

Profiles of School Burnout Among Polish Late Adolescents and Its Association to the Quality of Family Bonds

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Abstract

Aim: The family environment is generally recognized as an important factor in protecting from school burnout syndrome, though mostly for younger students. Importantly, the differences in experiencing school burnout and family characteristics are still rarely examined, especially among late adolescents in Poland. For an in-depth understanding of school burnout patterns among Polish youth, this research has undertaken a person-centered, latent profile analysis of school burnout. Additionally, this paper sought to determine whether family bonds interact with demographic characteristics (gender, age) in predicting school burnout among late secondary school students.

Method: A total of 964 late school students ($M_{\text{age}} = 18.18$, $SD = 0.48$ years; 65% girls) were surveyed using the Student School Burnout Scale (SSBS), and the 1-item quality of family bonds indicator.

Results: Five distinct School Burnout component profiles emerge, for example one profile with severe school burnout symptoms: Uninterested in learning (9.4% of the sample), three profiles with moderate levels of burnout for example Exhausted with studying, Struggling with school duties, Incompetent. Finally, students of the last profile presented low levels of school burnout total score and the average in some domains, for example Fatigue with learning activities. These profiles indicate significant differences in family bonds, age and gender. Family bonds significantly interacted with age and gender when explaining school burnout in the total sample. Simple slope analyses revealed that the

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positive association between gender or age and school burnout was greater under the condition of less positive family bonds. Girls and older adolescents from families with the most negative bonds were more likely to develop school burnout. Additional analyses conducted separately for each profile revealed the significance of the interaction between gender and family bonds in profiles with the highest scores in SSBS (Profiles 2, 4).

Conclusions: The study confirmed that living in unfavorable family environments is a risk factor for school burnout; however, it is mostly observed among girls experiencing burnout who are less resistant to this condition. Our findings contribute to the discourse related to the gap in the burnout literature, indicating the need for conducting school burnout interventions that are focused on both school and family environments.

Keywords: school burnout, family, late adolescence, latent profile analysis

Traditional, variable-centered analyses tend to ignore the potential mental diversity between people and focus on detecting mostly linear and typical effects. As a result, novel, less common, or unique paths of experiencing and developing certain difficulties are not detected. To avoid the above limitations, a person-centered approach is recommended. This way of data examination allows for treating individual participants in a holistic fashion, and at the same time considers their specific experiences by detecting membership in particular subgroups. Latent profile analysis (LPA), by testing variants of component combinations, emphasizes the importance of including non-typical patterns of mental health issues, that is school burnout. Therefore, in this study, we aimed to gain an in-depth look into the differences among Polish late adolescents in their experience of school burnout by applying LPA statistics. Due to the fact that specific aspects of the family environment (i.e., family acceptance, family cohesion, family adaptability, family intimacy, and conflict) were confirmed to affect burnout among students (Luo et al., 2016; Macalka et al., 2022; You et al., 2021), in this project we also included the perceived quality of family bonds. Hence, an additional purpose of the research was to test the association between school burnout profile membership and family relationships.

Family as an Important Protective Factor for Adolescents' School Burnout

In today's dynamic and demanding school environment, school burnout has become a significant issue for adolescents' mental health. As educational requirements increase and competition becomes increasingly fierce, many young people experience overload, stress, and frustration associated with school life. However, despite these challenges, there are protective factors that can help adolescents cope with school burnout and provide them with support during difficult times. One of these key protective factors is the family.

The family plays an incredibly important role in every adolescent's life, and its influence on a child's development and well-being is undeniable. The expanded Study Demand–Resources Model (SD–R) (Salmela-Aro et al., 2022) posits that

burnout arises from an imbalance between the demands placed on students and the resources available to them. These resources and demands encompass both internal and external elements, including those rooted in family, peer support, and the broader school context. The model illuminates the intricate interplay between various factors, highlighting how sufficient resources can enable students to thrive even in demanding environments. In this context, the family can play a pivotal role in providing emotional, psychological and practical support, acting as a critical buffer against the pressures leading to burnout.

