



Who Can Make Burned-Out Students Feel Better and Self-efficient? Latent Profiles of Student Burnout and Its Association to Personal and Social Resources Among Polish and Turkish Early Adolescents

Katarzyna Tomaszek¹ · Agnieszka Muchacka-Cymerman² · Ayşe Aypay³ · Fatma Altinsoy³

Accepted: 26 August 2024
© The Author(s) 2024

Abstract

In recent years, the study demands-resources model (SD-R) has received significant attention as a comprehensive framework that identifies school burnout antecedents and adverse consequences. Our main study aim was to identify school burnout profiles among early adolescents and examine the associated personal and social resources. A cross-sectional study collected data from Polish and Turkish youths ($N=959$, 57.1% from Poland) through a paper-pencil and online survey measuring four school burnout dimensions, personal resources and social resources. 27 Three school burnout profiles were identified: (Profile 1) Highly Burned-out Students (14.8%), (Profile 2) Slightly Burned-out Students (63.5%), (Profile 3) Unburned-out Students (21.7%). Students from Profile 1 scored significantly lower in social and personal resource. The membership in Profile 2 was predicted by worse relationships with important adults (parents, teachers), and lower self-esteem compared to Profile 3. Our findings confirmed that school burnout symptoms are experienced (even slightly) by a relatively high number of youths.

Keywords Student burnout · Self-efficiency · Self-esteem · Social relationships · Early adolescents

1 Background

1.1 Student Burnout Concept

The burnout concept has been present in the scientific literature for a long time but was mostly studied in professional issues. Nonetheless, over time scholars have

Extended author information available on the last page of the article

started to recognize its symptoms among students, who were overwhelmed with learning. School burnout affects between 40 and 60 percent of adolescents (Salmela-Aro et al., 2021), but some authors noticed that the percentage of students being overburdened by their role is increasing (Salmela-Aro et al., 2021). Therefore, burnout in educational settings has received much more attention and become a better-known phenomenon. Currently researchers are describing this syndrome as the depletion of students' energy due to long-term academic pressure, and persistent experience of school failure, accompanied by indifference and alienation from school societies, as well as by the gradual loss of engagement and positive attitude towards schoolwork (Liu et al., 2023). In burnout literature, there is an ongoing debate on the number of school burnout sub-dimensions (Tomaszek & Muchacka-Cymerman, 2019; Salmela-Aro et al., 2021; Bashkirova et al., 2023). For example, a developmental approach to student burnout proposed by Aypay (2011) highlights four-components of this phenomenon e.g. burnout due to school activities, burnout due to parents pressure, incompetence in school, and loss of interest. Moreover, recently, it has been increasingly acknowledged that the proper investigation of this complex syndrome should be conducted by implementing person-centered approach (Chikowska-Smolak et al., 2023). According to May et al. (2020), so far only few studies analyzed school burnout by using this approach to identify atypical burnout types and developmental trajectories mostly among university students. Past LPA studies conducted on student burnout have distinguished three up to five latent profiles (Asikainen et al., 2022; Chirkowska-Smolak et al., 2023; May et al., 2020; Portoghese et al., 2018). Interestingly, sub-groups were mainly different in the level of dimensions of burnout: low, average, high. Based on these findings we hypothesized that LPA analysis conducted on the sample consistent with middle school students will result in three up to five different patterns of experiencing school burnout (H1).

1.2 Personal and Social Resources as Protective Factors of Student Burnout

According to Liu et al., (2023, p.7) student burnout includes “a dilemma between not wanting to learn and not wanting to give up completely”. Taking into account the self-determination theory (SDT), burnout may indicate the contradiction between basic needs: autonomy, competencies, and relatedness, which initiates loss of psychological health and disengagement with the world (Vilchez Conesa et al., 2020). Past studies have demonstrated that, this aspect of chronic study-related fatigue refers to dysregulation of cognitive and emotional systems, and its adverse consequences e.g. dissatisfaction in life, depression, suicidal tendencies, social isolation, substance overuse, problematic Internet use (Schaufeli et al., 2023; Tomaszek & Muchacka-Cymerman, 2022a). The mechanism underlying the aforementioned dilemma may be explained by the Study Demands-Resources Theory (SD-R) (Lesener et al., 2020). The aversion to study may be seen as an indicator of the loss of resources for learning (personal or environmental), accompanied by ineffective attempts to meet study demands (maladaptive coping strategies) (Tomaszek & Muchacka-Cymerman, 2022a). Following the Job Demands-Resources Theory, SD-R model defined study resources in terms of all the “good things”, which means all “positively valued physical, psychological, social, or organizational aspects of studying that are functional

in achieving study-related goals, reducing study demands, or stimulating personal growth and development” (Lesener et al., 2020, p.3). In contrast, study demands are all the “bad things” that require constant physical or mental effort, and are therefore connected to certain physiological and psychological costs (Demerouti et al., 2001). Studies conducted by Lian et al (2014) confirmed that core self-evaluations(CSE) can significantly predict academic burnout. According to Paloş et al. (2023) positive self-evaluations mainly affects the cognitive and emotional mechanism of appraising the academic-related tasks one encounters as solvable, therefore ultimately shaping their study motivation and low burnout. In current study we investigated two of four CSE characteristics e.g. self-esteem and self-efficiency. Beyond the abovementioned characteristics adolescent’s self-evaluations during this period are influenced by important others (friends, family). Relatives are most important providers of information and judgments about youth strengths and weaknesses. Importantly, adequate feedback information may shape positive, stable and realistic self-image, but also impacts the way of perceiving immediate surroundings as threatened or helpful (Rhodes et al., 2004). In view of the confirmed fundamental role of self-evaluations in explaining school burnout level we decided to include another internal factor which may be related to self-judgments and to our knowledge has not been yet examined. Specifically, we explored the extent to which youth include opinions of important others in their self-evaluation system. This variable was named contingent self.

The SD-R framework indicates that experiencing the social environment as positive and welcoming can positively affect the individual’s commitment to school work, thereby also resulting in better educational performance and mental health (Lesener et al., 2020). With a positive environment, the individual is able to achieve personal goals, which benefits both the individual, such as higher satisfaction, stimulating personal growth, and wellness, but also the system itself, such as better ratings. Past studies confirmed the significant link between high quality of social relationships and school burnout (Tomaszek & Muchacka-Cymerman, 2018). Notably, some scholars claim that environmental resources play an important role in predicting burnout, whereas variations in personal resources are integral for understanding the syndrome's risk factors, processes, and outcomes (Bashikrova et al., 2023). In light of the literature review presented above we hypothesized that poor personal and social resources will significantly predict highly school burnout profile’s membership (H2).

1.3 Adolescents’ Personal and Social Resources Interrelationship

In the psychological literature, a longstanding assumption has been present that social relationships play a key role in shaping individuals’ self-esteem, or the subjective evaluation of their overall worthiness as a person (Harris & Orth, 2019, p.1). It seems evident that that human beings rely on their social resources to help them effectively cope with multiple stressors over the course of their lives, as perceived social support buffers decrements in personal resources following adversity (Layous & Nelson-Coffey, 2021). In fact, people’s social bonds predict their level of self-esteem in all developmental stages across the life span, and in turn high self-esteem favors building positive relationships (Harris & Orth, 2019). Notably, a set of specific evaluative beliefs about self and an overall self-affective alignment are considered a

fairly stable trait, however, changes in self-esteem are observed over the course of childhood and through the transition to early adolescence (Mlawer et al., 2021). What is more, the fluctuations and decreases in self-esteem during adolescent period may be critical for coping with external demands and psychological distress and result in maladjustment (Mlawer et al., 2021; Tevendale et al., 1997; Tomaszek, 2018). Supportive school and family environment may buffer self-concept instability by giving security and stability. Overall, personal and social resources are related to each other and enhancing both is crucial for positive outcomes during adolescence. These resources can provide an umbrella to protect the individual from the many negative effects of the crisis they faced, from those related to the individual to those related to his/her interaction with the environment. Given the importance of this aspects of adolescents life and the rationale presented above we hypothesized that poor social resources—low quality of relationships—will significantly predict personal resources depletion among burned-out students (H3).

