THE ROLE OF STUDY PASSION IN THE SUBJECTIVE VITALITY, ACADEMIC BURNOUT AND STRESS: THE PERSON-ORIENTED APPROACH AND LATENT PROFILE ANALYSIS OF STUDY PASSION GROUPS

Rola pasji studiowania a subiektywna witalność, wypalenie akademickie i stres: podejście skoncentrowane na osobach i analiza profili latentnych pasji studiowania

Karolina Mudło-Głagolska*
Uniwersytet Kazimierza Wielkiego w Bydgoszczy
e-mail: mudlo@ukw.edu.pl
ORCID 0000-0001-8079-3781

Paweł Larionow
Uniwersytet Kazimierza Wielkiego w Bydgoszczy
e-mail: pavel@ukw.edu.pl
ORCID 0000-0002-4911-3984

Abstract

The dualistic model of passion suggests that harmonious passion and obsessive passion play different roles in predicting individuals' functioning. Until now, in Poland, the person-oriented approach has rarely been used to describe passion. Moreover, no profiles have been analysed in the context of studying.

The study aimed to identify profiles of study passion and to compare academic functioning (i.e., subjective vitality, academic burnout and perceived stress) as a function of their passion profile. The Passion Scale, the Subjective Vitality Scale, the Perceived Stress Scale and the Oldenburg Burnout Inventory adapted to assess academic burnout were used. In a sample of 272 university students (82.35% of females) with mean age of 21.68 years old (SD = 4.79), the results of latent profiles analysis showed the presence of three study passion profiles: 1) high (high harmonious passion and high obsessive passion), 2) optimal (high harmonious passion and low obsessive passion), 3) low (low harmonious passion and low obsessive passion). Overall, students with high passion levels (high and optimal profiles) reported the most positive academic functioning indicators, whereas students with a low profile showed the worst levels of academic functioning. The presented research emphasizes the benefits of identifying study passion profiles in a group of students while assessing their academic functioning.

Keywords: academic burnout, latent profile analysis, perceived stress, person-oriented approach, study passion, subjective vitality.

* Corresponding author.

Streszczenie

Zgodnie z dualistycznym modelem pasja harmonijna i pasja obsesyjna odgrywają różne role w przewidywaniu funkcjonowania jednostek. Do tej pory w Polsce do opisu pasji rzadko stosowano podejście skoncentrowane na osobach. Ponadto nie analizowano profili w kontekście studiowania.

Badanie miało na celu identyfikację profili pasji studiowania i porównanie funkcjonowania akademickiego (tj. subiektywnej witalności, wypalenia akademickiego i odczuwanego stresu) jako funkcji profilu pasji. Zastosowano *Skalę pasji*, *Skalę subiektywnej witalności*, *Skalę odczuwanego stresu* oraz *Oldenburski kwestionariusz wypalenia zawodowego* dostosowany do oceny wypalenia akademickiego. W próbie 272 studentów (82,35% kobiet) o średniej wieku 21,68 lat (*SD* = 4,79) wyniki analizy profili latentnych wykazały obecność trzech profili pasji studiowania: 1) wysokiego (wysoka harmonijna pasja i wysoka pasja obsesyjna), 2) optymalnego (wysoka pasja harmonijna i niska pasja obsesyjna), 3) niskiego (niska pasja harmonijna i niska pasja obsesyjna). Studenci z wysokim wynikiem pasji (profile wysoki i optymalny) charakteryzowali się najbardziej pozytywnymi wskaźnikami funkcjonowania akademickiego, podczas gdy studenci z niskiego profilu wykazywali najgorszy poziom funkcjonowania akademickiego. W prezentowanych badaniach podkreślono korzyści płynące z identyfikacji profili pasji studiowania w ocenie funkcjonowania akademickiego studentów.

Słowa kluczowe: wypalenie akademickie, analiza profili latentnych, odczuwany stres, podejście skoncentrowane na osobach, pasja studiowania, subiektywna witalność.

Introduction

Mental health is important for students' learning and academic success. According to the "Mental Health at Polish Universities" report, prepared by the Polish Patient Ombudsman (2020), students struggle with low self-esteem, stress, suicidal thoughts, anxiety disorders, depression, adaptation problems or personality disorders. The COVID-19 pandemic also negatively affected mental health. For example, almost 20% of Polish respondents were characterized by a severe or extremely severe level of stress, anxiety, or depressive symptoms and every seventh respondent reported an extremely severe level of depressive symptoms at the first wave of the COVID-19 pandemic (Larionow & Mudło-Głagolska, 2022). Recent studies conducted from February to July 2022 have shown that younger people at student age (especially non-binary, females aged 18–29) experienced more anxiety and depressive symptoms than older ones, and more than half of females and males in three age groups (aged 18–29, 30–44, and 45–59) were screened positively for anxiety and/or depression (Larionow & Mudło--Głagolska, 2023).

The analysis of student functioning indicators, such as stress and academic burnout, in Polish empirical studies on the ground have concerned mainly the population of medical students. It was shown that almost half of medical students experienced high stress levels (Bodys-Cupak et al., 2019). The features of burnout syndrome were present in 25% of medical students (Łoza, 2016).

In the British study, Evans et al. (2021) surveyed 259 students for depressive and anxiety symptoms, general well-being, alcohol consumption, and sleep quality. They took measurements in the fall of 2019, which was before the pandemic, and during the

first lockdown — in May/June 2020. During the COVID-19 pandemic, they noted an increase in the risk of developing depressive symptoms and a decrease in overall well-being. The depressive symptoms frequency more than doubled, from 14.9 to 34.7 percent (Evans et al., 2021).

These findings highlight the importance of monitoring student functioning, as well as multiple risks, along with looking for factors which will promote students' well-being. The importance of analysing both positive and negative students' well-being indicators is emphasized (Bélanger & Ratelle, 2021), which is consistent with the principles of positive psychology.

Academic functioning

Subjective vitality, which is defined as the conscious experience of having energy and liveliness (Ryan & Frederick, 1997), may be a positive indicator of student functioning. It is a phenomenological state that is theoretically related to the self-determination theory by Ryan and Deci (2017), which describes how and why people strive for psychological well-being and establish an identity consistent with their sense of self. Subjective vitality is a more emotional, biologically driven variable (Ryan & Frederick, 1997) compared to such variables as happiness or life satisfaction, which are related to cognitive appraisal of one's life. Individuals who have high subjective vitality report being more active and productive, demonstrate better coping behaviours, and experience more robust psychological health and well-being (Kawabata et al., 2017; Ryan & Frederick, 1997). Vansteenkiste and Ryan (2013) suggest that access to supporting basic psychological needs increases subjective vitality.