Authors such as Maslach et al. (2001) and Salmela-Aro et al. (2022) have contributed significantly to our understanding of burnout, emphasizing its multidimensional structure and the complex interplay of factors that influence it. The role of the family setting is pivotal in shaping the positive close and accepting bonds, cognitive and linguistic abilities and adaptive personality traits and coping techniques of children, as highlighted by the research of Leto et al. (2019), Macalka et al. (2022), Morris et al. (2007), Salmela-Aro et al. (2022), and Tomaszek et al. (2024). This environment is foundational in developing a child's ability to manage negative emotions, a concept further elaborated by Morris et al. (2007). Additionally, the impact of the family context on the academic burnout experienced by school-aged children has been validated through various studies (Jiang et al., 2023; Luo et al., 2020; Morris et al. 2007). For example, studies conducted by Tomaszek (2018) indicated that low educational self-esteem and poor family relationships explain 43% of total school burnout. The family, as a primary socializing agent, can influence the development of resilience, coping methods, and a positive school atmosphere, which are identified as potentially important predictors of burnout symptoms during adolescence. Resilience, the flexible reaction in facing difficult life events, and the ability to bounce back from adversity, is fostered in supportive family environments where adolescents feel valued and understood. Coping methods, including both problem-focused and emotion-focused strategies, are often modeled and taught within the family context. A positive school atmosphere, characterized by a sense of belonging and support, can also be reinforced by family attitudes towards school and the educational system, valuing learning as a life-important activity, and active involvement in school actions proposed to pupils. Moreover, the research by Salmela-Aro and Tynkkynen (2012) and Raufelder et al. (2015) underscores the impact of contextual factors, such as demanding parents or peer problems, on the risk of experiencing burnout symptoms. In contrast, a supportive family environment can mitigate these risks by providing a secure base from which adolescents can navigate the challenges of adolescence period and school life. Families that encourage open communication, validate their children's experiences in decisions and practices, and offer guidance on how to solve difficulties without exerting undue pressure for success contribute to a nurturing environment that can protect against burnout. Notably, according to Coleman's concept of social capital, "strong families accrue from strong social bonding", which in turn leads to the higher well-being and thriving of each member (Coleman, 1988, cited by Lindfors et al., 2017, p. 368). Therefore, it is important to understand that the family is not the sole factor influencing school burnout in adolescents, but it can

serve as a significant pillar of support and stability in their lives during this full of “storm and stress” developmental stage.

Past studies have confirmed significant sex and age differences in the level of school burnout (Gabola et al., 2021; Hermann et al., 2019; Parviainen et al., 2019; Tomaszek & Muchacka-Cymerman, 2019). Widlund et al. (2020) posited that girls usually show better school performance; however, this is accompanied by a greater experience of pressures related to ambitious study goals, higher academic achievement, and life-aspirations, resulting in a higher risk of school burnout development. Additionally, the older the adolescents, the higher the risk of this syndrome (Gabola et al., 2021). Moreover, some scholars suggest that family characteristics may have a different impact on school burnout according to the adolescents’ gender (Read et al., 2022). For example, the educational level of the parents influenced school burnout over time; however, the gradient for boys was slightly larger compared to girls (Read et al., 2022). The complexity of the mechanism underlying the significance of gender in school burnout development is confirmed by contradictory data present in the burnout literature. For example, Aypay and Sever (2015) stated that girls cope more easily with the pressure of parents and teachers, which is why their burnout rates may be lower. In studies conducted by Tomaszek and Muchacka-Cymerman (2018), the quality of family relationships was a significant predictor of school burnout, but only among middle-school boys. Due to the fact that research on the relationship between family and school burnout in Polish late adolescence is scarce, this study is focused on investigating the youth’s subjective perception of the quality of family bonds and its association with school burnout syndrome. In addition, considering past studies on the significance of demographic characteristics for the level of school burnout, we also controlled for age and gender in our study.

Current Research

The main purpose of this research was to determine the patterns of experiencing school burnout among late adolescents by applying a person-centered approach. An additional aim of the study was to examine differences in the quality of family bonds between adolescents of different profile memberships. Accordingly, we also aimed to test the interaction effect of demographic characteristics and family bonds on the level of school burnout. Therefore, the following study hypotheses have been posed:

- H1: Students differ in the intensity of difficulties when experiencing burnout, which will be observed in different patterns of school burnout dimensions.
- H2: The profile with the highest scores in school burnout is expected to perceive the worst quality of family bonds.
- H3: Age and Gender will interact with family bonds when predicting school burnout.

While previous studies have mostly acknowledged a variable-centered analysis with family-related factors as predictors of school burnout, our research

dives deeper into specific patterns of experiencing school burnout and how the differences in the level of burnout syndrome subdomains may be associated with the predictive force of family bonds on school burnout among late adolescence population.

Methods

Participants and Procedure

964 students participated in the study 622 girls (65% of the sample), and 342 boys (35% of the sample). The participants' ages ranged from 17 to 20 years old ($M = 18.18$, $SD = 0.48$). The study was conducted between 2020 to 2022. The data collection strategy was mixed-method, that is the questionnaires were provided to participants with the paper-pencil method, and with an online form. An invitation to participate in the study was first sent to principals of secondary schools located in different regions of Poland, and via schools, we obtained parents' and students' consent. Participants were informed about the study's goals, the anonymity of responses, voluntary participation, and the possibility of withdrawal at any stage of the survey. Respondents did not receive any payment for participation. The survey was conducted with respect to the Helsinki Declaration and approved by the Ethics Committee of the University (WP.113-6/2019).