1.4 The Cultural Lens of the Examined Relationship Between Student Burnout and Adolescents' Resources

Cross-cultural differences in educational models are essential in understanding contextual factors contributing to school burnout (Zhu et al., 2024). Particularly, Poland and Turkey share some similarities in sociocultural values, however, varies in others i.e. individualism vs. collectivism (Niezgoda et al., 2017). Both nations are equal in highly valuing family, and the need for supportive aids from relatives, but also share a similar distance from authorities (Hofstede et al., 2011). Subsequently, the above characteristics may create a more positive school and family climate, which can alleviate everyday stressors caused by fulfilling study duties and promote positive collective self-esteem. In contrast, it may also make students less prone to seek help from teachers or counselors when experiencing educational difficulties, resulting in school burnout development. Additionally, the individualistic educational system mostly guides students to be competitive and work on individual success, even at the expense of friendships (Gabola et al., 2021). In this regard, peer support may be less available for Polish students. What is more, individualism advocates uniqueness, innovations, and being creative, and stimulates the development of all students' learning potential (Zhu et al., 2024). In this way, individualistic cultures stimulate students to be more egocentric and self-centered, which causes the school environment to be perceived as stressful and unfriendly. Therefore study duties may be perceived as more challenging, and personal resources as inefficient, which initiates school burnout process. Considering the framework proposed by Gesteland (1999), Polish people represent more pro-transactional attitudes and, thus are focused on fulfilling the task and self-achievements. Such cultural transfer may lead to excessive aspiration, and the pressure for success, which are both risk factors for developing school burnout. Contrariwise, the more collectivistic educational model in Turkish culture promotes the notion of social equality, and the importance of respecting elders, and encourages the young generation to protect and maintain social bonds, even if it bears its losses (Zhu et al., 2024). Turkish culture is also more pro-partnership and more people-focused (Gesteland, 1999), which creates a more friendly environment and self-assurance on social

support, mitigating school burnout. Noteworthy, Turks demonstrate the polychronic approach, indicating punctuality in fulfilling their responsibilities, while Poles are rather a monochronic culture with a more relaxed attitude to timetables (Niezgoda et al., 2017). Moreover, Turkish culture inclines a more positive approach towards teamwork. Past studies found that Turkish people prefer significantly higher work together when resolving problems, and are more willing to consider other members' opinions in the final decision about the actions than Polish society. Importantly, Poles are less trusting of one another at their workplace and more frequently are afraid of sharing their own ideas with a group (Chwiałkowska, 2012). Finally, cross-cultural differences in educational systems refer also to school communication (especially the relationship between teachers and students), as a key element of the learning process, and a pivotal factor in students' burnout (Zhu et al., 2024). Specifically, individualistic cultures emphasize the process of self-acquiring knowledge by advocating students' rights to ask, search, and explore during the learning process. Teacher-student communication is more democratic, and students are stimulated to be active in order to increase independent thinking, self-reliance, and creativity. On the contrary, collectivistic cultures are focused on the acquisition of ready-made knowledge, thus teachers are more authoritative, controlling, and less prone to open communication or dialogue (Zhu et al., 2024). Such a school psychological environment directly influences learning burnout through higher distance between teachers and students, and lower school identity (Yu et al., 2022). Importantly, so far only a few past research have documented the significant differences in school burnout between Western and Eastern Cultures i.e. Gabola et al. (2021); Tomaszek & Muchacka (2022; Zhou et al. (2024). Some scholars highlighted that this syndrome is more prevalent among Eastern countries, because of higher academic distress with the overwhelming pressure to achieve multiple goals (Liu et al., 2020), as well as excessive expectations of social success from relatives and school staff combined with valuing hard work and obedience to elders (Gabola et al., 2021). Nevertheless, the cultural context of school burnout seems to be underexplored in the literature thus this paper seeks to fill this gap.

2 Summary of the Current Research Aims and Hypothesis

So far only few studies have explored the relationship between self-evaluations' characteristics and burnout, and none of them have been conducted on cross-cultural sample. Furthermore, despite the fact that some researchers have tentatively confirmed the effect of low personal and social resources on school burnout development, the detailed mechanism of this connection has not been fully revealed. Especially, the associations between self-evaluations and environmental resources in this context has received little attention. Considering the importance of study resources in the mechanism of student burnout syndrome development, we aimed to test whether students differ in the four dimensions of school burnout, and corresponding personal and social resources. Specifically, the two main objectives of the current study were as follows: (a) identify different profiles among adolescents, based on latent profile analysis (LPA) conducted on School burnout characteristics; (b) outline the identified profiles across personal e.g. self-efficiency (Self-Eff), self-esteem (Self-est), and

contingent self-esteem (C-Self), and social e.g. quality of relationships with classmates (Cl), parents (Pa), and teachers (Tch) resources. As past burnout literature has confirmed the significant cross-cultural differences (for example Tomaszek and Muchacka-Cymerman (2022b) confirmed that Polish students were more vulnerable to student burnout than Japanese), in our study we controlled Culture (Polish—more individualistic vs. Turkish— more collectivistic). In addition gender was also a significant factor for self-evaluations (e.g. poorer self-concept in adolescent females than males) (Mlawer et al., 2021), and school burnout (Tomaszek and Muchacka-Cymerman(2019) confirmed significant differences across overall score in ESSBS with girls more prone for developing symptoms of burnout. In summary in current research we examined three study hypothesis:

- H1. Scores on the school burnout dimensions will be clustered in three up to five profiles*
- H2. Poor personal and social resources will significantly predict highly school burn-out profile's membership.*
- H3. Low quality of relationships with important others will significantly predict personal resources depletion among burned-out students.*

3 Participants and Procedure

The survey was established using two steps of sampling procedure. Firstly, a random sampling strategy was applied to select schools. Next, the target sampling strategy with young adolescents who were aged 12–15 years as a target population was used. The sample representativeness size requirements were estimated by using a free sample size calculator. The findings revealed that to meet the statistical constraint the number of subjects for each population of young adolescents was as follows: 372 subjects or more in the Polish population, and 385 or more in the Turkish population. The final sample comprised 959 Polish and Turkish early adolescents (548, 57.1% of them were from Poland), aged $M=12.90$ years ($SD=0.89$). In the sample, 491 participants (51.20%) were girls, and 468 (48.8%). Students were from 7th-8th grades in Poland, and middle school in Turkey. School principals', parents', and children's consent were obtained before starting the survey. The Polish respondents fulfilled the paper-pencil method, and the Turkish students accessed the survey through a link. The data were collected concerning the Helsinki Declaration for research on people from September 2022 to March 2023. Ethical approval was obtained from the University Research Ethics Committee. The survey was voluntary, with no compensation.

4 Measurements

School burnout was assessed with the 24 item—ESSBS scale developed by Aypay (2011). This instrument allow to asses four aspects of school burnout: burnout due to school activities (BSA), burnout due to parents (BSF), incompetence in school (ISS),

loss of interest in school (LIS) (e.g. *School is tiring for me*). The participants rated each item on a 4-point Likert scale from 1 (strongly agree) to 4 (strongly disagree). The reliability values in this study were high for BSA (9items): $\alpha/\omega=0.90$, BSF (5 items): $\alpha/\omega=0.80$, and LIS (5 items): $\alpha/\omega=0.86$, and acceptable for ISS (4 items): $\alpha=0.69$, $\omega=0.75$.