Academic burnout may be characterized as a negative indicator of student functioning. It is emphasized that the activities which students are involved in can be considered "work" (Schaufeli, Martinez et al., 2002). For example, they attend classes and engage in structured activities with specific goals (e.g., passing a course, obtaining a degree). Academic burnout is characterized by emotional exhaustion (i.e., feeling of exhaustion due to studying), cynicism (i.e., indifferent attitude toward studying), and disengagement (i.e., perceived lack of academic achievement; Schaufeli, Salanova, et al., 2002). Like the professional context, academic burnout symptoms have also been associated with several negative outcomes for students, including suicidal thoughts (Dyrbye et al., 2008, Ishak et al., 2013; Walburg, 2014), anxiety (Koeske & Koeske, 1991; Watson et al., 2008), and dropping out of school (Dyrbye et al., 2010). According to the study by Law (2007), undergraduate students' exhaustion levels were higher than those in traditional high burnout occupations (e.g., social or health services). Burnout was more common at the end of college than during the first year at work (Robins et al., 2018).

The perceived stress is the next negative indicator of student functioning that has been analysed. Średniawa et al. (2019) noted that high levels of stress occurred in 10% of Polish students. In contrast, in a study that was conducted during the COVID-19

pandemic, Rogowska et al. (2020) showed that the majority of students (65%) exhibited mild to severe anxiety levels and high stress levels (56%).

Study passion

Vallerand et al. (2003) defined passion as love for some activity or object that a person values highly and to which they devote time and effort. Furthermore, the object of passion is so important that it becomes a part of the person's identity. In a dualistic model of passion, Vallerand et al. (2003) postulated the two dimensions of passion, namely harmonious passion (HP) and obsessive passion (OP). HP is the result of self-determined motivation (autonomous internalization in Self-Determination Theory), whereas OP is the result of increasingly extrinsic non-self-determined motivation (controlled internalization; Deci & Ryan, 2000). Vallerand (2015) indicated that motivation in the case of HP is oriented toward the pleasure which comes from performing an activity and the beneficial consequences of the activity in the form of an increased sense of competence, self-efficacy, and good mood. Behavioural commitment is flexible in its nature.

The OP is associated with pressures arising from the need for social acceptance or self-esteem (Lafrenière et al., 2011). The engagement in an activity is rigid in nature. An obsessive passionate experience an uncontrollable need to engage in an activity that, like HP, is meaningful and enjoyable, but nevertheless they lose flexibility of action and control over the activity. Motivation in OP is instrumental, oriented towards maintaining a conditioned sense of self-esteem. Thus, an obsessive passionate engages in action with less openness, in a more defensive way. They also experience adverse situations like threatening to themselves more easily compared to a harmonious passionate (Vallerand, 2015).

In order to study passion, Vallerand et al. (2003) developed the Passion Scale, which consists of 17 statements, 6 each for HP and OP respectively, as well as 5 statements for passion criteria. Both passion dimensions are relatively orthogonal (independent). However, it is possible that both dimensions of passion are present in a person's identity, yet to different degrees (Vallerand, 2015). This has been confirmed in various studies (Marsh et al., 2013; Vallerand et al., 2003), including the Polish sample (Mudło--Głagolska, 2019b).

Using latent profile analysis, Bélanger and Ratelle (2021) identified several study passion profiles in a sample of university students: high (high HP and OP), medium-low (moderate HP and low OP), low (low HP and OP), and optimal (high HP and low OP). Examining study passion in a sample of Polish students, Zinczuk-Zielazna (2021) classified students into two groups, passionate and non-passionate for studying, based on the passion criteria score (value ≥ 5 on the Passion Scale by Vallerand et al. (2003)). The research showed that 56.2% of the participants had study passion and 43.8% did not meet the passion criteria.

Passion and its psychological correlates

Before looking into the psychological correlates of passion, it is worth mentioning that most research on passion so far has been on work passion. As there are only few studies on study passion, findings from studies on work passion are also presented.

Previous research has shown a positive relationship between HP and a negative one or no relationship between OP and the satisfaction with basic psychological needs (Houlfort et al., 2015; Mudło-Głagolska, 2019a), which, in turn, promotes experiencing subjective vitality (Vansteenkiste & Ryan, 2013). Research on passion has shown that increases in HP have been associated with increases in subjective vitality (Forest et al., 2011).

It was confirmed that HP was negatively related to job burnout, whereas OP was unrelated to that (Vallerand et al., 2010). Bélanger et al. (2015) and Lucidi et al. (2016) confirmed that HP was associated with lower perceived stress levels, while OP was associated with the higher ones. This may be since individuals with OP tend to evaluate themselves critically, which relates to the self-threat sensitivity (Lucidi et al., 2016). This, as a result, may promote a higher perceived stress level.

It was shown that HP was positively related to job control and job support in the workplace as well as to the perceived low levels of work overload (Lavigne et al., 2014). In contrast, OP was a predictor of the perceived work overload and was related to low levels of job control and job support (Lavigne et al., 2014).

Mudło-Głagolska (2022) examined the role of work passion in differentiating subjective vitality in the Polish sample. She found that passionate employees with high HP and average OP scored lower subjective vitality than passionate employees with high HP and low OP, but higher than employees with low scores on both passion dimensions (low HP and low OP). In another study, Mudło-Głagolska and Larionow (2021) analysed the relationships between two types of work passion and cognitive coping strategies used for dealing with the COVID-19 pandemic. These researchers demonstrated that HP was related to adaptive cognitive coping strategies (e.g., positive reappraisal, planning), whereas OP was associated with maladaptive cognitive coping strategies (catastrophizing, rumination), which resulted in lower or higher intensity of insomnia, depressive and anxiety symptoms, respectively. The results of these studies suggest that HP is related to adaptive coping with difficult situations and higher psychological well-being scores, whereas OP is associated with maladaptive coping, and it does not promote individual well-being.

Study passion and academic functioning

Research on negative indicators of student functioning has shown that study passion, regardless of its type, is a buffer against academic burnout (Stoeber et al., 2011). HP was negatively associated with all the burnout subscales, whereas OP was negatively associated with cynicism and ineffectiveness. Prospective analysis also showed that harmonious study passion was a predictor of lower cynicism and disengagement, whereas

obsessive one predicted lower disengagement (Stoeber et al., 2011). Saville et al. (2018) confirmed that students who had HP for their academic activities experienced less burnout than students with OP, who in turn experienced less burnout than students without any passion. Zhou (2021) showed in a sample of Chinese students that both HP and OP positively predicted academic thriving, one component of which was vitality, with the effect of HP being stronger.