Measurements

The Secondary School Burnout Scale (SSBS) developed by Aypay (2012) was used to estimate participants' level of school burnout. The instrument consists of 34 items that are rated on a 4-point Likert scale, and allow for measurement of 7 school-burnout sub-dimensions for example LIS – Loss of Interest in School, BDS – Burnout Due to Studying, BDF – Burnout Due to Parental Pressure, BDH – Burnout Due to Homework, BTT – Being Bored and Tired of Teacher Attitudes, NRF – Need to Rest and Have Fun, ISS – Incompetence in School. In the current study, the reliability of the total score was high ($\alpha/\omega = .90$), and the sub-dimensions ranged from $\alpha = .63$ to $.76$ and $\omega = .66$ to $.78$. The subjective quality of family bonds was measured with one item rated on a 3-point Likert scale (1 – *very good*, 2 – *average*, 3 – *very bad*). In the project two main demographic characteristics were also collected, for example Age and Gender.

Data Analysis

Free software Jamovi 2.3.28 and SPSS IBM 21 were used for statistical data analyses, while G*Power was utilized to estimate the required sample size. The analysis was conducted in three stages:

1. Descriptive statistics and Pearson's correlation coefficients were calculated to gain an initial insight into the data.
2. To identify statistically significant differences in school burnout profiles, fit indexes were calculated to determine the final number of profiles based on the following criteria:
 - Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Sample Size-Adjusted BIC (SABIC) – lower values of these indicators suggest better model fit;
 - Bootstrap-Based Likelihood Ratio Test (BLRT) – this test shows whether a model with K profiles fits the data significantly better than a model with K–1 profiles;
 - Integrated Complete Likelihood (ICL) and Elbow Criterion – these indicators evaluate where adding more profiles stops significantly improving model fit;
 - Entropy – values close to 0.8 or above are considered acceptable, indicating a high clarity in the profile classification;
 - Psychological Significance (Muthén, 2004; Tein et al., 2013).

To obtain robust statistical results, a minimum of 50 subjects per variable is recommended in LPA (Khui et al., 2020; Zhou et al., 2023). Considering the 7 SSBS domains, a sample of at least 350 participants is required for this study.

3. Kruskal-Wallis tests were applied to examine differences between profiles, demographic variables, and family bonds. A sample size of 281 subjects is required for a non-parametric comparison test with 5 sub-groups (Kruskal-Wallis; conditions: medium effect size (.30), α error = .05; power probability = .95; number of groups = 5).
4. A moderation analysis was conducted to assess whether interactions between gender, age, and family bonds significantly predict the level of school burnout. The required sample size for a multiple regression analysis with 6 predictors is 45 (conditions: medium effect size (.25), α error = .05; power probability = .95).

Results

Descriptive Statistics

The findings indicated that girls scored significantly higher in SSBS, and in its three sub-dimensions, that is BDS, NRS and ISS. The remaining differences were insignificant. All effect sizes were small (see Table 1, p. 135).

Pearson's Correlation Analysis

Age positively correlated with all indicators of school burnout, that is SSBS ($r = .26, p < .001$); the correlation coefficients for sub-dimensions ranged from $r = .06$,

$p = .047$ (LIS) to $r = .28$, $p < .001$ (ISS). Age was also insignificantly related to family bonds ($r = .04$, $p = .232$). Similarly, negative family bonds were associated with all school burnout dimensions i.e. SSBS ($r = .22$, $p < .001$); the coefficient for sub-dimensions ranged from $r = .11$, $p < .001$ (BHS) to $r = .18$, $p < .001$ (BDS).

Table 1

Descriptive Statistics

Variables	Total sample (<i>N</i> = 964)	Girls (<i>n</i> = 622)	Boys (<i>n</i> = 342)	<i>t</i> Welch	<i>p</i>	<i>d</i>	Cronbach α	McDonalda ω
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)					
LIS	14.9(3.97)	14.99(4.25)	14.61(3.41)	1.52	.064	0.10	.725	.730
BDS	15.5(3.63)	15.68(3.56)	15.07(3.74)	2.49	.007	0.17	.631	.660
BFS	13.0(4.07)	13.07(4.27)	12.88(3.69)	0.71	.238	0.05	.746	.764
BHS	13.3(3.87)	13.44(3.61)	13.15(4.31)	1.04	.149	0.07	.740	.744
BTS	1.3(2.93)	1.43(2.96)	1.16(2.88)	1.36	.088	0.09	.674	.680
NRS	11.0(3.26)	11.22(3.44)	1.66(2.88)	2.69	.004	0.18	.730	.731
ISS	11.1(3.34)	11.40(3.53)	1.57(2.89)	3.92	<.001	0.26	.764	.776
SSBS	89.2(17.3)	9.43(17.59)	87.08(16.51)	2.92	.002	0.20	.895	.898
Family Bonds	1.5(0.56)	1.51(0.56)	1.46(0.55)	1.52	.092	0.09	–	–