Personal Resources (PR) were Estimated with Three Tools *The General Self-Efficacy* was measured with two items developed by Schwarzer & Jerusalem (1995) and used in HBSC surveys e.g. How often do you find a solution to a problem if you try hard enough? and How often do you manage to do the things that you decide to do?). Participants answered on a 5-item Likert scale (1-Never, 5-Always). The psychometric properties of this short instrument are acceptable: EFA 71.42% of the explained variances, in both items the factor loadings were equal to 0.845. Reliability was acceptable ($\alpha/\omega=0.60$). *The Single-Item Self-Esteem Scale: I have high self-esteem* with a 5-point Likert scale, ranging from 1 (not very true of me) to 5 (very true of me) by Robins et al. (2001) was used to measure the level of self-esteem. *The Single-Item of Contingent Self-Esteem* was used to measure the degree to which individuals' self-esteem is globally contingent upon close relationships with important others e.g. family and friends (e.g. Assessing yourself how much you take into account the opinions of people close to you, i.e. friends or family). This is an experimental version of the instrument with 5-point Likert scale (1-not at all, 5-very much) to rate this aspect of self-evaluation developed by Tomaszek and Muchacka-Cymerman.

Social resources (SR) were assessed with three items developed by Tomaszek and Muchacka-Cymerman (2023). This instrument allow for estimating the quality of relationships with classmates, teachers and parents. Participants rate each item on a 3-point Likert scale (1- poor, 3-good).

5 Data Analysis

The Jamovi 2.3.28- free software was used to estimate all statistics. A Latent Profile Analysis (LPA) with the maximum likelihood estimator was used to identify latent (unobserved) subgroups of individuals within adolescents population with a similar pattern on the four study burnout subdimensions (BSA, BSF, ISS, LIS). To compare the results the following model fit indexes were estimated: Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), the sample size-adjusted (SABIC); the bootstrapped likelihood ratio test (BLRT); the integrated information about several fit indices (ICL); Entropy (Spurk et al., 2020). In regards, according to Nylund et al. (2007) a minimum sample size for LPA is of about 500 subjects, hence the 979 subjects in our study is accurate to identify a correct number of latent profiles. The Kruskal-Wallis test was used to examine the differences between Latent Profiles. Sample size requirements estimated for comparison three groups with medium effect size and the power 0.95 was equal 252 subjects (based on ANOVA: fixed effects requirements calculation in G*Power). The multinomial logistic regression was performed to test the differences between LPA profiles in independent observed variables (8 indicators). Sample size guidelines for this

statistic recommends a minimum of 10 cases per independent variable (Schwab, 2002). The last analysis were calculating to examine prediction power of quality of relationship with important others on personal resources, with culture as a controlled variable. The multicollinearity criterion in linear regression was estimated by screening for bivariate correlations greater than 0.85 (Weston & Gore, 2006) and by the Variance Inflation Index (VIF). The analyses, confirmed that there was no multicollinearity between the variables (Pearson r ranged from 0.06 to 0.32 and the VIF was low: ranged from 1.01 to 1.2). The Durbin-Watson test indicate no autocorrelation *in the residuals of a statistical regression analysis* (values ranged from 1.60 to 2.23). The required sample size for multiple regression statistic with four predictors (effect size $f^2=0.15$ with 95% power) was equal to 107 subjects. The results of Mahalanobis-squared method indicate no outliers in the data.

6 Results

Descriptive Statistics The mean scores and standard deviations for Polish and Turkish samples are presented in Table 1.

Profiles of School Burnout In the first step a set of LPA's models with an increasing number of profiles were tested and compared in terms of their fit indexes. AIC, BIC and SABIC values decreased with increasing numbers of profiles, however the ICL is the lowest in model with 3 profiles and increases in the next profiles. Thus the ICL elbow criterion was observed in model3. Moreover the BLRT p-value demonstrated a better fit for the increase number of profiles, however for the three-profiles model entropy was the largest. This findings were in line with Hypothesis 1 (see Table 2).

Table 1 Descriptive statistics of the examined variables

Variables		Polish sample ($N=548$)	Turkish sample ($N=411$)
		M(SD)	M(SD)
Social resources	Cl	2.50(.66)	2.53(.64)
	Pa	2.69(.55)	2.78(.48)
	Tch	2.11(.67)	2.70(.50)
Personal resources	Self-Eff	7.09(1.68)	7.20(1.69)
	Sel-Est	3.00(1.28)	3.67(1.27)
	OthC-Self	3.43(1.05)	3.84(1.11)
School burnout	BSA	30.69(6.55)	25.59(8.73)
	BSF	11.74(3.73)	11.84(4.29)
	ISS	10.07(2.96)	9.46(3.99)
	LIS	14.72(3.54)	10.36(3.57)

Abbreviations: Cl—relationships quality with classmates; Pa—relationships quality with parents; Tch—relationships quality with teachers, Sel-Eff-Sel-Efficiency; Self-Est— Self-Esteem; OthC-Self-Relations Contingent Self-Esteem; BSA -burnout due to school activities, BSF—burnout due to parents; ISS -incompetence in school; LIS- loss of interest in school

Table 2 LPA results (constrains the variance to be equal and covariance's to zero)

Model	LL	AIC	BIC	SABIC	BLRT	ICL	Entropy
1 profile	-11309	22634	22673	22648	-	-22673	1.000
2 profiles	-10993	22012	22075	22034	632.330*	-22274	0.705
3 profiles	-10842	21720	21808	21750	301.962*	-22008	0.803
4 profiles	-10783	21611	21723	21650	118.627*	-22157	0.697
5 profiles	-10758	21573	21709	21620	48.559*	-22220	0.688
6 profiles	-10740	21545	21706	21601	37.60*	-22313	0.659
7 profiles	-10709	21494	21679	21558	61.324*	-22136	0.741

* $p < .010$

Table 3 The comparison between three school burnout profiles ($N=959$)

Variables	1. Highly burned-out students ($n=142$)	2.Slightly burned-out students ($n=609$)	3. Un-burned-out students ($n=208$)	Statistic ($df=2$)	ϵ^2	Post hoc Mean differences Profile Nb		
	n(%)	n(%)	n(%)			1–2	1–3	2–3
Culture								
Polish	104(10.8%)	404(42.1%)	40(4.2%)	158***	0.165	2.24	14.24***	16.64***
Turkish	38(4.0%)	205(21.4%)	168(17.5%)					
Gender								
Females	68(7.1%)	305(31.8%)	118(12.3%)	3.47	.004	-.67	-2.30	-2.34
Males	74(7.2%)	304(31.7%)	90(9.4%)					
Social resources	M(SD)	M(SD)	M(SD)					
Cl	2.32±0.75	2.50±0.64	2.65±0.59	20.8***	0.022	3.49*	6.23***	4.64**
Pa	2.42±0.73	2.74±0.50	2.91±0.29	62.3***	0.065	7.62***	10.95***	6.32***
Tch	1.94±0.67	2.29±0.65	2.87±0.37	194.8***	0.203	7.93***	18.26***	16.57***
Personal resources								
Self-Eff	6.32±1.88	7.13±1.62	7.71±1.51	56.4***	0.059	6.59***	10.32***	6.85***
Sel-Est	3.15±1.27	3.61±1.32	3.97±1.03	87.8***	0.092	5.93***	12.59***	10.32***
C-Self	6.32±1.22	7.13±1.03	7.71±1.08	34.3***	0.036	5.85***	7.76***	4.84**
School burnout								
BSA	40.6±4.34	29.3±4.19	17.8±3.58	654***	0.683	-24.9***	-22.5***	-29.4***
BSF	15.2±3.53	12.0±3.58	8.89±3.25	210***	0.219	-12.7***	-17.8***	-14.5***
ISS	12.6±2.55	10.1±3.19	7.15±2.80	262***	0.273	-14.4***	-18.6***	-16.9***
LIS	17.9±2.59	13.3±3.10	8.03±2.33	485***	0.506	-19.4***	-22.3***	-25.1***

* $p < .05$; ** $p < .01$; *** $p < .001$

Note: chi square statistic was calculated for nominal variables and Kruskala-Wallis Test for continuous variables; ϵ^2 —size effect; DSCF method post hoc tests

Abbreviations: Cl—relationships quality with classmates; Pa—relationships quality with parents; Tch—relationships quality with teachers, Sel-Eff-Sel-Efficiency; Self-Est— Self-Esteem; C-Self- Contingent Self-Esteem; BSA -burnout due to school activities, BSF—burnout due to parents; ISS -incompetence in school; LIS- loss of interest in school