As for the Polish context, the consequences of study passion were analysed by Zinczuk-Zielazna (2021). In her research, a positive relationship between HP and positive affect as well as its negative correlation with negative affect were discovered. A positive correlation of OP with positive affect was also reported. The association of HP with higher quality of both collegial and academic relationships was confirmed as well. Passionate students scored higher grades compared to non-passionate students (Zinchuk-Zielazna, 2021).

The studies cited above were correlational research, which used a variable-centred approach (Bergman & Magnusson, 1997). Therefore, they did not allow to consider the coexistence of both dimensions of passion in a person's identity. Thus, this type of analysis limits the ability to incorporate information about the coexistence of the passion dimensions and to predict the consequences of passion patterns. The person-centred approach used by Bélanger and Ratelle (2021) minimizes the indicated limitations. This is the only study on study passion by Bélanger and Ratelle (2021) that has used a person-centred approach so far. A lack of study passion has been shown to expose students to negative academic functioning. Students with low levels of HP and OP (low profile), i.e., no passion, showed the worst rates of academic functioning. This fact suggests that developing a study passion supports student functioning, especially if the passion is harmonious in its nature. HP, regardless of the OP score supported students' optimal functioning. Students with high scores of both HP and OP (high profile) reported the highest levels of engagement. Students with high indicators of HP and low ones of OP (optimal profile) reported the lowest levels of burnout. Most students who reported high HP scores showed academic engagement, satisfaction and high achievement in studies as well as low levels of academic burnout, and no intention to drop out of college (Bélanger & Ratelle, 2021).

The present study

Based on the above-mentioned findings, this study advanced our hypothesis. HP is associated with autonomous forms of motivation and flexible engagement in activities across life domains, it also promotes the satisfaction in basic psychological needs (Vallerand et al., 2003, 2010) Thus, it should be positively associated with subjective vitality as well as negatively associated with burnout or the experience of stress in its effect. OP, on the other hand, is associated with controlled forms of motivation and rigid commitment to activity (Vallerand et al., 2010). Therefore, it may enhance negative experiences, including burnout or stress, and minimize the positive ones, such as subjective vitality.

This study determines the role of HP and OP study passion in predicting positive and negative indicators of academic functioning using a person-centred approach. The first objective was to identify distinct study passion profiles. Based on previous research, it is predicted that:

1. Several passion profiles could be expected to be identified. This is because two passion dimensions may be combined in different ways within a person's identity (Vallerand, 2015).

2. Study passion profiles may range from the profile of people with no passion (low scores of both HP and OP), to the profile with optimal scores for the person (high scores of HP, low/average scores of OP), and the profile with high scores in both passion dimensions.

The next objective was to compare positive (i.e., subjective vitality) and negative indicators (i.e., academic burnout and perceived stress) of academic functioning according to students' passion profiles. Based on the previous findings, it is hypothesized that:

3. Students with high harmonious study passion scores will report higher subjective vitality levels as well as lower burnout or perceived stress indices compared to students with higher obsessive study passion scores or no passion.

Method

Participants and Procedure

A total of 272 students with the mean age of 21.68 years ($SD = 4.79$, $Me = 20.00$) participated in the study. The majority of the sample was female (82.35%). Most students surveyed (74.26%), are currently in their first year of college ($M = 1.29$, $SD = 0.80$, $Me = 1.00$). The sample mainly consisted of students majoring in the social sciences (i.e., psychology, education, social work, criminology and administration). The survey was conducted online. A message requesting participation in the survey was sent to students via email and the researchers' social media. The study was conducted from 18 November 2020 to 1 December 2021.

The present study was approved by the University Ethics Committee (No. 2/12.01.2021). All the students provided their written informed consent before they answered the questions. There was no reimbursement for the participants.

Measures

The Passion Scale (Marsh et al., 2013; Vallerand et al., 2003) adapted to examine study passion in the Polish adaptation by Mudło-Głagolska et al. (2019) was used to assess HP and OP in the field of studies. It consists of 12 items, by 6 for HP (e.g., 'Studying is in harmony with the other activities in my life') and OP (e.g., 'I am almost obsessed with studying'), respectively. The answers are given on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree).

The Subjective Vitality Scale by Ryan and Frederick (1997) in the Polish adaptation by Mudło-Głagolska (2020) was used. The scale consists of 5 statements, referring to the sense of energy or vitality (e.g., 'I feel full of life and vigor'). Responses were given on a 7-point Likert scale from 1 (not at all true) to 7 (very true).

The Oldenburg Burnout Inventory (OLBI) by Demerouti et al. (2003) in the Polish adaptation by Chirkowska-Smolak (2018) was used to assess student burnout. The OLBI measures the two dimensions of burnout: exhaustion and disengagement/cynicism. With the permission by the author of the Polish adaptation, it was modified into an OLBI version for students. The inventory consists of 16 statements (8 statements for measuring each dimension, e.g., exhaustion: 'During my studies, I often feel emotionally drained'; disengagement: 'It happens more and more often that I talk about my studies in a negative way'). Each subscale contains 4 positively worded and 4 negatively worded statements. The responses are scored on a 4-point Likert scale: from 1 (strongly agree) to 4 (strongly disagree).

The Perceived Stress Scale (PSS–10) developed by Cohen et al. (1983) and adapted by Juczyński and Ogińska-Bulik (2009) was used to assess perceived stress during the previous month. The scale contains 10 statements (e.g., 'How often were you upset because something unexpected happened during the last month?') rated on a 5-point scale from 0 (never) to 4 (very often).

Statistical Analysis

The latent profile analysis (LPA; Spurk et al., 2020) was used to identify the study passion profiles. Several fit indices were used to find the model specification and estimate the number of profiles. Bayesian Information Criterion (BIC) and Akaike's Information Criterion (AIC) were used to assess the fit (Tein et al., 2013). For BIC and AIC lower values indicate better fit (Masyn, 2013). Higher entropy values (quality of classification; range 0–1) show a better separation of profiles (Tein et al., 2013). A statistically significant Bootstrapped Likelihood Ratio Test (BLRT) indicated that the current model has a better fit than the model with k-1 profiles (Masyn, 2013). Models with profiles containing less than 5% of the sample were rejected.

