

Article

Passion for Studying and Emotions

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Abstract: Background: Passion for studying and emotion regulation characteristics are important factors for students' academic functioning. The aim of this study is to investigate the relationship between passion for studying and emotion regulation, and to identify and describe students' functioning profiles by establishing which patterns of harmonious passion (HP) and obsessive passion (OP), as well as emotion regulation characteristics might characterize these profiles. Methods: The study involved 272 students, who completed measures of passion and emotional variables. Conclusions: The results showed that HP was positively related to more adaptive emotion regulation strategies, whereas OP was positively associated with less adaptive ones. Three profiles were distinguished: (1) with the lowest HP scores and high OP ones obtaining the least adaptive emotion regulation characteristics (with a prevalence of 35% in students), (2) with the highest HP and high OP scores possessing average emotion regulation characteristics with a predominance of adaptive strategies over maladaptive ones (52%), and (3) with average HP scores and the lowest OP ones having the most adaptive emotion regulation characteristics (13%). Our results suggest that emotional variables (especially negative reactivity, actively approaching, ignoring, and cognitive reappraisal) and HP play the most important role in differentiating students' functioning.

Keywords: academic functioning; emotion regulation; emotional reactivity; latent profile analysis; study passion



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1. Introduction

Passion refers to a love for some activity or an object that a person values highly and in which they invest time and energy [1]. According to the Dualistic Model of Passion [1], passion can have two dimensions—harmonious passion (HP) and obsessive passion (OP). Differentiating these two passion dimensions, Vallerand and Houlfort [2] describe HP as a passion that can be “energizing and uplifting”, whereas they treat OP as a “destructive” passion. HP is based on self-determined motivation, whereas OP hinges on extrinsic non-self-determined motivation [3]. The majority of the research on passion has focused on work passion so far. It has been shown that HP is positively associated with life satisfaction, subjective vitality, lower intensity of anxiety and depression symptoms, and burnout, which generally indicates its positive role in peoples' functioning, whereas research indicates an ambiguous role of OP in this respect [4,5].

A person has a passion for studying when they like (or love) their studies, devote time to them, define them as their passion, and consider them a part of themselves. Thus, a passionate student is cognitively and emotionally involved in their activities at university. Depending on the dimension of a person's passion, its effects on academic functioning may differ. Based on the passion criteria score, i.e., value ≥ 5 on the Passion Scale [1], Zinzuk-Zielazna [6] classified Polish students into two groups: passionate (56.2% of the study participants) and non-passionate (43.8%) about studying. Using latent profile analysis, four study passion profiles were identified: high (high HP and OP levels), medium-low (moderate HP and low OP), low (low HP and OP), and optimal (high HP and low OP). It was shown that students with high and optimal profiles had the best academic performance indicators (i.e., grade point average) [7]. Similar results were obtained in the studies in a

sample of Polish students, in which three study passion profiles were distinguished: low (low HP and low OP), optimal (high HP and low OP), and high (high HP and high OP) [8].

HP for studying was also directly positively associated with life satisfaction and negatively related to psychological distress [9]. Saville et al. [10] evidenced 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. In a sample of Chinese students, Zhou [11] showed that both HP and OP positively predicted academic thriving, with the effect of HP being stronger. Verner-Filion and Vallerand [12] evidenced that dropout intention was negatively related to HP and unrelated to OP. Investigating the role of passion studies in psychological and cardiovascular responses to a stressful situation that was bound to one's passion, Vallerand et al. [13] highlighted that HP is related to more adaptive responses, whereas OP is associated with less adaptive ones.

As for the Polish context, the consequences of study passion were analyzed by Zinzuk-Zielazna [6]. A positive association between HP and positive affect and its negative relationship with negative affect as well as a positive association between OP and positive affect was shown. HP was related to a higher quality of both collegial and academic relationships. Passionate students scored higher grades compared to non-passionate students [6]. Therefore, the passion for studying is a relevant factor in academic life.

Passion influences self-regulatory processes [1,14]. Specifically, the Dualistic Model of Passion suggests that HP allows access to adaptive self-regulatory processes, including emotion-related self-regulation, whereas OP limits it [5,14–17]. The current study is based on the model of emotion regulation by Garnefski et al. [18], who distinguished two types of emotion regulation strategies (or coping strategies), namely, cognitive strategies (what I think) and behavioral strategies (what I do). In this model, nine cognitive emotion regulation strategies used when experiencing negative or unpleasant events, including five adaptive strategies (e.g., positive refocusing, planning, putting into perspective) and four maladaptive ones (e.g., self-blame, rumination, and catastrophizing) were described [18]. There are also five behavioral strategies, among which seeking distraction, actively approaching, and seeking social support seem adaptive (helpful), whereas withdrawal and ignoring seem maladaptive (unhelpful) [19]. In our study, we examine how study passion profiles are related to these behavioral strategies.