Table 3 and Fig. 1 displayed the results of latent profile analysis. The three identified profiles were characterized as follows. *Profile 1. Highly burned-out students*: a total of 142 students (14.8% of the sample); students in this profile reported high BSA and LIS, and moderate BSF and ISS. These results indicate the process of exhaustion

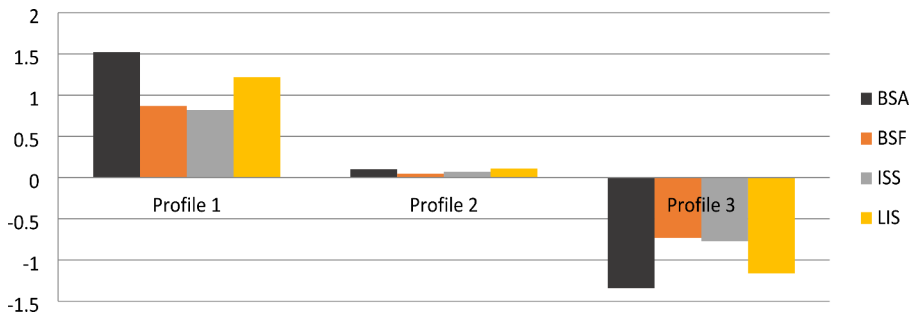


Fig. 1 Latent profile analysis results for three groups. Abbreviations: BSA -burnout due to school activities, BSF—burnout due to parents; ISS -incompetence in school; LIS- loss of interest in school

with school activities and an increased cynical attitude towards school with disinterest in studying, as well as the feeling of being overwhelmed with study demands regarding school achievements from parents and the negative beliefs about studying competencies. 73% of the students in this profile were from Poland ($n=104$), and 27% were from Turkey ($n=38$). Additionally, 47.9% of the subjects were girls ($n=68$), and 52.1% were boys ($n=74$). Students from Profile 1 were characterized by significantly lower social and personal resources than from Profile 2 and 3. A large size effect was observed in quality of relationship with teachers, and the medium one in the quality of relationships with parents, as well as self-efficacy and self-esteem. *Profile 2. Slightly burned-out students*: comprised from 609 adolescents (63.5% of the sample); this profile included students who reported mild level of school burnout indicators, with slightly higher scores in BSA and ISS. The findings may indicate the beginning of school burnout process with the feeling of fatigue caused by school-related duties and the self-beliefs about not having enough competencies to complete the study demands. 66% of the students in this profile were from Poland ($n=404$), and 34% were from Turkey ($n=205$). Furthermore, 50.1% were girls ($n=305$), and 49.9% were boys ($n=304$). Students from Profile 2 had lower personal and social resource than compared to youth from Profile 3. *Profile 3. Unburned-out students*: include 208 youths (21.7% of the sample); students in this profile reported having no symptoms of school burnout. In their perception school activities are not exhausted and studying itself is interesting. This group of pupils are not overwhelmed with the parents' pressure on achieving study goals and have a strong positive beliefs in having high school competencies. 19% of the students in this profile were from Poland ($n=40$), and 81% were from Turkey. In profile 3 gender distribution was as follows i.e. 56.7% were girls ($n=118$). And 43.3% were boys (90). Interestingly, gender distribution did not differ between profiles.

An additional LPA analysis conducted separately for each country suggested that in Polish sample the most acceptable was the model with 5 profiles (i.e. entropy 0.84). The model with 3 profiles was acceptable but not the best i.e. we observed higher values of AIC, and BIC, lower entropy (0.741) for this result (see Appendix Tab. A). The five profiles observed in Polish sample were as follows: Profile 1 ($n=190$ students, 34.6% of the sample); Profile 2 ($n=49$ students, 8.9% of the sample); Profile 3 ($n=31$ students, 5.6% of the sample); Profile 4 ($n=43$ students, 7.8%

of the sample); Profile 5 ($n=235$ students, 42.9% of the sample). The Kruskal–Wallis test confirmed significant differences between profiles in school burnout indicators. According to the results, youths from two profiles scored higher than the average of the total sample ($M=67.22$, $M=12.93$) i.e. Profile 2 with the highest scores in each burnout dimension, and Profile 5 with higher scores in BSA, BSF, and LIS. Two profiles are characterized by the average level of ESSBS score i.e. Profile 1 (with the highest level of BSA, LIS, and the average level of ISS), and Profile 3 (with the highest level of BSA, LIS, and low level of ISS, LIS). Profile 4 represents adolescents with the lowest scores in ESSBS and its dimensions. The three profiles observed in the Turkish sample were as follows: Profile 1 ($n=195$ students, 47.4% of the sample); Profile 2 ($n=45$ students, 10.9% of the sample); Profile 3 ($n=171$ students, 41.6% of the sample). Specifically, adolescents from profile 1 scored slightly higher than the ESSBS average for the total sample ($M=57.25$, $M=16.16$) with the highest scores in the BSA dimension. Youth from profile 2 experienced the highest level of school burnout (the highest scores on the ESSBS scale). In Profile 3 we observed the lowest level of school burnout (with the highest level of BSA, and low levels of the rest three burnout dimensions) (see Appendix Tab. D, Figure B).

Due to the fact, that three—profile solution was generally acceptable in both samples we decided to use this results in the profile-comparison analysis.

Differences in Personal and Social Resources Between School Burnout Profiles The examination whether the social and personal resources, and culture have a significant association with the school burnout profiles we used a multinomial logistic regression analysis. The profile 3: Unburned-out Students was used as the reference category and culture was a controlled variable. In the first step culture was entered as a controlled variable (model 1), in the second personal resources (model 2), and in the last step social resources were included in the regression (model 3). The third model statistically significantly better predicts the dependent variable than the intercept-only model alone ($\chi^2=385$, $p<0.001$), with a moderate relationship between predictors and the dependent variable ($R^2_N>0.02$), and the lowest AIC and BIC values (see Table 4).

As predicted youth experiencing lower self-efficiency, more negative self-esteem and contingent self-esteem (poor personal resources), and weaker relationships with parents and teachers (poor social resources) were more likely to be categorized in the Highly Burned-out Students profile. Unexpectedly, however, the main effect for quality of relationship with classmates appeared as insignificant. Specifically, worse

Table 4 Model fitting criteria

Model	Deviation	AIC	BIC	R^2_N	General test		
					χ^2	df	p
1	1568	1580	1609	.122	164	4	<.001
2	1391	1391	1473	.247	340	10	<.001
3	1346	1346	1470	.277	385	16	<.001

Abbreviations: AIK—Akaike's information criterion (AIC); BIC -Schwarz's Bayesian information criterion, R^2_N -Nagelkerke R Square

classmates relationships predicted membership to Profile 1 on significant level but only compared to youth from Profile 3 (OR=-0.46). In addition, concerning the personal resources, students that scored lower for self-efficiency and self-esteem were more likely to belong to Highly Burned-out Profile but only in comparison to adolescents from Profile 3. Interestingly, the membership in Profile 2 was predicted on worse relationships with important adults (parents, teachers), and lower self-esteem compared to Profile 3. The results almost fully confirmed hypothesis 2 (see Table 5).