Note. Tested $H_a: \mu_1 > \mu_2$; *d* = effect size;

LIS – Loss of Interest in School, BDS – Burnout Due to Studying, BDF – Burnout Due to Parents pressure, BDH – Burnout Due to Homework, BTT – Being Bored and Tired of Teacher Attitudes, NRF – Need to Rest and Have Fun, ISS – Incompetence in School, SSBS – school burnout total score.

Latent Profile Analysis

The findings revealed two acceptable models with 5 and 8 profiles. In both models, BLRT *p*-values were lower than .05, and entropy was close to 0.8. Furthermore, two ICL elbow criteria were observed. The 8-profile result had the lowest fit indexes, for example AIC, BIC, and SABIC values, however it offered a worse distribution of participants (small number of students in certain profiles), and hence was less informative. Guided by the principle that when dividing respondents in LPA, it is important to be able to clearly describe their psychological characteristics, we decided to analyze the differences between students assigned to 5 profiles (see Table 2, p. 136).

Table 2*The Results of Latent Profile Analysis*

Model	LL	AIC	BIC	SABIC	BLRT	ICL	Entropy
1 profile	-17848	35724	35792	35747	—	-35792	1.000
2 profiles	-17116	34275	34382	34312	1464.63**	-34435	0.914
3 profiles	-16911	33883	34028	33933	408.40**	-34285	0.764
4 profiles	-16823	33723	33907	33786	176.8**	-34201	0.777
5 profiles	-16788	33668	33891	33745	70.49**	-34196	0.788
6 profiles	-16748	33603	33865	33694	80.83**	-34209	0.784
7 profiles	-16672	33468	33769	33572	151.72**	-34141	0.785
8 profiles	-16612	33363	33703	33481	120.12**	-34075	0.799
9 profiles	-16621	33398	33777	33529	-18.94	-34189	0.788

Note. LPA conditions: equal variances, covariance's 0.

** $p < .01$.

School Burnout Profiles Among Late Adolescents

Table 3 (p. 138) and Figure 1, 2 (p. 137) present the Kruskal-Wallis test of comparison between 5 profiles in school burnout dimensions, family bonds and demographic characteristics. Significant statistical differences were observed in the SSBS total score and most of the school burnout dimensions. Specifically, one highly burned-out profile was detected (Profile 2 – SSBS scores over average, 9.4% of the sample), three moderately burned-out, for example Profile 1 (5.1% of the sample), 3 (55.5% of the sample), and 4 (21.7% of the sample) (average SSBS scores), and one slight burnout profile (Profile 5 – SSBS scores lower than average, 8.3% of the sample).

Profile 1. Exhausted with studying students with the highest scores in LIS and BDS, and moderate in BDF and BHS. Profile 2. Uninterested in learning students experienced the highest level of school burnout in all dimensions compared to the remaining profiles. Profile 3. Struggling with school duties students with moderate levels of exhaustion due to studying, parental pressure, and loss of interest (BDS, LIS, BDF). Profile 4. Incompetent students with youth who feels that they lack sufficient cognitive skills to meet school requirements (ISS), and are exhausted by school demands, for example studying and homework (BDS, BHS). Profile 5. Fatigue with learning activities with an average level of LIS and BDS, and low level of the other dimensions. Students from Profile 2 with the highest level of school burnout were significantly older than those of profiles with moderate burnout levels (Profiles 2, 3) and with low levels of burnout (Profile 5).

According to the results, five profiles significantly differed in the quality of family bonds. The most negative relationships with parents were observed in Profile 2 compared to the remaining students. Interestingly, participants from profiles with moderate levels of school burnout (Profiles 1, 3, 4) did not differ from students who only slightly suffered from this syndrome (Profile 5). We also observed significant differences in demographic characteristics. Despite the significant Kruskal-Wallis test, the DSCF post hoc test did not reveal differences in gender distribution between profiles. The findings also suggest that the highest mean age was in Profile 2 (with the highest level of school burnout) and Profile 4, compared to profiles with moderate levels of burnout (Profiles 1, 3) and slightly burned-out youth (Profile 5).