We are also interested in applying the Emotion Regulation Questionnaire by Gross and John [20] to research cognitive reappraisal as an antecedent-focused strategy and expressive suppression as a response-focused strategy for study passion profiles. Cognitive reappraisal refers to an activity aimed at changing the emotional impact of a stressful situation by changing one's thoughts, whereas expressive suppression refers to the inhibition or suppression of an emotional experience after it has appeared [21]. It was evidenced that HP was positively related to cognitive reappraisal [16]. Furthermore, there was a tendency for HP to be negatively associated with expressive suppression. Conversely, OP was negatively related to cognitive reappraisal and positively associated with expressive suppression [16]. In the sample of employees, the positive relationship between HP and adaptive cognitive emotion regulation strategies and the negative relationship between OP and maladaptive strategies were noted [5]. Thus, two dimensions of passion are characterized by opposing patterns concerning these two emotion regulation strategies.

The above-described studies highlighted that HP and OP correlate with positive and negative affect; however, we are interested in a more detailed description of emotion processing. We aim to investigate affective style (or emotional reactivity) in study passion. Emotional reactivity (affective style) refers to an individual trait that is expressed in the ease or speed of activation, intensity, and duration of positive and negative emotions [22,23]. Thus, we strive to explore how HP and OP are related to these emotional reactivity traits and with which of these traits the two passion dimensions correlate most.

The above-described considerations indicate that study passion and emotion regulation are important factors for students' academic functioning and can be used when distinguishing and describing the subpopulations of students. This allows us to understand

how students function and what psychological characteristics play a less or more important role in their academic functioning.

Our aims in this study are (1) to investigate the relationship between passion for studying and emotion regulation using a battery of emotion measures (i.e., behavioral and cognitive emotion regulation strategies as well as emotional reactivity), (2) to identify and describe students' functioning profiles by establishing what patterns of passion (combination of HP and OP) and emotion regulation might characterize these profiles, and (3) to compare these profiles regarding the passion scores and the analyzed emotion variables. In our study, we use both variable-centered (the first aim) and person-centered approaches (the second and third aims) [24]. Based on the previous research on study passion [7,8], we expect to identify several profiles. We predict that students in profiles with higher HP results will be characterized by more adaptive emotion regulation compared to students without passion or with lower HP and higher OP results.

2. Materials and Methods

2.1. Participants and Procedure

The study involved 272 students aged 18–48 ($M = 21.68$, $SD = 4.79$, $Me = 20.00$). Most of the participants were females (82.35%) and were in their first year of study (74.26%). The sample consisted mainly of social studies students (i.e., psychology, pedagogy, social work, criminology, and administration). The survey was conducted online. An invitation for participating in this anonymous study was sent to students via e-mail and on researchers' social media. The study was conducted from November to December 2021. The Kazimierz Wielki University Ethics Committee approved the study. All of the students provided their informed consent digitally before they answered the questions. There was no reimbursement for the participants.

The current data used in the study come from a larger research project by Mudło-Głagolska and Larionow, which focused on the relationship between study passion and academic functioning. In this study, we report some of the project data, which were not published previously.

2.2. Measures

The Passion Scale (PS) [1,25] in the Polish adaptation by Mudło-Głagolska et al. [26] was used for assessing HP and OP. The scale was adapted for assessing passion in the field of studies. The PS consists of twelve items, with six for HP (e.g., *My studies are in harmony with the other activities in my life*) and OP (e.g., *I have almost an obsessive feeling for my studies*). Five items assessing the passion criteria (e.g., *My studies are important to me*) allow us to distinguish students with and without study passion. They must meet the passion criteria (i.e., the average in the criteria must be at least 4) to be able to define a passionate person. The answers are given on a seven-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate higher levels of HP and OP [1,25]. The original PS had acceptable levels of internal consistency reliability with Cronbach's alpha values of 0.83 for HP and 0.86 for OP [25].

The Behavioral Emotion Regulation Questionnaire (BERQ) [19] in the Polish translation by Larionow and Mudło-Głagolska was used. The BERQ is a 20-item self-report questionnaire that evaluates the behavioral emotional regulation strategies that people use to deal with stressful or negative situations. The BERQ consists of five subscales (with four items per subscale): (1) seeking distraction (e.g., *I set my worries aside by doing something else*), (2) withdrawal (e.g., *I avoid other people*), (3) actively approaching (e.g., *I try to do something about it*), (4) seeking social support (e.g., *I share my feelings with someone*), and (5) ignoring (e.g., *I repress it and pretend it never happened*). The BERQ has a five-point Likert scale, ranging from 1 (*(almost) never*) to 5 (*(almost) always*). Higher scores indicate higher use of each of the five strategies [19]. The original BERQ had acceptable levels of internal consistency reliability with Cronbach's alpha ≥ 0.86 [19].