Social Relationships as Predictors of Personal Resources in School Burnout Profiles

Results revealed that regarding Highly Burned-out students Profile self effi-

Table 5 Multinomial logistic regression analysis: final model (criterion: group differences)

Predictor	Model fitting criteria	Omnibus test			Profile Nb	95% CI of odds ratio			p
		-2 log likelihood	χ^2	df		p	OR	Lower bound	
Model 1									
Culture	1129.12	50.33	2	<.001	1-3	-1.44	.13	.43	<.001
					2-3	-1.51	.14	.34	<.001
					1-2	-.07	.59	1.49	.774
Gender	1143.76	2.34	2	.310	1-3	.39	.86	2.54	.158
					2-3	.27	.89	1.93	.178
					1-2	-.12	.58	1.35	.566
Model 2									
Cl	1079.85	6.21	2	.045	1-3	.52	1.12	2.55	.013
					2-3	-.26	.56	1.06	.114
					1-2	.26	.97	1.75	.082
Pa	1139.38	24.47	2	<.001	1-3	-1.39	.14	.45	<.001
					2-3	-.85	.25	.72	.002
					1-2	.54	1.24	2.38	.001
Tch	1139.38	71.59	2	<.001	1-3	-2.08	.07	.21	<.001
					2-3	-1.48	.23	.15	<.001
					1-2	.60	1.31	2.51	<.001
Model 3									
Self-Eff	1103.47	6.51	2	.039	1-3	-.23	.67	.95	.011
					2-3	-.12	.77	1.01	.077
					1-2	.10	.98	1.25	.102
Sel-Est	1100.49	15.63	2	<.001	1-3	-.43	.52	.81	<.001
					2-3	-.28	.64	.90	.001
					1-2	.10	.99	1.37	.069
C-Self	1092.69	13.09	2	.001	1-3	-.29	.59	.96	.020
					2-3	.04	.88	1.25	.712
					1-2	.32	1.16	1.65	<.001

Note: Final model fitting statistics: -2log likelihood test=452.59, df=50; $p < .001$; Nagelkerke $R^2 = .45$

Abbreviations: Cl—relationships quality with classmates; Pa—relationships quality with parents; Tch—relationships quality with teachers, Sel-Eff-Self-Efficiency; Self-Est – Self-Esteem; C-Self- Contingent Self-Esteem; BSA -burnout due to school activities, BSF—burnout due to parents; ISS -incompetence in school; LIS- loss of interest in school

ciency and self-esteem were predicted by quality of relationships with important adults (parents and teachers), but not with classmates, and Contingent Self-Esteem was predicted by quality of relationship with peers and parents. Gender was significant predictor of self-esteem, and culture was an insignificant predictor. The highest percentage of explained variances was observed for self-esteem. In slightly burned-out students profile self-efficiency was predicted by all indicators of quality of relationships and culture, whereas significant association were found between self-esteem and quality of relations with important adults (parents and teachers). Relationships with classmates were significant predictors of contingent self. Additionally, in profile 2 gender and culture significantly predicted self-esteem and contingent self. The highest percentage of explained variances was observed for self-efficiency. In the unburned-out students profile regression models for self-efficiency and self-esteem were insignificant. Interestingly, contingent self-esteem was only predicted by culture, that explained 17% of variances in dependent variable (see Table 6).

7 Discussion

The purpose of this study was to analyze the latent profiles of the school burnout in a sample of early adolescents from Poland and Turkey. We hypothesized to detect three up to five patterns of experiencing burnout among students, which will be significantly related to personal and social resources. Particularly, highly school burned-out would have more negative self-evaluations and worse quality of relationships with important others than youth from profiles with less severe of burnout symptoms. To our knowledge, LPA studies of school burnout and its association to adolescents' self-evaluation and social resources altogether that also includes culture and gender as controlled variables has not been yet conducted. Therefore, our research is notable for the rigor of its methodology and statistical analyses.

8 Profiles of School Burnout

Through the LPA statistic three student burnout profiles were identified according to ESSBS scores e.g. the first profile was characterized by high level of burnout symptoms, the second one by mild level of school burnout symptoms, and the third profile by no burnout symptoms. Fourteen point eight percent of students have been classified to highly burned-out group (Profile 1). Individuals from this profile experienced high burnout with school activities and a loss of interest in studying. In other words, they force themselves to study, because of the chronic feeling of fatigue, learning is difficult and boring for them, and they find it hard to focus on all the school tasks they are demanded to fulfill (BSA, LIS). They also suffer from the parents' pressure to "be a good student", the demands related to the family environment cause anger, anxiety, but also tiredness, which enhances the negative self-judgments— incompetence as a student (BSF and ISS). Most of these students are from Poland, which may indicate that in more individualistic countries the pressure on academic success is one of the reasons for activating the burn-out process.

Table 6 Predictors of personal resources in LPA profiles

Predictors	1. Highly burned-out students (<i>n</i> =142)			2. Slightly burned-out students (<i>n</i> =609)			3. Unburned-out students (<i>n</i> =208)		
	Self-Eff	Self-Est	C-Self	Self-Eff	Self-Est	C-Self	Self-Eff	Self-Est	C-Self
Culture	-.13	.11	.04	-.12**	.17***	.10*	-.01	-.01	.39***
Gender	.09	.17*	.09	.02	.18***	-.09*	.12	.12	-.10
Cl	.04	.11	-.20*	.21***	.04	.09*	.03	.03	.10
Pa	.28***	.24**	.36***	.20***	.10**	-.01	-.01	-.01	.12
Tch	.24**	.34***	-.08	.11*	.11*	-.03	.11	.11	.08
Model statistics	F=5.36*** ; Adj.R ² =.13	F=8.74*** ; Adj.R ² =.22	F=4.73*** ; Adj.R ² =.12	F=15.70*** ; Adj.R ² =.11	F=13.89*** ; Adj.R ² =.10	F=2.65* ; Adj.R ² =.01	F=1.15 ; Adj.R ² =.04	F=.72 ; Adj.R ² =-.01	F=9.53*** ; Adj.R ² =-.17
Durbin-Watson	1.60	2.18	2.23	1.90	2.17	1.93	1.64	1.95	2.01

Note: Standardized regression coefficients are reported

Abbreviations: Cl—relationships quality with classmates; Pa—relationships quality with parents; Tch—relationships quality with teachers, Sel-Eff-Self-Efficiency, Self-Est—Self-Esteem; C-Self- Contingent Self-Esteem

p*<.05; *p*<.01; ****p*<.001

Interestingly, a comparable number of boys and girls are included in this profile. The second profile consisted of slightly burned-out students and the largest number of participants (63.5% of the total sample). Individuals from this profile were with slightly higher burnout due to study and incompetence. These findings suggest that students may perceive some of the school duties as unnecessary or overloading, and thus are less engaged or discharged. Such a negative attitude may in turn increase the feeling of lower competence in schooling. These participants may receive more support from their parents, as the level of burnout due to parents' pressure was the lowest. More than half of the students in this profile were from Poland, which may support the notion that in individualistic cultures young people are more prone to questioning the sense of knowledge provided by teachers to highlight their independence. The gender distribution in Profile 2 is almost the same in both sexes, which indicates that the tendency described above is not associated with this characteristic (Greenfield et al., 2003). Finally, Profile 3 consists of *unburned-out students, and comprises almost a quarter of all examined subjects. Individuals from this profile find studying interesting and engaging, most of them agree with the statement that school is related to positive emotions and attitudes, and their parents are not overly demanding in terms of academic achievements. Most of the participants from this profile are from Turkey (81% of the profile subsample), which may indicate the presence of positive students' self-valuing when meeting school obligations, following the demands of authorities (teachers and parents), and reacting reliably and skillfully as a form of fulfilling the public demand to be a worth member of society, typical for collectivistic cultures* (Greenfield et al., 2003). Overall, our examination provides support for the importance of using person-centered approach in identifying different patterns of experiencing school burnout symptoms. Our findings are consistent with past LPA studies in which three profiles were also observed. One of the first studies that used LPA statistic to detect profiles of burnout were performed by Leiter and Maslach (2016). Despite the fact that these scholars distinguished five profiles in their research three basic patterns of burnout were documented (1) results that indicate high scores in each domain of burnout (one profile); (2) results with low scores in each domain of burnout (one profile) (3) profile represented high scores on one scale only: Disengaged, Overextended, Ineffective (three profiles). Studies conducted by Virtanen et al. (2018) on a data set of 2485 Finnish lower secondary school students, allowed for identifying: high engagement/low-burnout, average-engagement/ average-burnout and low-engagement/ high burnout groups. Cheung and Li (2019) also confirmed three-profiles of school burnout which are similar to our results: (1) burnout group: 32% of students with high level of exhaustion and cynicism and moderate academic inefficacy, (2) moderate engaged (moderate level of burnout symptoms), and (3) well-functioning group: 10% of students with no burnout symptoms. In summary, consistently with their result in our studies a majority of adolescents were classified as slightly burned out with moderate level of burnout due to school activities (being exhausted with studying) and incompetence in school (the feeling of lack of competence to meet school demands). These students although experiencing emotional and physical study-exhaustion and are characterized by negative self- judgments on school skills, continued to put an effort and maintain school duties. The increase in burnout symptoms throughout the profiles may also represent the level of balance between study resources and demands. Taking into consideration that burnout is a process of prolonged response to chronic emotional and interpersonal stressors and typically proceeds via some phases,

we may say that slightly higher scores in BSA and ISS indicate the beginning of burnout development. In other words burnout symptoms in this profile may reflect some major mismatches between the school and the person, which can not be resolved, and hence tend to increase with time.