The LPA was conducted using the *tidyLPA* and *dplyr* packages in the R software version 3.6.1. The estimates of the profiles were obtained using *get_estimates* function. The *plot-profile* function was used to present the profiles graphically.

The selected groups of passionate people were compared considering the results on subjective vitality, burnout, and perceived stress. For this purpose, the Kruskal–Wallis's test was performed first, and then a series of non-parametric U Mann–Whitney tests. The Bonferroni correction was applied for multiple comparisons. The effect size was calculated and transformed to Cohen's d statistics using the Psychometrica calculator (Lenhard, & Lenhard, 2016). Harman's single-factor test was performed to assess the common method bias (Razmus & Mielniczuk, 2018).

Results

Harman's single factor test proved that there was no common method bias (one factor explained 38.25% of the explained variance).

Preliminary Analyses

The reliability of all the questionnaires used was high (Cronbach's alpha > 0.70). The analysed variables (HP and OP, disengagement and exhaustion, perceived stress, and subjective vitality) were reasonably normally distributed (maximum skewness = –1.18, maximum kurtosis = 2.28).

Based on the Polish group norms (Juczyński & Ogińska-Bulik, 2009), the results of perceived stress were analysed with respect to the sten scale. It was noted that in the study sample 10.29% of students achieved low perceived stress scores (stens 1–4), followed by 20% of average results (stens 5–6), and 64.71% of indices were high (stens 7–10).

We analysed whether women and men differed in the study variables. A difference was found in the disengagement, but at the limit of significance (woman: $M = 2.40$, $SD = 0.42$, men: $M = 2.54$, $SD = 0.52$; t(df = 270) = 2.00, $p = 0.046$, $d = 0.25$). As for the scores of HP and OP, subjective vitality, exhaustion, and perceived stress, there were no significant differences.

Descriptive statistics for the analysed variables and the relationship values between them are presented in Table 1. The analysis revealed that HP was positively related to subjective vitality and negatively related to the two dimensions of burnout and stress, whereas OP was weakly positively related to stress and negatively related to disengagement. HP and OP were weakly correlated with each other, highlighting previous patterns about the relative orthogonality of these two passion dimensions.

Table 1

The Pearson correlations between the analysed variables

	HP	OP	SV	D	E	PS
OP	0.291***					
SV	0.428***	0.071				
D	−0.675***	−0.267***	−0.270***			
E	−0.528***	0.020	−0.419***	0.533***		
PS	−0.362***	0.149*	−0.450***	0.351***	0.547***	
M	4.94	2.91	3.99	2.43	2.69	2.23
SD	1.02	0.97	1.27	0.44	0.49	0.69
Skewness	−1.18	0.68	−0.14	0.66	0.45	−0.04
Kurtosis	2.28	0.45	−0.35	0.67	0.05	−0.18
Cronbach's alpha (α)	0.85	0.72	0.86	0.72	0.83	0.87

Note. HP – harmonious passion, OP – obsessive passion, SV – subjective vitality,
D – disengagement, E – exhaustion, PS – perceived stress.

Latent profile analysis

Table 2 presents the LPA results for solutions featuring from 1 to 5 profiles. The best AIC, BIC, and entropy indicators were obtained in the case of the third profile. The goodness of fit between the model and the data was significant with *p*-value less than 0.05 at 0.01 of the estimand BLRT_*p*-value.

Table 2

*Summary of model 1 and model 6 specifications*

Model	Classes	AIC	BIC	Entropy	prob_min	prob_max	n_min	n_max	BLRT_*p*
	1	1543.54	1557.97	1.00	1.00	1.00	1.00	1.00	-
	2	1514.51	1539.75	0.78	0.73	0.98	0.14	0.86	0.01
1	**3**	**1458.74**	**1494.80**	**0.84**	**0.77**	**0.97**	**0.06**	**0.82**	**0.01**
	4	1464.72	1511.60	0.52	0.07	0.92	0.04	0.76	0.83
	5	1459.62	1517.31	0.65	0.64	0.94	0.03	0.50	0.02
6	3	1459.69	1520.99	0.70	0.58	0.96	0.09	0.79	0.01
	4	1462.85	1545.78	0.55	0.51	0.87	0.10	0.58	0.51

Note. AIC — The Akaike information criterion, BIC — The Bayesian information criterion, prob_min — minimum of the diagonal of the average latent class probabilities for most likely class membership, by assigned class, prob_max — maximum of the diagonal of the average latent class probabilities for most likely class membership, by assigned class, *n*_min — proportion of the sample assigned to the smallest class, *n*_max — proportion of the sample assigned to the largest class, BLRT_*p* — *p*-value for the Bootstrapped Likelihood Ratio Test (Rosenberg et al., 2018).

The entropy result was lower, whereas the AIC and BIC were higher in model 6 compared to model 1, which confirms a better fit of model 1. Thus, all the estimates of the least strict (model 1) and the strictest (model 6) model specifications, show that the number of estimated classes or profiles for these data is 3 (Fig. 1).

The obtained passion profiles can be described as: 1) high ($N = 16$; high HP score: $M = 5.71$; high OP score: $M = 4.68$), 2) optimal ($N = 223$; high HP score: $M = 5.01$; low OP score: $M = 2.72$), low/non-passionate ($N = 33$ low HP score: $M = 2.43$; low OP score: $M = 1.94$), which have a variance equal 0.592 for HP and 0.464 for OP.

Figure 1

Latent profiles of study passion
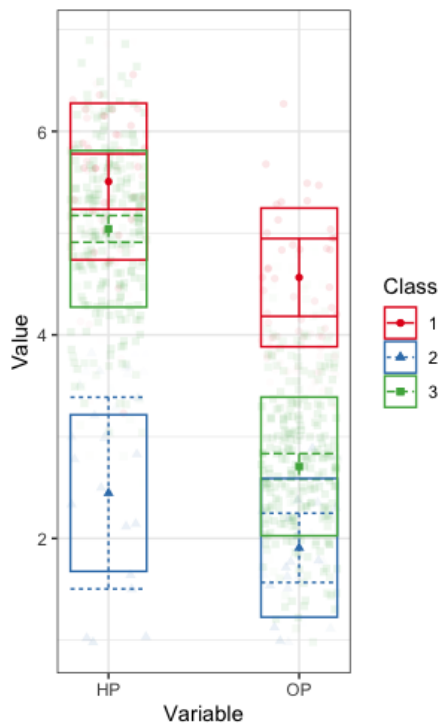
Source: own elaboration.