The Emotion Regulation Questionnaire (ERQ) [20,27] in the Polish translation by Śmieja and Kobylńska [28] is a 10-item self-report tool for measuring the two emotion regulation strategies, namely, cognitive reappraisal (e.g., *When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm*) and expressive suppression (e.g., *I keep my emotions to myself*). The ERQ has a seven-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate a higher use of the two strategies [20]. The original ERQ had acceptable levels of internal consistency reliability in general community samples with Cronbach's alpha ≥ 0.76 [27].

The Perth Emotional Reactivity Scale—Short Form (PERS-S) by Preece et al. [23] in the Polish adaptation by Larionow and Mudło-Głagolska [29] is an 18-item self-report questionnaire designed to measure emotional reactivity and its three characteristics, i.e., the activation, intensity, and duration of positive and negative emotions, separately. The PERS-S consists of six subscales and two composite scores (the general positive reactivity and the general negative reactivity scales). Positive-activation (e.g., *I feel good about positive things in an instant*), positive-intensity (e.g., *I experience positive mood very strongly*), and positive-duration (e.g., *I can remain enthusiastic for quite a while*) are three subscales that form the general positive reactivity scale. Negative-activation (e.g., *I tend to get disappointed very easily*), negative-intensity (e.g., *My negative feelings feel very intense*), and negative-duration (e.g., *When I'm upset, it takes me quite a while to snap out of it*) form the general negative reactivity scale. The statements are scored on a five-point Likert scale ranging from 1 (*very unlike me*) to 5 (*very like me*). Higher scores indicate higher emotional reactivity levels [29]. The original PERS-S had acceptable levels of internal consistency reliability with Cronbach's alpha ≥ 0.76 [23].

2.3. Statistical Analysis

Pearson r correlations between the study variables were calculated. The selected profiles were compared considering the results on passion, emotional reactivity, and emotion regulation strategies. For this purpose, the Kruskal–Wallis H test was performed first, and then a series of non-parametric Mann–Whitney U tests with the Bonferroni correction (post hoc multiple comparisons). For measuring the effect size for the Kruskal–Wallis H test, eta squared (η^2) values were calculated, where $\eta^2 < 0.01$ indicates a very small effect size, η^2 from 0.01 to 0.05 indicates a small effect size, η^2 from 0.06 to 0.13 indicates a moderate effect size, and $\eta^2 \geq 0.14$ indicates a large effect size [30]. The effect size was calculated using the Psychometrica calculator [31]. For comparing HP and OP scores between females and males, we used the Brunner–Munzel test [32].

For extracting study passion profiles, we applied latent profile analysis (LPA), which refers to a statistical classification technique that allows the identification of people's profiles with similar patterns across a set of variables [33]. In the few previous studies on study passion using LPA [7,8], study passion profiles were distinguished based solely on passion scores (HP and OP results). In contrast, in our study, we consider all of the analyzed variables (passion, emotion regulation measures, and emotional reactivity), and based on the profiles, we distinguish different student profiles that differ in a set of study variables. This procedure provides a more comprehensive and detailed description of the respondents' functioning, considering both the role of passion and emotions. Moreover, it allows us to examine and estimate a differentiating role of passion scores and/or other emotion characteristics amidst the whole set of analyzed variables.

LPA is a modeling technique that identifies profiles of people (groups) within a dataset that have similar patterns across a set of variables [33,34]. The analysis included the HP and OP scores as well as the BERQ, ERQ, and PERS-S scores. We tested four model types: (1) equal variances, covariances fixed to 0; (2) varying variances, covariances fixed to 0; (3) equal variances, equal covariances; or (4) varying variances, varying covariances [35]. For each model type, solutions from one to six profiles were estimated. The optimal solution was assessed based on the following fit index values: the Bayesian Information Criterion (BIC), Akaike Information Criterion (AIC), Appropriate Weight of Evidence

Criterion (AWE), Classification Likelihood Criterion (CLC), and Kullback Information Criterion (KIC). For all of these fit indices, lower values indicate a better-fitting model. The entropy value was also estimated, which ranges from 0 to 1 (≥ 0.80 being acceptable), with higher values indicating a higher certainty for classifying participants into the extracted profiles [36]. LPA was conducted in the *tidyLPA* package in R software 4.2.3 [35].

3. Results

3.1. Descriptive Statistics

The analyzed variables (HP and OP, emotional reactivity traits, and all the emotion regulation strategies) were reasonably normally distributed (max. skewness = -1.18 , max. kurtosis = 2.28). The reliability of all of the used measures was acceptable (Cronbach's alpha ≥ 0.67). Tables 1 and 2 present the descriptive statistics and Pearson correlations between the studied variables. The Brunner–Munzel test revealed no statistically significant gender differences in the HP and OP scores ($p > 0.05$).