To sum up, our findings also revealed the importance of controlling culture as a significant factor of membership in burnout profiles. Polish students were more susceptible to suffer from burnout symptoms than Turkish adolescents. According to Cheung and Li (2019) the eastern cultures typically place a high priority on academic performance, but prompted adolescents to continue studying despite experiencing difficulties. Moreover, reporting burnout symptoms may be underestimated because of social rules namely to vigorously defend own reputation e.g. not admitting publicly on self-failures in cultures of honor such as Turkey (Uskul, Cross, 2019).

9 Personal and Social Resources as Predictors of School Burnout Profile's Membership

According to our findings, the membership in profile 1 with the highest level of school burnout was predicted by both, low personal (self-efficiency, self-esteem, contingent self) and social (quality of relationships with peers, parents, teachers) resources. Our findings are consistent with burnout theories indicating depletion of key resources caused by overwhelming study demands as major antecedents of development burnout syndrome (Leiter, Maslach, 2016; Schaufeli et al., 2023). Specifically, high self-esteem increases the ability to effectively handle unsatisfactory conditions by alleviating the adverse effects of stressful study demands on burnout (Fernández-Castillo & Fernández-Prados, 2022; González-Cabanach et al., 2016; Molero et al., 2018), and buffers against depressive reactions by breaking its posited associations with burnout (Jiang et al., 2021). By contrast, individuals with low self-esteem tend to doubt their own ability and be emotionally unstable, hence are more susceptible to school failure, and tend to regard themselves as incompetent. The prolonged feeling of inferiority makes the individuals incapable of mitigating the adverse effects of burnout (Méndez et al., 2020). Yao et al. (2018) documented that low generalized self-efficiency positively predicts burnout. The mechanism of this link stems from the loss of an individual's confidence in facing different environmental challenges or new things, which may result in adopting maladaptive and negative coping strategies in front of severe pressure, and negative beliefs about the ability to complete tasks. Overall, our findings are consistent with the key features described in burnout literature that increase the vulnerability of development burnout syndrome including unrealistic goals and expectations, low self-worth and negative self-judgments, lack of self-confidence, lack of accurate understanding of one's advantages and limitations (Alarcon, 2009; Farber, 1991). The results are also in line with the integrated hypothesis in which students immediate depressive and helplessness reactions (adverse mental health outcomes of burnout) are an effect of interaction between Attributional Diathesis (stable, global style for negative achievement outcomes=constant beliefs about school failures typical for burned-out individuals)×Low Self-esteem (overall

negative appraisal of one's self-worth) \times Stress Interaction (the ability to effectively manage and confronted with a negative stressor) (Metalsky et al., 1993).

According to classical burnout approach proposed by Maslach, the burnout experience is associated to impairment of both personal and social functioning, and therefore contributes to a decline in the quality of work/study and interpersonal relationships (Leiter, Maslach, 2016). In burnout literature social support was recognized as a significant protective barrier directly against student burnout as it creates a positive perception of life and school assessment, regardless of the physical resource reality. As a result social interactions help students to pull themselves out of the adverse school experiences e.g. burnout state (Ye et al., 2021). Past studies revealed that low self-esteem in the area of school self and poor quality of family relationships were most important for the level of burnout and explained 48% of the ESSBS level (Tomaszek, 2018). Notably, Virtanen et al. (2018) also confirmed that burnout profile membership is associated to the level of self-esteem and affective support from important others. Specifically, students with high-engagement/low burnout profile viewed school as relevant to their futures, had high self-esteem, and positively perceived receiving affective support in the school environment from teachers. According to the authors teachers are able to shape meaningfulness of students by supportive interactions what facilitate students' feeling of social bonds with school, and protect against disengagement. A study conducted by Pines et al. (2002) examined the experience of social support and burnout. Participants were asked to rate the importance of six support functions and indicate to what extent they were present in their lives. Overall the results indicated, that it is not so much the function or extent of support that matters in the context of burnout as the mere availability of support. Therefore, significant prediction of close relationships with important others e.g. relatives or friends observed in our studies may in fact reflect to presence, openness, and the ability to serve as source of strength when students facing educational stressors.

10 Social Resources as Factors Associated to Personal Resources Among Burned-Out Students

The findings partially supported hypothesis 3, low quality of relationships with parents and teachers significantly predicted low self-efficiency and self esteem, whereas parents and classmates played a significant role in predicting contingent self (Profile 1). In parallel with our results is Barrera's (1986) social support deterioration model in which stress or negative emotions can deteriorate the perceived availability or effectiveness of social support, which leads to adverse outcomes. Recently conducted studies confirmed that unavailability of social support and self-inefficiency increases the risk of mental health issues, because demands are perceived as treats not challenges (Xu et al., 2022). Past results showed, that social support at work positively impacts the development of psychological capital (Kerksieck et al., 2019). It is also worth adding, that according to SD-R model the availability and improvement in social and personal resources are substantial elements of a positive school and work experience, and initiate the school/work crafting process (social and structural resources) (Kerksieck et al., 2019; Tomaszek, 2020). Study crafting refers to the pro-

cess of adaptation of study demands and resources to suit personal skills and needs (Dormann & Guthier, 2019). Because it involves designing one's study environment to achieve some personal goals, it requires redirecting self-control strength into achieving academic goals and fostering positive interactions in school environment (Körner et al., 2021; Mülder et al., 2022). Learning from the experiences of parents or peers may elucidate what strategies could be employed to support adolescents during this vulnerable life stage (Layous et al., 2022). Indeed, past literature highlighted that a sense of social belonging, especially belonging to a peer group, is one of the most important tasks of adolescence helping forming positive attitudes to self and others, and build their autonomous identity (Scabini, Manzi, 2011). Studies conducted by Wang et al. (2012) showed the different sources of social support are not equally important. Similarly in our studies, high quality of relationships with adults were more important for general self-evaluations, however for the contingent self the information from relatives or friends were more important. Interestingly, Kerksieck et al. (2019) stated that the reliance on personal resources might reduce the necessity to generate social resources, and this may be an explanation for insignificance of social resources when predicting self-evaluations in profile 3.

11 Study Limitations and Future Directions

Several current research limitations are worth mentioning, of which the main was its cross-sectional nature. In future projects, a longitudinal study design would allow for detecting causal effects and receiving detailed information on the process of developing full burnout syndrome. Next, the study utilized self-reported data, which can be biased. Thus including information from both family (parents, siblings) and school (teachers, counselors, peers) environments would provide more objective data. In addition, the participation in our survey was voluntary, hence it is possible that non-responders differ from those students in our sample in terms of both school burnout levels and patterns of experiencing its symptoms. Finally, we used short methods to assess self-evaluations and the quality of relationships among students, which may not capture the complexity of both resources. In the future tools that allow for diagnosis wider number of these two characteristics are recommended.