Figure 1

School Burnout (SSBS Total Score) – Differences Between Profiles

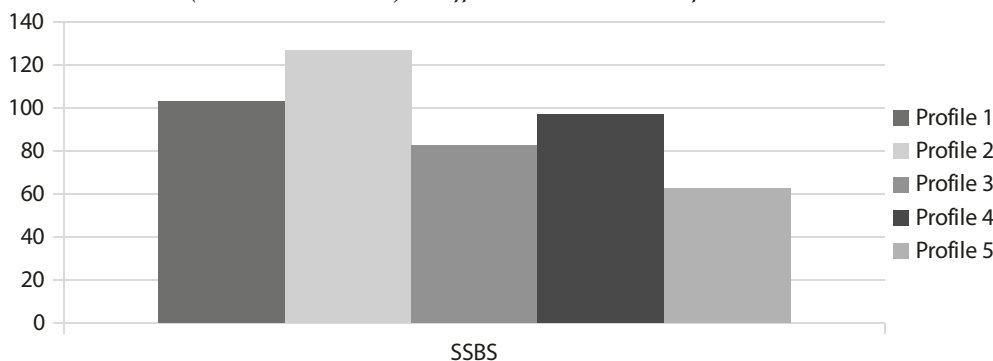
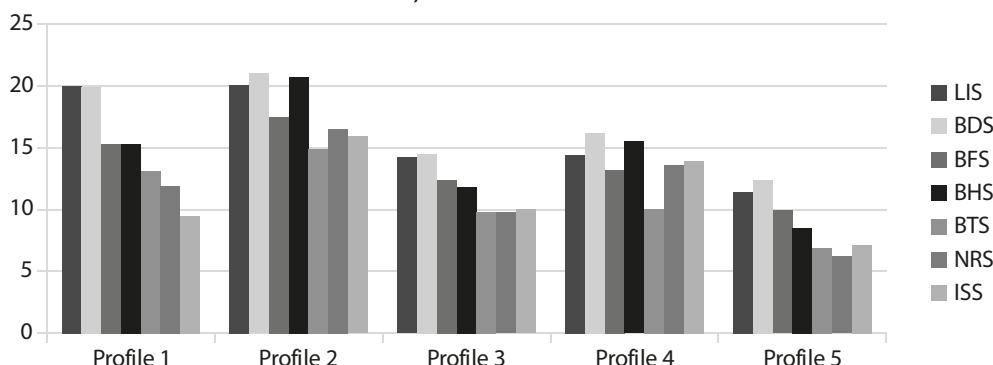


Figure 2

School Burnout Dimensions in 5-Profiles



Note. LIS – Loss of Interest in School, BDS – Burnout Due to Studying, BDF – Burnout Due to Parents pressure, BDH – Burnout Due to Homework, BTT – Being Bored and Tired of Teacher Attitudes, NRF – Need to Rest and Have Fun, ISS – Incompetence in School.

Table 3

Inter-Profiles Differences in SSBS Indicators, Family Bonds, and Demographic Characteristics

Variables	1 (n = 48)	2 (n = 89)	3 (n = 526)	4 (n = 206)	5 (n = 79)	χ^2 (df = 4)	ε^2	Post-hoc test
LIS	20.0±2.72	20.04.1±4.84	14.2±2.68	14.4±3.53	11.4±3.40	267.21***	.282	1–3. 4. 5; 2–3. 4. 5; 3–5; 4–5
BDS	19.9±3.15	21.0±4.22	14.5±2.41	16.2±3.38	12.4±3.11	241.93***	.256	Sig.
BFS	15.3±2.95	17.5±4.73	12.4±3.35	13.2±3.96	9.91±4.15	150.21***	.159	1–2. 3. 4. 5; 2–3. 4. 5; 3–5; 4–5
BHS	15.3±2.66	20.7±2.60	11.8±2.09	15.5±2.87	8.48±2.11	511.92***	.541	1–2. 3. 5; 2–3. 4. 5; 3–4. 5; 4–5
BTS	13.1±2.04	14.9±2.65	9.80±2.01	10.04±2.78	6.87±2.12	335.51***	.354	1–2. 3. 4. 5; 2–3. 4. 5; 3–5; 4–5
NRS	11.9±1.87	16.5±1.70	9.77±1.99	13.6±1.84	6.22±1.65	627.45***	.663	Sig.
ISS	9.48±2.23	15.9±2.48	10.0±3.32	13.9±2.05	7.16±2.51	527.05***	.557	1–2. 4. 5; 2–3. 4. 5; 3–4. 5; 4–5
SSBS	103.0±5.55	127.0±10.7	82.5±6.87	97.1±8.14	62.4±7.48	674.57***	.712	Sig.
Family Bonds	1.31±0.55	1.98±0.58	1.46±0.51	1.47±0.57	1.39±0.52	76.99***	.081	2–1. 3. 4. 5
Age	18.1±0.31	18.5±0.50	18.1±0.45	18.4±0.53	18.1±0.31	105.02***	.111	1–2. 4; 2– 3. 5; 3–4; 4–5
Gender _{G/B}	35/13	65/24	322/204	142/64	46/33	9.76*	.010	–

Note. Gender_{G/B} – number of girls/number of boys, Sig. – profiles significantly differed from each other in all cases, LIS – Loss of Interest in School, BDS – Burnout Due to Studying, BDF – Burnout Due to Parents pressure, BDH – Burnout Due to Homework, BTT – Being Bored and Tired of Teacher Attitudes, NRF – Need to Rest and Have Fun, ISS v Incompetence in School, SSBS – school burnout total score.