HP was positively related to OP, general positive emotional reactivity, cognitive reappraisal and seeking distraction, actively approaching, and seeking social support. Additionally, HP was negatively related to negative emotional reactivity, expressive suppression, withdrawal, and ignoring. OP was positively associated with negative emotional reactivity, expressive suppression, and withdrawal. In general, OP showed less statistically significant correlations with the measures of emotions than HP. HP was positively related to the more adaptive emotion regulation strategies and negatively related to the more maladaptive ones, whereas OP was positively related to them.

Additionally, we analyzed the relationships between passion and emotional reactivity traits (Table 2). HP was positively related to positive emotional reactivity traits (most strongly with positive-duration) and negatively related to negative ones (most strongly with negative-activation). OP was positively associated with negative emotional reactivity traits (most strongly with negative-duration). Thus, passion dimensions seem to correlate more strongly with the duration of emotions than with their activation or intensity.

3.2. LPA

An analytic hierarchy process, based on the fit indices AIC, AWE, BIC, CLC, and KIC [37], suggests the best solution is Model 3 with 1 class (see Appendix A). However, priority was given to the three-profile solution over the others, because it seems more theoretically meaningful, providing more certainty for classification (i.e., entropy) and making more nuanced distinctions between different passion profiles and measures of emotion.

LPA indicated that the data were well represented by the three-profile solution (with varying variances, and varying covariances). The three-profile solution was optimal according to AIC and had a satisfactory entropy value (0.832), and identified theoretically meaningful distinctions between the extracted profiles. These three profiles varied in passion and emotion levels (see Figure 1).

Table 1. Descriptive statistics and Pearson correlations between the study variables.

Variables	<i>M (SD)</i>	Skewness	Kurtosis	Cronbach's Alpha	1	2	3	4	5	6	7	8	9	10
1. PS Harmonious passion	4.94 (1.02)	−1.18	2.28	0.85										
2. PS Obsessive passion	2.91 (0.97)	0.68	0.45	0.72	0.29 ***									
3. PERS-S General positive reactivity	30.97 (6.49)	−0.31	0.28	0.86	0.24 ***	−0.05								
4. PERS-S General negative reactivity	32.48 (8.07)	−0.30	−0.72	0.91	−0.25 ***	0.19 **	−0.14 *							
5. ERQ Cognitive reappraisal	4.48 (1.22)	−0.31	0.00	0.87	0.23 ***	−0.02	0.31 ***	−0.39 ***						
6. ERQ Expressive suppression	3.76 (1.36)	0.04	−0.67	0.76	−0.24 ***	0.16 **	−0.20 ***	0.14 *	−0.02					
7. BERQ Seeking distraction	12.89 (2.78)	−0.06	0.27	0.67	0.23 ***	0.04	0.24 ***	−0.17 **	0.26 ***	0.10				
8. BERQ Withdrawal	11.41 (3.79)	0.17	−0.70	0.83	−0.24 ***	0.20 **	−0.36 ***	0.48 ***	−0.31 ***	0.34 ***	−0.10			
9. BERQ Actively approaching	12.95 (3.14)	−0.18	−0.29	0.81	0.38 ***	0.04	0.24 ***	−0.28 ***	0.40 ***	−0.26 ***	0.25 ***	0.33 ***		
10. BERQ Seeking social support	12.22 (4.17)	−0.02	−0.87	0.89	0.15 *	−0.02	0.24 ***	0.07	0.02	0.50 ***	−0.12 *	−0.29 ***	0.25 ***	
11. BERQ Ignoring	11.14 (3.67)	0.11	−0.58	0.78	−0.19 **	0.11	−0.12 *	0.22 ***	−0.13 *	0.51 ***	0.35 ***	0.44 ***	−0.33 ***	−0.49 ***

Note: PS = Passion Scale; PERS-S = Perth Emotional Reactivity Scale–Short Form; ERQ = Emotion Regulation Questionnaire; BERQ = Behavioral Emotion Regulation Questionnaire.
 * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 2. Descriptive statistics and Pearson correlations between study passion and emotional reactivity traits.

Variables	<i>M</i> (<i>SD</i>)	Skewness	Kurtosis	Cronbach's Alpha	1	2	3	4	5	6	7
1. PS Harmonious passion	4.94 (1.02)	−1.18	2.28	0.85							
2. PS Obsessive passion	2.91 (0.97)	0.68	0.45	0.72	0.29 ***						
3. PERS-S Positive-activation	10.96 (2.36)	−0.48	0.28	0.67	0.13 *	−0.10					
4. PERS-S Positive-duration	9.70 (2.73)	−0.32	−0.34	0.80	0.29 **	−0.07	0.64 ***				
5. PERS-S Positive-intensity	10.31 (2.64)	−0.40	−0.21	0.81	0.17 **	0.05	0.59 ***	0.46 ***			
6. PERS-S Negative-activation	10.92 (2.94)	−0.42	−0.57	0.75	−0.28 **	0.17 **	−0.06	−0.37 ***	0.10		
7. PERS-S Negative-duration	10.58 (2.93)	−0.27	−0.87	0.80	−0.24 **	0.18 **	−0.11	−0.37 ***	0.09	0.71 ***	
8. PERS-S Negative-intensity	10.98 (3.00)	−0.45	−0.54	0.85	−0.16 **	0.17 **	−0.02	−0.35 ***	0.18 **	0.75 ***	0.76 ***