12 Conclusions

Burnout Syndrome is affecting an increasingly wide social group and is becoming a serious problem often combined with other disorders experienced by the individual. The school system, which has been heavily focused on learning outcomes for many years now, should undergo a dramatic restructuring. It is not the effect that is important but the student, who, experiencing well-being, influences the effectiveness of his immediate environment through action. Our results confirmed the importance of cooperation between school (teachers, management, psychologist, pedagogue and administration) and family environments.

Author's Contribution K.T. and AM.C. designed the study. A.M.C. A.A. and F.A collected the data. K.T. A.A. and F.A. performed the data analysis. K.T. and AM.C. wrote the manuscript. All authors reviewed and approved the final manuscript.

Funding The authors received no specific funding for this work.

Data Availability All data generated or analyzed during this study are included in this published article. The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

Declarations

Informed Consent Not applicable.

Ethical Approval The study procedure and instruments were approved by the Commission of the Ethics (Dna.0046.1.13.2023).

Research Involving Human Participants and/or Animals The participants were informed about the purpose of the study and their option to withdraw from the study at any time. They did not receive any compensation for their participation. They gave their consent to participate in the study.

Competing Interests The authors declare that they have no competing interests.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Alarcon, G. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work and Stress*, 23(3), 244–263.
- Asikainen, H., Nieminen, J. H., Hasa, J., & Katajaviuori, N. (2022). University students' interest and burnout profiles and their relation to approaches to learning and achievement. *Learning and Individual Differences*, 93, 102105. <https://doi.org/10.1016/j.lindif.2021.102105>
- Aypay, A. (2011). Elementary school student burnout scale for grades 6–8: A study of validity and reliability. *Educational Sciences: Theory and Practice*, 11(2), 520–527.
- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, 14, 413–445. <https://doi.org/10.1007/BF00922627>
- Bashkirova, A., Compagner, A., Henningsen, D. M., & Treur, J. (2023). An adaptive modelling approach to employee burnout in the context of the big five personality traits. *Cognitive Systems Research*, 79, 109–125.
- Cheung, P., & Li, C. (2019). Physical activity and mental toughness as antecedents of academic burnout among school students: A latent profile approach. *International Journal of Environmental Research and Public Health*, 16(11), 2024. <https://doi.org/10.3390/ijerph16112024>
- Chirkowska-Smolak, T., Piorunek, M., Górecki, T., Garbacik, Z., Drabik-Podgórna, V., & Kławiuc-Zduńczyk, A. (2023). Academic burnout of polish students: A latent profile analysis. *International Journal of Environmental Research and Public Health*, 20, 4828. <https://doi.org/10.3390/ijerph20064828>

- Chwiałkowska, A. (2012). Teamwork in a cross-cultural context. Austria, Poland and Turkey comparison. *Journal of Positive Management*, 3(1), 33–40.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demand-resources model of burnout. *Journal of Applied Psychology*, 86, 499–512.
- Farber, B.A. (1991). Crisis in education: stress and burnout in the American teacher. *Psychocritiques*, 37(4).
- Fernández-Castillo, A., & Fernández-Prados, M. J. (2022). Burnout, resilience and self-esteem in school teaching university students. *Behavioral Science*, 12, 422. <https://doi.org/10.3390/bs12110422>
- Gabola, P., Meylan, N., Hascoët, M., De Stasio, S., & Fiorilli, C. (2021). Adolescents' school burnout: A comparative study between Italy and Switzerland. *European Journal of Investigation in Health, Psychology and Education*, 11, 849–859. <https://doi.org/10.3390/ejihpe11030062>
- George, D., & Mallory, P. (2016). *IBM SPSS statistics 23 step by step: A simple guide and reference*. Routledge.
- Gesteland, R.R. (1999). *Cross-cultural business behavior: Marketing, negotiating and managing across cultures*. Handelshøjskolens Forlag, Copenhagen Business School Press.
- González-Cabanach, R., Fernández-Cervantes, R., Souto-Gestal, A. J., & González-Doniz, L. (2016). Self-esteem as a protective variable of burnout in physiotherapy students. *ESE-Estud. Sobre Educ.*, 30, 95–113.
- Greenfield, P. M., Keller, H., Fuligni, A., & Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology*, 54, 461–490. <https://doi.org/10.1146/annurev.psych.54.101601.145221>
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2011). *Kultury i organizacje*. PWE.
- Jiang, S., Ren, Q., Jiamg, Ch., & Wang, L. (2021). Academic stress and depression of Chinese adolescents in junior high schools: Moderated mediation model of school burnout and self-esteem. *Journal of Affective Disorders*, 295(1), 384–389. <https://doi.org/10.1016/j.jad.2021.08.085>
- Kerksieck, P., Bauer, G. F., & Brauchli, R. (2019). Personal and social resources at work: Reciprocal relations between crafting for social job resources, social support at work and psychological capital. *Frontiers in Psychology*, 10, 2632. <https://doi.org/10.3389/fpsyg.2019.02632>
- Körner, L. S., Rigotti, T., & Rieder, K. (2021). Study crafting and self-undermining in higher education students: A weekly diary study on the antecedents. *International Journal of Environmental Research and Public Health*, 18, 7090. <https://doi.org/10.3390/ijerph18137090>
- Layouts, K., & Nelson-Coffey, S. K. (2021). The effect of perceived social support on personal resources following minor adversity: An experimental investigation of belonging affirmation. *Personality and Social Psychology Bulletin*, 47(7), 1152–1168. <https://doi.org/10.1177/0146167220961270>
- Leiter, M. P., & Maslach, C. (2016). Latent burnout profiles: A new approach to understanding the burnout experience. *Burnout Research*, 3(4), 89–100. <https://doi.org/10.1016/j.burn.2016.09.001>
- Lesener, T., Pleiss, L. S., Gusy, B., & Wolter, C. (2020). The study demands-resources framework: An empirical introduction. *International Journal of Environmental Research and Public Health*, 17, 5183. <https://doi.org/10.3390/ijerph17145183>
- Lian, P., Sun, Y., Ji, Z., Li, H., & Peng, J. (2014). Moving away from exhaustion: How core self-evaluations influence academic burnout. *PLoS ONE*, 9(1), e87152. <https://doi.org/10.1371/journal.pone.0087152>
- Liu, H., Yao, M., & Li, J. (2020). Chinese adolescents' achievement goal profiles and their relation to academic burnout, learning engagement, and test anxiety. *Learning and Individual Differences*, 84, 101945. <https://doi.org/10.1016/j.lindif.2020.101945>
- Liu, Z., Xie, Y., Sun, Z., Liu, D., Yin, H., & Shi, L. (2023). Factors associated with academic burnout and its prevalence among university students: A cross-sectional study. *BMC Medical Education*, 23(1), 317. <https://doi.org/10.1186/s12909-023-04316-y>
- May, R. W., Rivera, P. M., Rogge, R. D., & Fincham, F. D. (2020). School burnout inventory: Latent profile and item response theory analyses in undergraduate samples. *Frontiers in Psychiatry*, 11, 188. <https://doi.org/10.3389/fpsyg.2020.00188>
- Méndez, I., Martínez-Ramón, J. P., Ruiz-Esteban, C., & García-Fernández, J. M. (2020). Latent profiles of burnout, self-esteem and depressive symptomatology among teachers. *International Journal of Environmental Research and Public Health*, 17(18), 6760. <https://doi.org/10.3390/ijerph17186760>
- Metalsky, G. I., Joiner, T. E., Hardin, T. S., & Abramson, L. Y. (1993). Depressive reactions to failure in a naturalistic setting: A test of the hopelessness and self-esteem theories of depression. *Journal of Abnormal Psychology*, 102(1), 101–109. <https://doi.org/10.1037/0021-843X.102.1.101>
- Misra, R., & Castillo, L. G. (2004). Academic stress among college students: A comparison of American and international students. *International Journal of Stress Management*, 11, 132–148.