Comparison of academic functioning across the study passion profiles

It was reported that students with different profiles differed significantly in their scores on subjective vitality ($H(2, N = 272) = 10.12$, $p = 0.006$, $d = 0.353$), disengagement ($H(2, N = 272) = 34.41$, $p < 0.001$, $d = 0.74$), exhaustion ($H(2, N = 272) = 13.14$, $p = 0.001$, $d = 0.416$), and perceived stress ($H(2, N = 272) = 8.84$, $p = 0.012$, $d = 0.323$).

A new significance level of $p < 0.0167$ was adopted due to the comparison of three groups in post hoc analysis. The post-hoc analysis by Mann–Whitney U test with Bonferroni correction revealed that passionate students with a high profile (high scores on both passion dimensions), scored significantly higher on subjective vitality (U(N_{high} = 33, Nlow = 16) = 134, z = 2.76, p = 0.006, d = 1.206) and but did significantly lower on disengagement (U(N_{high} = 33, N_{low} = 16) = 29, z = –4.99, $p < 0.001$, d = 1.979) and exhaustion (U(N_{high} = 33, N_{low} = 16) = 111, z = –3.25, p = 0.001, d = 0.946) compared to students in with the low profile (low scores on both passion dimensions). High profile students also demonstrated, and a lower disengagement score (U(N_{high}= 33, $N_{optimal}$ = 223) = 2628, z = –2.65, p = 0.008, d = 0.337) than in the optimal profile (high HP score and low OP score). Students in with the low profile showed higher scores on such subscales of as disengagement (U(N_{low}= 16, $N_{optimal}$ = 223) = 419, z = 5.11, $p < 0.001$, d = 0.700), exhaustion (U(N_{low}= 16, $N_{optimal}$ = 223) = 889.5, z = 3.35, p = 0.001, d = 0.444), perceived stress (U(N_{low}= 16, $N_{optimal}$ = 223) = 1135.5, z = 2.43, p = 0.015, d = 0.318), and lower subjective vitality (U(N_{low} = 16, $N_{optimal}$ = 223) = 957.5, z = –3.09, p = 0.002, d = 0.409) compared to students with the optimal profile. A synthetic summary on the mean results of the examined variables is presented in Table 3.

Table 3

Comparison of academic functioning scores across the three profiles

	High (high HP and OP) N = 33		Optimal (high HP and low OP) N = 223		Low (low HP and OP) N = 16		Significant differences
	M	*SD*	*M*	*SD*	*M*	*SD*	
Subjective vitality	4.14	1.28	4.05	1.22	2.84	1.48	High > Low, Optimal > Low
Dis-engagement	2.22	0.36	2.41	0.41	3.13	0.44	High < Low, High < Optimal, Optimal < Low
Exhaustion	2.56	0.45	2.67	0.46	3.21	0.63	High < Low, Optimal < Low
Perceived stress	2.39	0.70	2.17	0.70	2.61	0.77	Optimal < Low

Figure 2 presents the mean results of analysed variable depending on study passion profile.

Figure 2
Mean results of the analysed variables in study passion profiles
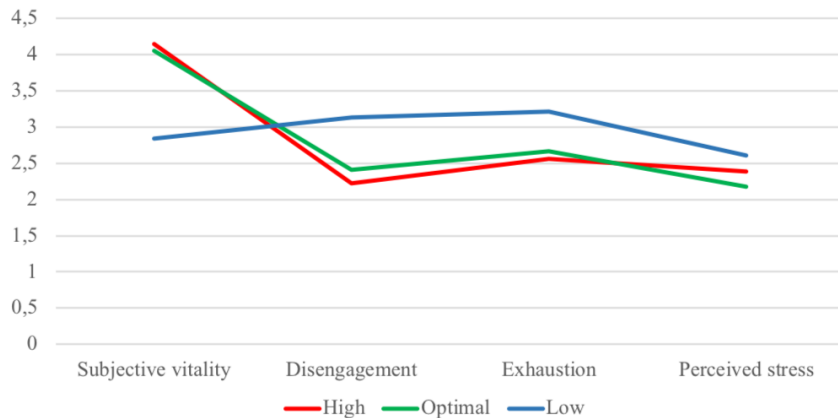
Source: own elaboration.

Discussion

The present study is one of the first to assess subjective vitality, academic burnout, and stress in a sample that varied by field of study. So far, the focus has been mainly on medical students. The purpose of the current study was to identify distinct study passion profiles and to compare positive (i.e., subjective vitality) and negative (i.e., academic burnout and perceived stress) indicators of academic functioning in relation to students' passion profiles.

Assessing the students' stress level before COVID-19 pandemic in 2017, Śred-niawa et al. (2019) reported a low level of stress in 57% of students, a moderate level in 33% of them and a high level of stress in 10% of respondents. Thus, there is a sharp increase in the prevalence of high stress levels among students in the current study compared to the research findings by Średniawa et al. (2019). This is most likely the result of the COVID-19 pandemic.

Using a person-centred approach, this study identified distinct study passion profiles and compared academic functioning according to students' passion profiles. Using latent profile analysis, three study passion profiles were identified: 1) high (high HP score and high OP score), 2) optimal (high HP score and low OP score), 3) Low/non-passionate (low HP score and low OP score). The hypothesis that several distinct passion profiles exist was supported.

The analysis did not distinguish a profile with high OP and low HP. This is consistent with results obtained in previous studies in both studying (Bélanger & Ratelle,

2021) and working areas (Mudło-Głagolska, 2022). The situation in which OP in the area of work and study is nominally dominant over HP whereas passion criteria are met is quite rare (Mudło-Głagolska, 2019a, 2019b).

In comparison with the results by Bélanger and Ratelle (2021), the profile with an average HP score and a low OP score was not distinguished. Comparing the percentage of cases in the low and high profiles, similar results were obtained. The group with low scores on both passion dimensions in the current study accounted for 6% of the total sample and the group with high scores accounted for 12%, compared to 7% and 11% respectively in the study by Bélanger and Ratelle (2021). The lack of distinction between optimal and moderate-low profiles (average HP score, low OP score) in the present study may be related to the sample size, which was smaller than in the previous studies.