Note: PS = Passion Scale; PERS-S = Perth Emotional Reactivity Scale–Short Form. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

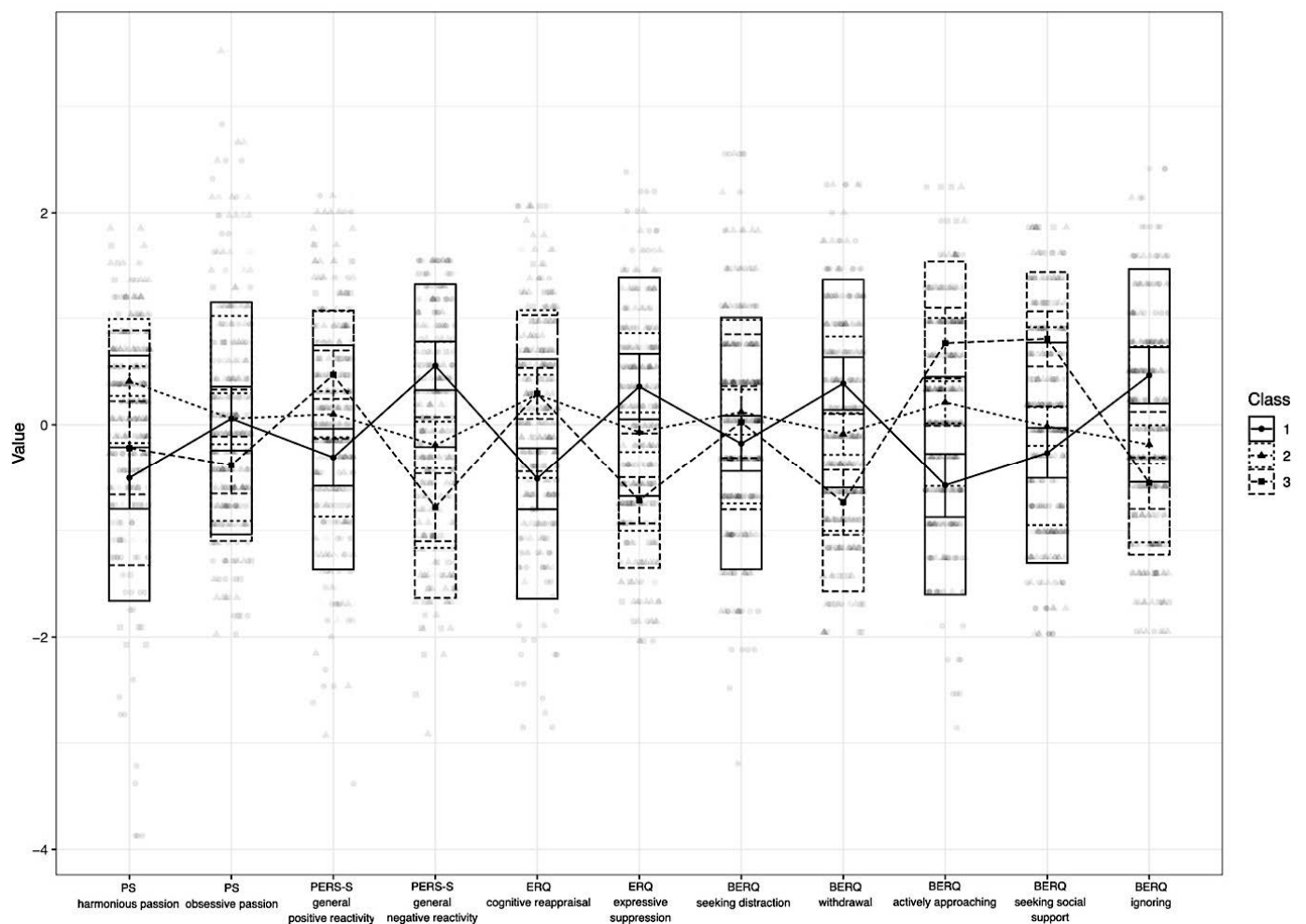


Figure 1. Visual representation of the three-profile solution (varying variances, varying covariances) with the standardized results. Note: PS = Passion Scale; PERS-S = Perth Emotional Reactivity Scale–Short Form; ERQ = Emotion Regulation Questionnaire; BERQ = Behavioral Emotion Regulation Questionnaire.