- Mlawer, F., Hubbard, J.A., Bookhout, M.K., & Moore, C.C. (2021). Levels and instability of daily self-esteem in adolescents: Relations to depressive and anxious symptoms. *Research on Child and Adolescent Psychopathology*, 49(8), 1083–1095. <https://doi.org/10.1007/s10802-021-00802-3>
- Molero, M. D. M., Pérez-Fuentes, M. D. C., & Gázquez, J. J. (2018). Analysis of the mediating role of self-efficacy and self-esteem on the effect of workload on burnout's influence on nurses' plans to work longer. *Frontiers in Psychiatry*, 9, 2605.
- Mülder, L. M., Schimek, S., Werner, A. M., Reichel, J. L., Heller, S., Tibubos, A. N., Schäfer, M., Dietz, P., Letzel, S., Beutel, M. E., Stark, B., Simon, P., & Rigotti, T. (2022). Distinct patterns of university students study crafting and the relationships to exhaustion, well-being, and engagement. *Frontiers in Psychology*, 13, 895930. <https://doi.org/10.3389/fpsyg.2022.895930>
- Niezgoda, A., Szutowski, D., & Szulczyńska, J. (2017). Exploring the cultural differences in Polish and Turkish companies. *International Journal of Humanities and Social Science Invention*, 6(3), 62–69.
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, 14(4), 535–569. <https://doi.org/10.1080/10705510701575396>
- Pines, A. M., Ben-Ari, A., Utasi, A., & Larson, D. (2002). A cross-cultural investigation of social support and burnout. *European Psychologist*, 7(4), 256–264. <https://doi.org/10.1027/1016-9040.7.4.256>
- Portoghese, I., Leiter, M. P., Maslach, C., Galletta, M., Porru, F., D'Aloja, E., Finco, G., & Campagna, M. (2018). Measuring burnout among university students: Factorial validity, invariance, and latent profiles of the Italian Version of the Maslach Burnout Inventory Student Survey (MBI-SS). *Frontiers in Psychiatry*, 9, 2105. <https://doi.org/10.3389/fpsyg.2018.02105>
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg self-esteem scale. *Personality and Social Psychology Bulletin*, 27, 151–161.
- Salmela-Aro, K., Upadyaya, K., Vinni-Laakso, J., & Hietajarvi, L. (2021). Adolescents' longitudinal school engagement and burnout before and during COVID-19—the role of socio-emotional skills. *Journal of Research on Adolescence*, 31(3), 796–807. <https://doi.org/10.1111/jora.12654>
- Sample Size Calculator, n.d. Sample Size Calculator. <https://www.calculator.net/sample-size-calculator.html> (Date of availability: 15.06.2024)
- Scabini, E., Manzi, C. (2011). Family processes and identity. In: Schwartz, S., Luyckx, K., Vignoles, V. (eds) *Handbook of identity theory and research* (pp.565–584). Springer. https://doi.org/10.1007/978-1-4419-7988-9_23
- Schwab, J.A. (2002). Multinomial logistic regression: Basic relationships and complete problems. <http://www.utexas.edu/courses/schwab/sw388r7/SolvingProblems> (Retrieved: 01.11.2023)
- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35–37). Windsor, UK: NFER-NELSON.
- Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and “how to” guide of its application within vocational behavior research. *Journal of Vocational Behavior*, 120, 103445. <https://doi.org/10.1016/j.jvb.2020.103445>
- Tevendale, H. D., DuBois, D. L., Lopez, C., & Prindiville, S. L. (1997). Self-esteem stability and early adolescent adjustment an exploratory study. *The Journal of Early Adolescence*, 17(2), 216–237. <https://doi.org/10.1177/0272431697017002006>
- Tomaszek, K. (2018). Self-esteem and quality of relationships as protective factors against school burnout. *Ruch Pedagogiczny*, 21(4), 87–105.
- Tomaszek, K., Muchacka-Cymerman, A. (2018). Wybrane środowiskowe przyczyny syndromu wypalenia uczniów ze szkół gimnazjalnych. *Kwartalnik pedagogiczny*, 2(248), 109-126.
- Tomaszek, K., & Muchacka-Cymerman, A. (2019). Polish adaptation of the ESSBS school-burnout scale: Pilot study results. *Hacettepe University Journal of Education*, 34(2), 418–433. <https://doi.org/10.16986/HUJE.2018043462>
- Tomaszek, K., & Muchacka-Cymerman, A. (2022a). How high and low burnout students coping with the stressful situations? Examining associations between coping mechanism and school burnout syndrome. *Przegląd Badań Edukacyjnych*, 36(1), 199–215.
- Tomaszek, K., & Muchacka-Cymerman, A. (2022b). Just a few more minutes online - and I will release myself from tension. The moderation mediating effect of problematic cyber-activities and Japanese vs. East European culture on the relationship between academic burnout and cyber-aggression. *Studies on the Theory of Education*, 3(40), 127–143.

- Uskul, A. K., & Cross, S. E. (2019). The social and cultural psychology of honour: What have we learned from researching honour in Turkey? *European Review of Social Psychology*, 30(1), 39–73. <https://doi.org/10.1080/10463283.2018.1542903>
- Vilchez Conesa, M. D. P., Parra Plaza, F., Arce, C., & De Francisco, C. (2020). Influence of basic psychological needs over burnout in the sport context. *Sustainability*, 12, 6360. <https://doi.org/10.3390/su12166360>
- Virtanen, T., Lerkkanen, M.-K., Poikkeus, A.-M., & Kuorelahti, M. (2018). Student engagement and school burnout in Finnish lower-secondary schools: Latent profile analysis. *Scandinavian Journal of Educational Research*, 62(4), 519–537. <https://doi.org/10.1080/00313831.2016.1258669>
- Wang, M. T., & Eccles, J. S. (2012). Social support matters: Longitudinal effects of social support on three dimensions of school engagement from middle to high school. *Child Development*, 83(3), 877–895. <https://doi.org/10.1111/j.1467-8624.2012.01745.x>
- Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, 34, 719–751. <https://doi.org/10.1177/0011000006286345>
- Xu, H., Peng, L., Wang, Z., & Liu, X. (2022). Effects of psychological capital and social support availability on anxiety and depression among Chinese emergency physicians: Testing moderated mediation model. *Frontiers in Psychology*, 13, 991239. <https://doi.org/10.3389/fpsyg.2022.991239>
- Yao, Y., Zhao, S., Gao, X., et al. (2018). General self-efficacy modifies the effect of stress on burnout in nurses with different personality types. *BMC Health Services Research*, 18, 667. <https://doi.org/10.1186/s12913-018-3478y>
- Ye, Y., Huang, X., & Liu, Y. (2021). Social support and academic burnout among university students: A moderated mediation model. *Psychology Research and Behavior Management*, 14, 335–344. <https://doi.org/10.2147/PRBM.S300797>
- Yu, W., Yang, S., Chen, M., Zhu, Y., Meng, Q., Yao, W., & Bu, J. (2022). School psychological environment and learning burnout in medical students: Mediating roles of school identity and collective self-esteem. *Frontiers in Psychology*, 13, 851912. <https://doi.org/10.3389/fpsyg.2022.851912>
- Zhu, W., Ding, L., & Yu, F. (2024). A comparison of educational models under cultural differences between collectivism and individualism in China and the West. *International Journal of Scientific Research and Management*, 12(04), 3320–3331. <https://doi.org/10.18535/ijstrm/v12i04.el03>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

Katarzyna Tomaszek¹  · Agnieszka Muchacka-Cymerman²  · Ayşe Aypay³  · Fatma Altınsoy³ 

✉ Agnieszka Muchacka-Cymerman
agnieszka.muchacka-cymerman@humanitas.edu.pl

Katarzyna Tomaszek
ktomaszek@ur.edu.pl

Ayşe Aypay
ayseaypay@hotmail.com; aypaya@ogu.edu.tr

Fatma Altınsoy
fatmaaltinsoy.26@gmail.com; fatma.altinsoy@ogu.edu.tr

¹ Institute of Psychology, Rzeszów University, Rzeszów, Poland

² Humanitas Academy, Sosnowiec, Poland

³ Department of Psychological Counselling and Guidance, Eskisehir Osmangazi University, Eskisehir, Türkiye