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

Interaction Effects in Predicting School Burnout Level

In the first model we examined the interaction effects of demographic characteristics and family bonds in the total sample. As expected, the findings showed a general positive association between poor family bonds, age, and school burnout, as well as a negative relationship between gender and school burnout (indicating girls are more prone to develop this syndrome). We also observed two significant interaction effects (family bonds x gender and family

bonds x age), that indicate the following regularities: (1) girls with the poorest family bonds are more susceptible to school burnout compared to boys with poor family bonds, and to those youth who have a better relationship with their relatives; (2) older youth with the poorest family bonds experience the highest level of school burnout, compared to younger adolescents with poor family bonds and those with more positive relationships with their relatives (see Table 4).

Following the main purpose, for example, applying a person-centered approach, in the final steps we examined whether the interaction effects may also be detected among data divided according to LPA profiles. Interestingly, only one significant relationship was detected for a single independent variable, for example, gender was a significant predictor of SSBS in Profile 2. Moreover, significant interaction effects (family bonds x gender) were only confirmed in two profiles (Profiles 2, 4), consisting of youth *uninterested* in learning and perceiving themselves as incompetent (see Table 4).

Table 4

Interaction Effects of Demographic Characteristics and Family Bonds on School Burnout (SSBS)

Variables	Model 1 (N = 964)	Model 2 (Profile 1)	Model 3 (Profile 2)	Model 4 (Profile 3)	Model 5 (Profile 4)	Model 6 (Profile 5)
Family Bonds	.16***	-.13	.12	-.04	.09	-.12
Gender	-.07*	-.01	.36**	-.03	-.04	-.05
Age	.25***	.21	.06	-.01	.04	-.08
Family Bonds × Gender	-.11***	-.16	-.48***	.03	-.27**	-.01
Family Bonds × Age	.13***	.02	.01	-.03	.02	-.01
Family Bonds × Gender × Age	-.03	—	.04	-.03	-.08	.02
Model Statistics	F _(6,941) = 28.02***; Adj.R ² = .15	F _(5,41) = .48; Adj.R ² = .06	F _(6,82) = 2.92*; Adj.R ² = .12	F _(6,519) = .79; Adj.R ² = .01	F _(6,199) = 5.17***; Adj.R ² = .11	F _(6,78) = .31; Adj.R ² = .05

Note. In Profile 1 the system did not calculate interaction between Family Bonds × Gender × Age.

Discussion

The current study was focused on investigating the profiles of school burnout to detect the differences in levels of certain domains of this syndrome and thus gain an in-depth look into patterns specific to certain sub-groups of adolescents. We also aimed to assess the association between profile membership and poor family bonds, which may be a risk factor for developing school burnout syndrome. Based on past results, we also included age and gender in the analysis of demographic variables. Through the latent profile analysis, five different profiles were identified.

Profiles of School Burnout Among Late Adolescents

Profile 2 consisted of a group of youth who were characterized by the highest school burnout level; three profiles (1, 3, 4) included adolescent groups characterized by moderate school burnout and the last group (Profile 5) was characterized by a low level of school burnout. Almost one in ten students (9.4%) had high school burnout values, followed by 8.3% of adolescents who were at low risk for burnout. These findings are in line with studies which indicate that approximately 7 (Salmela-Aro & Read, 2017) to 14% (May et al., 2020) of young people are students at high risk of experiencing severe burnout. The profile membership was associated with differences in the intensity of difficulties when experiencing burnout. For example, students with moderate overall levels of school burnout varied in the level of loss of interest in school activities (Adolescents of Profile 1 suffered mostly from this burnout symptom, compared to those of Profiles 3, 4). Incompetent students (Profile 4) suffered more from burnout due to homework and incompetence in school than students of Profile 3. Interestingly, although 8.3% of the sample experienced a low overall level of school burnout (Profile 5, Fatigue with learning activities), they were characterized by moderate levels of some burnout domains, for example, loss of interest and burnout due to studying. Hence, we cannot say that our sample included adolescents with no school burnout symptoms. Similar results have been detected by other scholars. For example, Salmela-Aro and Read (2017) revealed four profiles of school burnout among undergraduate students: engaged, engaged-exhausted, inefficacious, and burned-out. In addition, the first sub-group, despite having the most positive school engagement characteristics, was also accompanied by some burnout symptoms (a similar level of inadequacy compared to the burned-out profile).