Table 3 presents the average results of the examined variables and their comparisons across the distinguished profiles.

The three distinguished profiles significantly differed in all of the study variables ($p < 0.001$) with moderate or large effect sizes, except the results on OP and seeking distraction, which were statistically insignificant ($p < 0.05$) and characterized by a very small and a small effect size, respectively. It should be stressed that among the analyzed variables, general negative reactivity, actively approaching, ignoring, cognitive reappraisal, and HP scores were the most impactful variables in terms of differentiating these three profiles. Considering this fact, the role of OP is limited in terms of differentiating students.

Profile 1 presents the students with low HP and high OP scores, Profile 2 consists of the students with the highest HP and high OP scores, whereas Profile 3 presents the students with average HP and low OP scores compared to the other profiles.

Profile 1 is characterized by the worst functioning compared to the other two profiles, because of the lowest HP scores, the highest negative reactivity scores, and the lowest positive reactivity scores (moreover, the negative reactivity scores are higher than the positive ones) as well as less adaptive emotion regulation (less frequent use of cognitive reappraisal, actively approaching, and seeking social support as well as more frequent use of expressive suppression, withdrawal, and ignoring). Profile 1 showed the worst emotion regulation characteristics.

Table 3. Comparative analysis results of the examined variables across study passion profiles.

	Profile 1 (<i>n</i> = 96)	Profile 2 (<i>n</i> = 140)	Profile 3 (<i>n</i> = 36)				
Profile Prevalence	35%	52%	13%				
Profile Description Regarding Passion Scores	Lowest HP and High OP Scores	Highest HP and High OP Scores	Average HP and Low OP Scores	Kruskal–Wallis Test Results (H)	Significant Differences between Profiles (Post Hoc Comparisons)	Effect Size (η^2)	Effect Size Description
Profile Description Regarding Emotion Regulation Characteristics	Least Adaptive Emotion Regulation Characteristics	Average Adaptive Emotion Regulation Characteristics	Most Adaptive Emotion Regulation Characteristics				
Variables (Scales)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)				
1. PS Harmonious passion	4.40 (1.19)	5.37 (0.57)	4.74 (1.14)	50.168	(Profile) 2 > (Profile) 1; 2 > 3	0.178	Large
2. PS Obsessive passion	2.98 (1.06)	2.96 (0.95)	2.55 (0.70)	4.530	ns	0.009	Very small
3. PERS–S General positive reactivity	28.69 (6.93)	31.77 (6.22)	33.94 (3.99)	22.493	2 > 1; 3 > 1; 3 > 2	0.076	Moderate
4. PERS–S General negative reactivity	37.11 (6.07)	30.92 (7.87)	26.17 (6.98)	58.374	1 > 2; 1 > 3; 2 > 3	0.210	Large
5. ERQ Cognitive reappraisal	3.81 (1.37)	4.84 (0.97)	3.84 (0.91)	40.492	2 > 1; 3 > 1	0.143	Large
6. ERQ Expressive suppression	4.27 (1.25)	3.68 (1.25)	2.77 (0.88)	34.809	1 > 2; 1 > 3; 2 > 3	0.122	Moderate
7. BERQ Seeking distraction	12.40 (3.35)	13.22 (2.41)	12.94 (2.32)	5.033	ns	0.011	Very small
8. BERQ Withdrawal	12.97 (3.78)	11.07 (3.44)	8.58 (3.22)	36.621	1 > 2; 1 > 3; 2 > 3	0.129	Moderate
9. BERQ Actively approaching	11.10 (3.27)	13.60 (2.48)	15.36 (2.46)	58.998	2 > 1; 3 > 1; 3 > 2	0.212	Large
10. BERQ Seeking social support	11.16 (4.43)	12.06 (3.86)	15.69 (2.62)	32.560	3 > 1; 3 > 2	0.114	Moderate
11. BERQ Ignoring	12.89 (3.74)	10.49 (3.39)	9.06 (2.48)	57.545	1 > 3; 1 > 2; 2 > 3	0.206	Large
Passion ratio score (HP/OP)	1.48	1.81	1.86	—	—	—	—

Note: PS = Passion Scale; PERS–S = Perth Emotional Reactivity Scale–Short Form; ERQ = Emotion Regulation Questionnaire; BERQ = Behavioral Emotion Regulation Questionnaire. Effect size (η^2 = eta squared); ns = non-significant. Effect size description was provided on the recommendations by López-Martín and Ardura-Martínez [30].

Profile 2 is characterized by the highest HP and OP scores. In this profile, students tend to use emotion regulation strategies in a more balanced manner (i.e., with less extreme low and high results), but with a predominance of adaptive strategies (i.e., cognitive reappraisal > expressive suppression; actively approaching > ignoring; seeking social support > ignoring). In general, the characteristics of Profiles 2 and 3 are more desirable than the characteristics of Profile 1.