Based on the results obtained and the demonstrated limited role of OP, it would seem most appropriate to use a solution with two profiles — people with passion and people without passion (Zinczuk-Zielazna, 2021). However, in the latent profiles analysis, this solution was not supported. Profiles with high scores in both passion dimensions and with high scores on HP and low OP are obtained. Based on previous analyses, it seems necessary to include a profile with low scores on both passion dimensions because of its significant explanatory power. Furthermore, it has been included in two of the three studies so far using latent profile analysis (Bélanger & Ratelle, 2021; Mudło-Głagolska, 2022 vs. Li et al., 2019). While two of the three studies using latent profile analysis did not distinguish profiles with a dominant OP score (Bélanger & Ratelle, 2021; $N = 482$; Mudło-Głagolska, 2022; $N = 522$), one did (Li et al., 2019; $N = 2749$ in total). It is conceivable that it may not have emerged in less numerous samples.

The hypothesis regarding differences in indicators of academic functioning according to passion profiles can be partially supported. Overall, in terms of academic functioning indicators, the worst scores, i.e., the ones on low subjective vitality, high burnout and perceived stress, were obtained by students without passion if to compare them with students having dominant HP and high scores in both dimensions. Rather, this suggests a disruptive role of OP towards HP (i.e., OP weakens the positive impact of HP), which is consistent with the results by Kasprzak and Mudło-Głagolska's (2022) study conducted in groups of teachers.

No significant difference in the stress perceived scores was found between the high and low profiles, which in turn highlights that a high OP score promotes a negative perception of conditions (Lavigne et al., 2014). A significant difference was noted between the optimal and low profiles; however, due to the significant sample size discrepancy, this result should also be interpreted with caution.

The impact of OP is minimized by HP. Depending on the sample studied, the relationship between the two passion dimensions varies (from no relationship, e.g., Mudło-Głagolska, 2019a, to average relationship, e.g., Kasprzak & Mudło-Głagolska, 2022).

We assume that a comparative analysis, for example, between people presenting risky behaviours who generally have high scores on OP (Mudło-Głagolska et al., 2019, Sample 7, 8; Vallerand et al., 2003, Study 3, 4) and people without these behaviours, is required. It could confirm the significant impact of OP on well-being indicators since a strong OP effect is observed in people presenting risky behaviours (Mudło-Głagolska, et al., 2019).

A previous study by Mudło-Głagolska (2019a) found no linear relationship between obsessive work passion and chronic fatigue indices. When comparing harmonious and obsessive passionate workers, obsessive passionate workers scored the worse. Considering the results of previous studies and the current study, it can be hypothesized that the positive indicators of functioning with high HP are rather independent of the OP score. This is consistent with the results of a study that examined the importance of several passions for well-being (Mudło-Głagolska, in review). It has been shown that when a person has one passion with a dominant HP, and another one with a dominant OP, they have significantly higher subjective vitality scores than those with one OP, and nominally lower scores for depression, anxiety, and social dysfunction. However, this hypothesis should be treated with caution due to the small sample size, which is related to the fact that both passion patterns are rather rare in the study populations. Moreover, it should be emphasized that OP in non-clinical samples tends to interfere with the positive effects of HP (Mudło-Głagolska, in review).

The current findings can make a significant contribution to educational interventions. Given protective role of HP, students should benefit from interventions that support the development of this type of passion for studying. Career counsellors using the Passion Scale can help students identify what is important to them so they can make career choices that reflect their true sense of self.

Limitations and strengths of the study

The study conducted is not free of limitations. Firstly, the sample used was relatively small. Secondly, the sample was predominantly female and of first-year students. Therefore, the obtained results should not be generalized. Replications with more numerous samples are necessary. Thirdly, this is a cross-sectional study, therefore no conclusions can be drawn regarding the temporal order of the study passion and subjective vitality, stress or burnout. Finally, the study was conducted during the COVID-19 pandemic, for this reason the students could have more mental health problems than in previous years.

The presented study is one of the first studies in the world in which the profiles of study passion were analysed. So far, research on academic functioning has mainly focused on medical students, so this is one of the few studies on non-medical students. Future research may focus on the predictors of specific passion profiles and the differential role of study passion for academic functioning by discipline or a field of study. Research on passion profiles should be expanded to include analyses of leisure time passions.

Conclusion

The presented study emphasized the advantages of extracting the profiles of study passion in a group of students while assessing academic functioning, including the results of subjective vitality, burnout, and perceived stress. It has been reported that the results indicating the worst academic functioning within the analysed variables were obtained by students with low scores in both passion dimensions, and the best ones were shown by students with high scores. The results obtained can be a starting point for exploring other consequences of passion profiles in different fields of psychology.

REFERENCES

1. Bélanger, C., & Ratelle, C.F. (2021). Passion in university: The role of the dualistic model of passion in explaining students' academic functioning. *Journal of Happiness Studies*, *22*(5), 2031–2050. https://doi.org/10.1007/s10902-020-00304-x.
2. Bélanger, J.J., Pierro, A., Kruglanski, A.W., Vallerand, R.J., De Carlo, N., & Falco, A. (2015). On feeling good at work: The role of regulatory mode and passion in psychological adjustment. *Journal of Applied Social Psychology*, *45*(6), 319–329. https://doi.org/10.1111/jasp.12298.
3. Bergman, L.R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and Psychopathology*, *9*(2), 291–319. https://doi.org/10.1017/S095457949700206X.
4. Bodys-Cupak, I., Grochowska, A., Zalewska-Puchała, J., & Majda, A. (2019). Stress and coping strategies of medical students during their first clinical practice – A pilot study. *Medical Studies/Studia Medyczne*, *35*(4), 294–303. https://doi.org/10.5114/ms.2019.91247.
5. Chirkowska-Smolak, T. (2018). Polska adaptacja kwestionariusza do pomiaru wypalenia zawodowego OLBI (The Oldenburg Burnout Inventory). *Studia Oeconomica Posnaniensia*, *6*(3), 27–47. https://doi.org/10.18559/SOEP.2018.3.2.
6. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. https://doi.org/10.2307/2136404.
7. Deci, E.L., & Ryan, R.M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01.
8. Demerouti, E., Bakker, A.B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment*, *19*(1), 12–23. https://doi.org/10.1027/1015-5759.19.1.12.
9. Dyrbye, L.N., Thomas, M.R., Massie, F.S.Jr., Power, D.V., Eacker, A., Harper, W., Durning, S., Moutier, C., Szydlo, D.W., Novotny, P.J., Sloan, J.A., Shanafelt, T.D., & Tait, D. (2008). Burnout and suicidal ideation among US medical students. *Annals of Internal Medicine*, *149*(5), 334–341. https://doi.org/10.7326/0003-4819-149-5-200809020-00008.
10. Dyrbye, L.N., Thomas, M.R., Power, D.V., Durning, S., Moutier, C., Massie, F.S.Jr., Harper, W., Eacker, A., Szydlo, D.W., Sloan, J.A., & Shanafelt, T.D. (2010). Burnout and serious thoughts of dropping out of medical school: A multi-institutional study. *Academic Medicine: Journal of the Association of American Medical Colleges*, *85*(1), 94–102. https://doi.org/10.1097/ACM.0b013e3181c46aad.

