated by hope and the presence of meaning. The results emphasized the importance of intrinsic motivation, which refers to having own reasons to pursue undergraduate education for reduced school burnout. On the other hand, extrinsic motivation was found to be a risk factor for increased levels of school burnout. Therefore, the interventions should focus on enhancing intrinsic motivation. Ryan & Deci (2000b) mentioned that people are intrinsically motivated if they have an intrinsic interest. Therefore, one possible suggestion would be to increase students' self-awareness of why and for what reasons they pursue their education and what inherent personal benefits they acquire from undergraduate education. Thus, career and orientation programs can be delivered to students to raise their own considerations about their studies. It can also be helpful for classroom instructors to consider the importance of students' intrinsic motivation as much as possible, rather than motivating them by external drives such as grades. Future studies can also develop and test educational or psycho-educational group programs aiming at increasing intrinsic motivation. In this sense, college counselors can deliver college students individual and group work to increase motivation, especially intrinsic motivation.

Additionally, hope and the presence of meaning play a central role in the association between intrinsic motivation and the efficacy dimension of school burnout. Therefore, hope and meaning in life should be included in the orientation programs, especially preventing school burnout. The literature has examples that interventions

and group programs that can enhance hope (e.g., [Psychosocial hope intervention] Duggleby et al., 2007; [Building hope for the future] Marques et al., 2011; [Hope intervention] Retnowati et al., 2015) and meaning in life (e.g., [Logo-autobiography program] Cho 2008; [A group psychotherapy program] Greenstein & Breitbart 2000; [Positive psychology group interventions] Kashaniyan & Koolae 2015). Similarly, college counselors can deliver college students such group interventions, which were tested and validated in the literature.

Limitations and Future Studies

This study contributed to understanding the relationships between intrinsic, extrinsic motivation, and amotivation, and school burnout dimensions in Turkish undergraduate students. In addition, this study shed light on the mediating effects of hope and the presence of meaning on those relationships. However, there were some important limitations to this study. First, the design of this study was a correlational study, so it is not entirely possible to make a cause-and-effect conclusion. Thus, future longitudinal and experimental studies should be conducted to understand the causal relationships between variables better. Another limitation of the study was the sample and sampling method. Due to COVID-19 outbreak, the sample was collected by convenience, so the generalizability of the results could be limited. Thus, this study should be replicated by a random selection method. The sample was predominantly female (73.8% vs. 23.2%) and included more upper-level undergraduates (juniors and seniors) than freshmen and sophomores. This age difference and the fact that most participants have been successful enough to make it through to their junior and senior years in college could indicate that the sample may not represent typical students who struggle with burnout and school dropout. Possibly the sample misses those students who dropped out and experienced higher levels of burnout. In this study, the number of female participants were dominantly higher than male participants (e.g., 73.8% vs. 23.2%), and the number of junior students were dominantly higher than other grades. Since the studied variables are very sensitive to those demographic variables, this study should be replicated with more balanced groups (e.g., roughly equal). Future studies could also examine other potential mediating variables on the relationships between motivation and school burnout. Other potential variables can be positive such as gratitude, optimism, self-esteem or negative such as hopelessness, low self-esteem. Such investigations would help better understand the predictive factors of school burnout.

Conclusions

Overall, this study showed the direct effects of intrinsic motivation, extrinsic motivation, and amotivation on school burnout. In addition, this study found that hope and meaning in life partially mediated the effects of intrinsic motivation and amotivation on efficacy. The findings of this study revealed the roles of motivation, hope, and meaning in life on Turkish college students' school burnout.

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