We also proposed the passion ratio score, which is the quotient of dividing HP by OP. This ratio reflects the extent to which HP prevails over OP. The higher this ratio is, the more harmonious passionate a person is. This ratio can be used when describing and comparing different samples and/or the results from different studies (i.e., cross-cultural or meta-analysis) with different mean values of HP and OP. Our exploratory approach to passion ratio score usage suggests that its higher values are present in students with more adaptive (favorable) emotion regulation characteristics (Table 3). Future studies may focus on this ratio to provide some evidence of its usefulness and cut-off scores for (in)harmonious passion.

4. Discussion

The research examined the role of study passion and emotion regulation traits among university students. Our first aim was to investigate the relationship between passion for studying and emotion regulation strategies and emotional reactivity traits. The results showed that the two dimensions of passion, HP and OP, present different patterns of correlation with emotional measures. We also noted that gender did not differentiate the levels of HP and OP, which is generally in line with previous findings [1,25,38,39].

HP appears to be positively related to more adaptive emotion regulation strategies (e.g., cognitive reappraisal, actively approaching), whereas OP is positively associated with less adaptive ones (e.g., expressive suppression, ignoring). These results are in line with the previous studies conducted on different non-student samples [5,16]. In general, our results supported previous findings that HP is related to task-oriented coping styles, whereas OP is related to avoidance coping styles [16], indicating that study passion is associated with different emotion regulation strategies.

We also examined how study passion is related to emotional reactivity traits. Passion was shown to be more related to the duration of emotions than to their activation or intensity. Previous studies have demonstrated that HP is associated with mainly positive emotions experienced both during and after engaging in exciting activities, whereas no relationship between HP and negative emotions after the end of an activity was shown [1]. These results suggest that HP is related to the duration of positive emotions. In our study, we investigated this research issue empirically and supported the idea that passion is more strongly associated with the duration of both positive and negative emotions than other emotional reactivity traits. This has, to the best of the authors' knowledge, not been presented in the literature before.

Our second aim was to identify and describe the students' academic functioning profiles by LPA, while our third aim was to compare these distinguished profiles regarding the analyzed variables. We distinguished three profiles based on passion scores and emotion regulation measures. It should be stressed that the OP scores did not differentiate students' profiles. The first and the most numerous group (52%) is presented as Profile 2, which is characterized by the highest HP and high OP scores as well as by average emotion regulation characteristics with a predominance of adaptive strategies over maladaptive ones. The second most numerous group of students (35%) is presented as Profile 1, which is characterized by the lowest HP and high OP scores with the least adaptive emotion regulation characteristics compared to the other profiles. Profile 3 is the least numerous group of students (13%) with average HP and lowest OP scores, which is characterized by the most adaptive emotion regulation characteristics. In general, our results suggest that one-third of the students are characterized by less adaptive emotion regulation, whereas about 50%

of the respondents have average emotion regulation, and only 13% are characterized by more adaptive emotion regulation.

The comparative analysis showed that almost all of the analyzed variables play an important role in differentiating the students' profiles. However, the role of OP is limited [40], because it does not differentiate the profiles ($p < 0.05$ as well as a low effect size). In the case of HP, its role is significant, and this is a relevant factor that can distinguish students. Additionally, this study supports one of the major Dualistic Model of Passion principles, particularly that passion is related to self-regulatory processes. Specifically, this model proposes that HP is related to more adaptive self-regulation processes, whereas OP is not related to or even restricts them [14–17]. However, emotional variables, especially actively approaching, general negative emotional reactivity, and ignoring, have the most significant role in differentiating students' functioning. As behavioral emotion regulation strategies and emotional reactivity are relatively stable traits, and HP is significantly related to them, it can be assumed that these traits are a basis for the development of HP. As our study is cross-sectional, we cannot discuss the temporal order of passion for studying and emotional variables. Therefore, future studies are needed to examine the emotional predictors of passion for studying.

The limitations of the study should be noted. Firstly, the sample size was relatively small. Secondly, the sample consisted of predominantly female and first-year students. Finally, this is a cross-sectional study; therefore, no conclusions can be drawn regarding the temporal order of the study passion and the measures of emotion. Due to this fact, we cannot conclude that more adaptive emotional characteristics provide a basis for the development of harmonious passion for studying. We only assume that specific temperament traits (e.g., the emotional reactivity analyzed in our study) can explain differences in passion development. However, this hypothesis requires a comprehensive and longitudinal study. The strengths of the study should also be indicated. The presented study is one of the first in the world in which the study passion profiles were analyzed using LPA. Both cognitive and behavioral emotion regulation measures were used in the study. For the first time, the relationship between passion and positive and negative emotional reactivity traits was analyzed, providing a detailed specificity of emotion processing in HP and OP. Our analyses suggest that LPA is a promising approach in separating groups of students based on their passion and emotion variable scores. This allowed the provision of a more specific and accurate description of students with various passion levels and emotion regulation characteristics.