11. Evans, S., Alkan, E., Bhangoo, J.K., Tenenbaum, H., & Ng-Knight, T. (2021). Effects of the COVID-19 lockdown on mental health, wellbeing, sleep, and alcohol use in a UK student sample. *Psychiatry Research*, *298*, 113819. https://doi.org/10.1016/j.psychres.2021.113819.

12. Forest, J., Mageau, G.A., Crevier-Braud, L., Bergeron, É., Dubreuil, P., & Lavigne, G.L. (2012). Harmonious passion as an explanation of the relation between signature strengths' use and well-being at work: Test of an intervention program. *Human Relations*, *65*(9), 1233–1252. https://doi.org/10.1177/0018726711433134.

13. Forest, J., Mageau, G.A., Sarrazin, C., & Morin, E.M. (2011). "Work is my passion": The different affective, behavioural, and cognitive consequences of harmonious and obsessive passion toward work. *Canadian Journal of Administrative Sciences* / *Revue Canadienne Des Sciences De l'Administration*, *28*(1), 27–40. https://doi.org/10.1002/CJAS.170.

14. Houlfort, N., Fernet, C., Vallerand, R.J., Laframboise, A., Guay, F., & Koestner, R. (2015). The role of passion for work and need satisfaction in psychological adjustment to retirement. *Journal of Vocational Behavior*, *88*, 84–94. https://doi.org/10.1016/j.jvb.2015.02.005.

15. Ishak, W., Nikravesh, R., Lederer, S., Perry, R., Ogunyemi, D., & Bernstein, C. (2013). Burnout in medical students: A systematic review. *The Clinical Teacher*, *10*(4), 242–245. https://doi.org/10.1111/tct.12014.

16. Juczyński, Z., Ogińska-Bulik, N. (2009). *Narzędzia pomiaru stresu i radzenia sobie ze stresem*. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

17. Kasprzak, E., & Mudło-Głagolska, K. (2022). Teachers' well-being forced to work from home due to COVID-19 pandemic: Work passion as a mediator. *International Journal of Environmental Research and Public Health*, *19*(22), 15095. https://doi.org/10.3390/ijerph192215095.

18. Kawabata, M., Yamazaki, F., Guo, D.W., & Chatzisarantis, N. (2017). Advancement of the Subjective Vitality Scale: Examination of alternative measurement models for Japanese and Singaporeans. *Scandinavian Journal of Medicine & Science in Sports*, *27*(12), 1793–1800. https://doi.org/10.1111/sms.12760

19. Koeske, G.F., & Koeske, R.D. (1991). Student "burnout" as a mediator of the stress-outcome relationship. *Research in Higher Education*, *32*(4), 415–431. https://doi.org/10.1007/BF00992184.

20. Kruglanski, A.W., Thompson, E.P., Higgins, E.T., Atash, M.N., Pierro, A., Shah, J.Y., & Spiegel, S. (2000). To "do the right thing" or to "just do it": Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology*, *79*(5), 793–815. https://doi.org/10.1037/0022-3514.79.5.793.

21. Lafrenière, M.-A.K., Bélanger, J.J., Sedikides, C., & Vallerand, R.J. (2011). Self-esteem and passion for activities. *Personality and Individual Differences*, *51*(4), 541–544. https://doi.org/10.1016/j.paid.2011.04.017.

22. Larionow, P., & Mudło-Głagolska, K. (2022). Mental health risk factors during the COVID-19 pandemic in the Polish population. *Psychiatria*, *19*(2), 89–108. https://doi.org/10.5603/PSYCH.a2021.0041.

23. Larionow, P., & Mudło-Głagolska, K. (2023). The Patient Health Questionnaire-4: Factor structure, measurement invariance, latent profile analysis of anxiety and depressive symptoms and screening results in Polish adults. *Advances in Cognitive Psychology*, *19*(2), 123–137. https://doi.org/10.5709/acp-0384-9.

24. Lavigne, G.L., Forest, J., Fernet, C., & Crevier-Braud, L. (2014). Passion at work and workers' evaluations of job demands and resources: A longitudinal study. *Journal of Applied Social Psychology*, *44*(4), 255–265. https://doi.org/10.1111/jasp.12209.

25. Law, D.W. (2007). Exhaustion in university students and the effect of coursework involvement. *Journal of American College Health*, *55*, 239–245. https://doi.org/10.3200/JACH.55.4.239-245.

26. Lenhard, W., & Lenhard, A. (2016). Computation of effect sizes. https://www.psychometrica.de/effect_size.html.

27. Li, J., Zhang, J., Shao, B., & Chen, C. (2019). A latent profile analysis of work passion: Structure, antecedent, and outcomes. *Personnel Review*, *49*(3), 846–863. https://doi.org/10.1108/PR-04-2019-0145.

28. Lucidi, F., Pica, G., Mallia, L., Castrucci, E., Manganelli, S., Bélanger, J.J., & Pierro, A. (2016). Running away from stress: How regulatory modes prospectively affect athletes' stress through passion. *Scandinavian Journal of Medicine & Science in Sports*, *26*(6), 703–711. https://doi.org/10.1111/sms.12496.

29. Łoza, O. (2016). Zespół wypalenia wśród studentów medycyny – prospektywne badania roczne. *Psychiatria*, *13*(4), 224–228.

30. Marsh, H.W., Vallerand, R.J., Lafrenière, M.-A.K., Parker, P., Morin, A.J., Carbonneau, N., Jowett, S., Bureau, J.S., Fernet, C., Guay, F., Salah Abduljabbar, A., & Paquet, Y. (2013). Passion: Does one scale fit all? Construct validity of two-factor passion scale and psychometric invariance over different activities and languages. *Psychological Assessment*, *25*, 796–809. https://doi.org/10.1037/a0032573 .

31. Masyn, K.E. (2013). Latent class analysis and finite mixture modeling. In: T. Little (Eds.), *The Oxford handbook of quantitative methods* (551–611). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199934898.013.0025.