Differences in Demographic Characteristics and Family Bonds Between Profiles

The findings confirmed significant differences in age and gender between profiles. However, the post-test revealed that profiles varied only in age, that is older adolescents were more frequently assigned to Profile 2. The influential effect of age on the level of school burnout has been confirmed by numerous past studies. For example, research conducted by Cernea-Radu (2023) revealed that as age increases (from 10 to 19 years), the school burnout index may double its mean value. According to Gabola et al. (2021), the process of students' growing up is ultimately accompanied by changes in school demands, which in turn leads to an increased perception of being overwhelmed by those demands, and consequently an increase in the severity of school burnout. Our results are partially in line with the notion that transitioning to a higher educational stage is a risk factor for experiencing school burnout. For example, a significant increase in cynicism and a sense of inadequacy was observed among Finnish adolescents during the transition from comprehensive school to senior high school (Salmela-Aro & Tynkkynen, 2012). According to Parviainen et al. (2020), school burnout symptoms in upper secondary education were predicted by the level of school burnout symptoms at the earlier educational stages. This process seems to continue during late adolescence.

Importantly, Gabola et al. (2021) showed the significant effect of age (the burnout risk was found to be higher in late adolescence), but not gender in explaining burnout differences among students. In this regard, the authors concluded that being female or male may not be a key factor making individuals more susceptible to developing burnout, but the manner of interactions between gender and other environmental factors, for example, the social resources available, makes this significant. Notably, our findings might be biased by the relative homogeneity of the groups, that is the surveyed youth were not very diverse in terms of age, with a significant predominance of respondents aged 18 years and females.

According to our results, students of the profile with the highest scores in school burnout (Profile 2) also perceived their family bonds most negatively compared to the other adolescents. The above-mentioned findings are consistent with past studies that highlighted the crucial role of a positive family environment in protecting from mental-health issues caused by chronic educational stress (Luo et al., 2020; Shin et al., 2012). School burnout was less common among middle-school adolescents reporting an optimal parental bonding style (democratic parenting style), in contrast to the affection less control parental style, that is punishments and rejection from parents (Shin et al., 2012). Positive family relationships seem to be irreplaceable in light of social learning theory. Parents as models and main objects for their children during the process of upbringing play a pivotal role in the formulation of young people's behaviors and responses. Parental mental health issues, for example burnout, have been found to have a direct impact on children's school burnout (Wu et al., 2022). According to Wu et al. (2022), negative interactions with parents caused by parental burnout and educational anxiety (apathy, emotional instability, escape mechanism, etc.) may manifest in a child's decreased engagement in daily educational activities, as students display symptoms corresponding to their relatives' mental health issues. Consequently, burnout symptoms are transmitted from parents to children. Another explanation stems from the notion that perceived parental bonding is related to the manner of approaching achievement situations and coping strategies used in facing educational demands (Sideridis & Kafetsios, 2008). Specifically, studies conducted by Sideridis and Kafetsios (2008) posited that overprotective parental bonding elevates the fears of failure when initiating a task-solving process, is associated to lower task performance and students' ineffective stress response caused by failures. Furthermore, past studies have confirmed that family cohesion and adaptability can buffer the negative effect of school burnout and enhance pupils' adaptability via emotional support and problem-solving skills (Yin, 2019). In summary, the negative perception of parental bonding may affect the risk of chronic educational distress, and its main adverse consequence, that is school burnout syndrome.

Interaction Effects of Gender, Age, and Family Bonds in Predicting School Burnout Level

According to our findings, age and gender interact significantly with family bonds when predicting school burnout, but only in the total sample. An in-depth