We assume that our results may be helpful when developing psychological support programs, especially for students with low HP and high OP levels as well as with fewer adaptive emotion regulation characteristics. The prevalence of particular students' profiles with various passion levels and emotional characteristics should be taken into account when developing psychological support programs for students. Evidence from multiple disciplines, including psychology, education, and neuroscience, consistently shows that the frequency and intensity of academic-related emotions can contribute to or interfere with academic achievement and learning [41–43], indicating that the assessment of emotions is important. We assume that providing emotion regulation training in universities can be helpful for students with less adaptive emotion regulation characteristics (about one-third of students in our sample). Due to the significant role of HP in differentiating students (in contrast to OP), we assume that study passion development programs should focus more on forming HP rather than on reducing OP, i.e., focus on using person's strong points, e.g., identifying students' signature strengths, visualizing, and describing themselves at their personal best and using their signature strengths in new ways [44].

5. Conclusions

Overall, our findings described students' functioning profiles by establishing what patterns of HP and OP and emotion regulation might characterize these profiles. It seems that OP scores (compared to HP ones) are less relevant in assessing students' functioning,

because OP did not differentiate the profiles, whereas HP is a relevant factor that can distinguish students. In general, our results suggest that emotional variables have the most significant role in differentiating students' functioning. Our specific conclusions are the following: (1) HP is positively related to more adaptive cognitive (e.g., cognitive reappraisal) and behavioral emotion regulation strategies (e.g., actively approaching), whereas OP is positively associated with less adaptive cognitive (e.g., expressive suppression) and behavioral ones (e.g., ignoring); (2) HP was positively related to positive emotional reactivity traits and negatively related to negative ones, whereas OP was positively associated with negative emotional reactivity traits. In general, HP and OP seem to correlate more strongly with the duration of emotions than with their activation or intensity; (3) for students' academic functioning, we identified and described the prevalence of three profiles that differed in terms of HP scores and a set of emotional characteristics. These profiles explain the difference in students' functioning during their studies. We assume that emotion regulation training and study passion development programs can be helpful for students with less adaptive emotion regulation profiles and low HP scores.

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Appendix A

Table A1. Fit index values for the tested LPA solutions.

Number of Profiles	AIC	BIC	AWE	CLC	KIC	Entropy
Model type: equal variances, covariances fixed to 0						
1	8523.908	8603.236	8790.563	8481.908	8548.908	1.000
2	8216.915	8339.512	8630.552	8150.473	8253.915	0.779
3	8096.648	8262.515	8656.837	8006.192	8145.648	0.772
4	8035.083	8244.220	8741.786	7920.654	8096.083	0.785
5	8004.394	8256.801	8857.621	7865.980	8077.394	0.793
6	7983.360	8279.036	8983.089	7820.984	8068.360	0.812
Model type: varying variances, covariances fixed to 0						
1	8523.908	8603.236	8790.563	8481.908	8548.908	1.000
2	8200.216	8362.477	8748.122	8111.833	8248.216	0.808
3	8060.339	8305.533	8889.095	7925.971	8131.339	0.816
4	8023.709	8351.837	9133.327	7843.347	8117.709	0.819
5	7991.798	8402.860	9382.214	7765.505	8108.798	0.853
6	7931.293	8425.288	9602.582	7658.994	8071.293	0.850

Table A1. Cont.

Number of Profiles	AIC	BIC	AWE	CLC	KIC	Entropy
Model type: equal variances, equal covariances						
1	7824.245	8101.892	8762.538	7672.245	7904.245	1.000
2	7829.302	8150.218	8914.825	7652.612	7921.302	0.655
3	7824.564	8188.750	9056.588	7623.913	7928.564	0.674
4	7803.029	8210.485	9181.408	7578.562	7919.029	0.767
5	7806.464	8257.189	9331.433	7557.946	7934.464	0.741
6	7779.502	8273.497	9450.910	7507.084	7919.502	0.791
Model type: varying variances, varying covariances						
1	7824.245	8101.892	8762.538	7672.245	7904.245	1.000
2	7779.397	8338.297	9670.543	7471.050	7937.397	0.826
3	7738.036	8578.188	10,581.676	7273.699	7974.036	0.832
4	7759.718	8881.123	11,555.772	7139.474	8073.718	0.878
5	7786.673	9189.330	12,535.166	7010.495	8178.673	0.911
6	7805.570	9489.480	13,506.505	6873.455	8275.570	0.942

Note: The adopted solution is in bold. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; AWE = Appropriate Weight of Evidence Criterion; CLC = Classification Likelihood Criterion; KIC = Kullback Information Criterion.

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