32. Mudło-Głagolska, K. (2019a). Czy pasja męczy? Podstawowe potrzeby psychologiczne jako mediator związku pasji pracy i zmęczenia przewlekłego nauczycieli. *Edukacja*, *151*(4), 22–37. https://doi.org/10.24131/3724.190402.

33. Mudło-Głagolska, K. (2019b). Charakterystyka pasji a okres rozwoju człowieka – badania poprzeczne. *Psychologia Rozwojowa*, *24*(4), 71–82. https://doi.org/10.4467/20843879PR.19.023.11729.

34. Mudło-Głagolska, K. (2020). Polska adaptacja narzędzia do badania subiektywnej witalności w ujęciu Ryana i Frederick. *Studia Psychologica: Theoria et Praxis*, *20*(1), 21–40. https://doi.org/10.21697/sp.2020.20.1.02.

35. Mudło-Głagolska, K. (2022). Latent profile analysis of passion for work and its relationship with psychological well-being. *Medycyna Pracy*, *73*(4), 315–323.

36. Mudło-Głagolska, K. (in review). *Is work passion sufficient? The impact of having multiple passions on psychological well-being*.

37. Mudło-Głagolska, & K., Larionow, P. (2021). The role of harmonious and obsessive work passion and mental health in professionally active people during the COVID-19 pandemic in Poland: The mediating role of the cognitive coping strategies. *Colloquium*, *13*(3), 117–133. https://doi.org/10.34813/28coll2021.

38. Patient Rights Ombudsman. (2020). *Mental health at Polish universities. The report of the Patient's Rights Ombudsman.* https://www.gov.pl/web/rpp/zdrowie-psychiczne-na-polskich-uczelniach---raport-rzecznika-praw-pacjenta.

39. Razmus, W., & Mielniczuk, E. (2018). Błąd wspólnej metody w badaniach psychologicznych. *Polskie Forum Psychologiczne*, *23*(2), 277−290. https://doi.org/10.14656/PFP20180204.

40. Robins, T.G., Roberts, R.M., & Sarris, A. (2018). The role of student burnout in predicting future burnout: Exploring the transition from university to the workplace. *Higher Education Research & Development, 37*(1), 115–130. https://doi.org/10.1080/07294360.2017.1344827.

41. Rogowska, A.M., Kuśnierz, C., & Bokszczanin, A. (2020). Examining anxiety, life satisfaction, general health, stress and coping styles during COVID-19 pandemic

in Polish sample of university students. *Psychology Research and Behavior Management*, *13*, 797–811. https://doi.org/10.2147/PRBM.S266511.

42. Rosenberg, J.M., van Lissa, C.J., Beymer, P.N., Anderson, D.J., Schell, M.J., & Schmidt, J.A. (2018). tidyLPA: An R package to easily carry out Latent Profile Analysis (LPA) using open-source or commercial software. *Journal of Open Source Software*, *3*(30), 978. https://doi.org/10.21105/joss.00978.

43. Ryan, R.M., & Deci, E.L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* The Guilford Press. tps://doi.org/10.1521/978.14625/28806.

44. Ryan, R.M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, *65*(3), 529–565. https://doi.org/10.1111/j.1467-6494.1997.tb00326.x.

45. Saville, B.K., Bureau, A., Eckenrode, C., & Maley, M. (2018). Passion and burnout in college students. *College Student Journal*, *52*(1), 105–117. https://link.gale.com/apps/doc/A532386790/AONE?u=anon~349f8fd1&sid=google-Scholar&xid=2d4830b9.

46. Schaufeli, W., Salanova, M., Gonzalez-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, *3*, 71–92. https://doi.org/10.1023/A:1015630930326.

47. Schaufeli, W.B., Martínez, I.M., Pinto, A.M., Salanova, M., & Bakker, A.B. (2002). Burnout and Engagement in University Students: A Cross-National Study. *Journal of Cross-Cultural Psychology*, *33*(5), 464–481. https://doi.org/10.1177/0022022102033005003.

48. 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.

49. Stoeber, J., Childs, J.H., Hayward, J.A., & Feast, A.R. (2011). Passion and motivation for studying: Predicting academic engagement and burnout in university students. *Educational Psychology*, *31*(4), 513–528. https://doi.org/10.1080/01443410.2011.570251.

50. Średniawa, A., Drwiła, D., Krotos, A., Wojtaś, D., Kostecka, N., &Tomasik, T. (2019). Insomnia and the level of stress among students in Krakow, Poland. *Trends in Psychiatry and Psychotherapy*, *41*(1), 60–68. https://doi.org/10.1590/2237-6089-2017-0154.

51. Tein, J.Y., Coxe, S., & Cham, H. (2013). Statistical power to detect the correct number of classes in latent profile analysis. *Structural Equation Modeling*, *20*, 640–657. https://doi.org/10.1080/10705511.2013.824781.

52. Vallerand, R.J. (2015). *The psychology of passion: A dualistic model*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199777600.001.0001.

53. Vallerand, R.J., Blanchard, C., Mageau, G.A., Koestner, R., Ratelle, C., Léonard, M., Gagné, M., & Marsolais, J. (2003). Les passions de l'âme: On obsessive and harmonious passion. *Journal of Personality and Social Psychology*, *85*, 756–767. https://doi.org/10.1037/0022-3514.85.4.756.

54. Vallerand, R.J., Paquet, Y., Philippe, F.L., & Charest, J. (2010). On the role of passion for work in burnout: A process model. *Journal of Personality*, *78*(1), 289–312. https://doi.org/10.1111/j.1467-6494.2009.00616.x.

55. Vansteenkiste, M., & Ryan, R.M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, *23*(3), 263–280. https://doi.org/10.1037/a0032359.

56. Walburg, V. (2014). Burnout among high school students: A literature review. *Children and Youth Services Review*, *42*, 28–33. https://doi.org/10.1016/j.childyouth.2014.03.020.

57. Watson, R., Deary, I., Thompson, D., & Li, G. (2008). A study of stress and burnout in nursing students in Hong Kong: A questionnaire survey. *International Journal of Nursing Studies*, *45*(10), 1534–1542. https://doi.org/10.1016/j.ijnurstu.2007.11.003.

58. Zhou, J. (2021). How does dualistic passion fuel academic thriving? A joint moderated-mediating model. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.666830.

59. Zinczuk-Zielazna, J. (2021). *Pasja studiowania a samoregulacja, emocje i jakość relacji akademickich*. Wydawnictwo Rys. https://doi.org/10.48226/978-83-66666-83-2.