analysis conducted separately for each profile revealed that interaction between gender and family bonds remained significant only in two profiles: Profile 2 (the most burned-out students), and Profile 4 (moderate level of burnout with higher feelings of incompetence in school). The findings are in line with past empirical studies that highlighted the problematic environment of families (e.g., lack of cohesion, family rejection, and lack of acceptance) as a risk factor for individuals' burnout (Liao et al., 2013; Ma et al., 2021; Macalka et al., 2022). According to the most popular SD-R burnout approach, greater personal and school-related resources (organizational resources) can attenuate the stressful effects of high expectations for school achievement, because pupils are able to capitalize on them and thus can handle school demands without overtaxing themselves (Read et al., 2022). With regards to SD-R theory, the family may be considered as social capital that mitigates school-related distress and is a useful source of knowledge about coping strategies with daily school demands and obligations, though it is not the only environment that encompasses students' abilities and well-being. A longitudinal study conducted by Lindfors et al. (2017) did not confirm that family social capital measured with the level of parental monitoring of children's school activities predicts better academic achievement and lower school burnout. However, such a prediction was significant based on school social capital (the quality of peer-teacher interactions). Similarly, Yu et al. (2021) revealed that a significant association between school burnout and family capital (cohesion and adaptability) is indirect via peer support or psychological capital. As maintained by Lindfors et al. (2017) "all forms of capital at home, in the neighborhood, and in school settings may relate to each other and they each contribute to a child's well-being" (p. 379). In other words, the statistical insignificance of the main effects in our study when examining profiles separately may suggest that when facing adversities in the study, students adapt in various ways by activating different forms of resources (not only home) to figure out the best solutions for their specific learning difficulties and needs. Moreover, despite the fact that the quality of the family environment highly relates to family members' bonding, the interactions between parents and children are much more complex, especially when we consider such family capital domains as intimacy, conflicts, communication, emotional expression, independence, control, acceptance, etc. Thus, our results may suggest that family bonding may be crucial for some adolescents, for example, those with severe school burnout, but not so important for pupils struggling with specific symptoms of this syndrome, for example study exhaustion or cynicism.

Finally, in our study, gender interacts significantly with family bonds but only among students with severe (Uninterested in learning) and moderate school burnout (Incompetent). The findings suggest that girls who perceived their family relationships most negatively suffered more from school burnout symptoms. Possibly, family practices may be perceived as too demanding (i.e., high academic expectations accompanied by low emotional support), because parents do not encourage young girls to believe in their educational abilities and at the same time overestimate the meaning of school failures. As a result, school starts to be perceived in a negative manner, where teachers and classmates remind students about their inadequacies. In this regard, recently published studies by Lavrijsen et al. (2023)

confirmed that adolescents who based their self-worth on parental or teacher contingency (self-esteem built on an affection granted conditionally on student achievement) are more susceptible to school burnout. Our studies are consistent with this notion and suggest that negative environmental factors may create an upward spiral where school and home are sources of distress, jeopardizing healthy educational development. Notably, although researchers have consistently shown significant associations between gender and student burnout, several studies failed to observe such a relationship in considering the dimensions of burnout. For example, females scored higher in exhaustion and a sense of inadequacy but not in cynicism compared to males, in studies conducted by Salmela-Aro and Read (2017) or Asikainen et al. (2022). More recently Fiorilli et al. (2022) found that female university students presented higher exhaustion, cognitive impairment, and emotional impairment. Our findings suggest that gender may be overestimated as a key dimension when burnout is analyzed from specific students' perspectives. In addition, we evidenced that female students may be more vulnerable to family contextual factors associated with school burnout, but mostly when they suffer from severe levels of school burnout or when it affects their self-beliefs on school competencies. This is consistent with the findings referenced earlier by Read et al. (2022), and Lavrijsen et al. (2023), and extends this by pointing to the need for in-depth analysis focused on specific patterns of experiencing school burnout.

Study Limitations

One of the main limitations of this study is its scope and sample. By focusing exclusively on Polish late teenagers, the results may not be fully representative of other cultural groups or developmental stages. Such sample specificity may limit the ability to generalize the results to other populations. In addition, the method of measuring the quality of family ties with a single question may not capture the full complexity and dynamics of family relationships. A self-report questionnaire, despite its value, may also be prone to errors related to the subjectivity of responses and the social desirability effect, which may affect the reliability of the data collected. The second limitation relates to the methodology and data analysis used. The use of latent profile analysis (LPA) to identify patterns of school burnout is innovative but also comes with some caveats. Decisions about the number of profiles based on statistical criteria may not always reflect significant behavioral or psychological differences. There is also a risk that significant moderator or mediator variables may have been omitted, which could affect understanding of the mechanisms underlying school burnout and the quality of family ties.

Conclusions

The study has provided valuable insights into the profiles of school burnout among Polish late teenagers, highlighting the significant role played by family

ties in this context. The identified profiles of school burnout – ranging from those showing high levels of symptoms to those with low levels – indicate the complexity and multidimensionality of the phenomenon. The results confirm that negative parental ties may be a risk factor for the development of school burnout, especially in girls, who appear to be less resilient to adverse family environment condition. This underscores the importance of creating a positive family climate at every stage of education, especially among the young female population. Moreover, the significant interactions between demographic characteristics and family ties, in the context of predicting school burnout, provide evidence of the complex dynamics affecting this phenomenon and its polyetiology. These findings point to the need for further research that could explore other potential moderator and mediator variables, such as parenting style, peer support, and school factors. In light of these findings, interventions aimed at reducing school burnout should consider a wide range of factors, including parental support and coping strategies, to be most effective.

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