

# Multiple Passions and Psychosomatic Health

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**Abstract:** People are often passionate about different activities in their lives. This study examined the role of multiple passions in psychosomatic health (i.e., subjective vitality and somatic symptoms) using variable-centered and person-centered approaches. Our sample consisted of 267 Polish adults, who filled out the measures on harmonious passion (HP), obsessive passion (OP), subjective vitality as a trait, and somatic symptoms in four categories (exhaustion, gastrointestinal, musculoskeletal, and cardiovascular complaints). In general, HP showed protective properties against individual somatic complaints, whereas OP was associated with higher levels of somatic symptoms, chiefly cardiovascular complaints. We highlighted that, unlike the first passion, the second passion can explain the differences in well-being and ill-being. Our study indicated the moderate health-promoting effects of HP, and the moderate-to-strong adverse effects of OP on somatic health. Having multiple passions of obsessive nature may be harmful for somatic health. In order to be healthy, prevention of the development of multiple passions with high obsessive levels seems to be a priority. Potential psychosomatic pathways were discussed.

**Keywords:** harmonious passion; health; ill-being; obsessive passion; passion; protective factor; risk factor; somatic symptoms; subjective vitality; well-being



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## 1. Introduction

According to the Dualistic Model of Passion, people engage in various activities throughout their lives to promote personal growth [1]. Although people may be motivated to participate in different activities, they develop a strong passion for only a few of them. This passion can be directed toward leisure activities, sports, relationships with others, learning, or work. People are considered to have a passion when they meet the specific criteria, known as passion criteria (PC): they genuinely like (love) the activity, invest significant time in it, consider it important, identify it as their passion, and integrate it as a part of their identity [2].

### 1.1. Two Dimensions of Passion

Passion has two dimensions: harmonious passion (HP) and obsessive passion (OP) [3]. People with HP enjoy and highly value their passionate activity and engage in it at a level that does not cause any conflict with other spheres of life, such as family life or leisure activities. People experience the pleasure of engaging in the activity and have a sense of fulfillment [3].

In the case of OP, people engage in an activity due to intrapersonal and/or interpersonal factors, such as self-esteem or the need for social approval [3]. Both people with a HP and the ones with an OP love the activity, but in the case of OP, their involvement causes conflicts with other areas of their life. This activity becomes the sole source of their self-esteem [4].

### 1.2. Links between Passion and Health

Considering the role of passion in somatic health, Schellenberg et al. [5] in their prospective study indicated that HP predicted fewer physical pain symptoms. It was also

shown that HP predicted an increase in health, whereas OP predicted a decrease in health, and an increase in physical symptoms among local and international volunteers [6].

Based on the meta-analytical review by Curran et al. [7], it should be noted that OP showed both positive and negative links with intrapersonal outcomes. Previous Polish studies have shown that HP was associated with higher levels of subjective vitality, whereas OP was not related to subjective vitality [8,9]. Vallerand [10] highlighted that HP contributed to positive emotions and well-being, as well as preventing negative emotions, whereas OP appeared not to contribute these to these positive effects, in addition to being a risk factor for ill-being (e.g., Powell et al. [11,12]).

### 1.3. Multiple Passions

The Dualistic Model of Passion suggests that passion for an activity develops when it is preferred and chosen above others, highly valued, and internalized within one's identity [2]. At the same time, people can develop passions for multiple activities. In this case, they have multiple passions. People, in general, reported passion for between two and four activities [13].

The consequences of having multiple passions were analyzed by Schellenberg and Bailis [14]. They showed that having HP for both favorite and second-favorite activities predicted higher well-being, whereas OP for both activities either failed to predict well-being or positively predicted ill-being. People with two HPs reported higher well-being levels than those with only one. This suggests that people with two HPs may benefit from additional opportunities to experience positive emotions triggered by an activity [10]. Such an additive pattern indicates that having an additional HP leads to an increase in well-being. Schellenberg and Bailis [13] revealed that with each successive passion, HP becomes a weaker predictor of well-being, because it is directed toward less-favored activities. Thus, HP contributed to the prediction of well-being only for the first and second passionate activities.

### 1.4. The Present Study

In this study, we examined whether and how multiple passions were related to psychosomatic health. As only a few studies have systematically investigated the role of multiple passions in health, and majority of them examined the role of passion in *psychological well-being* [13,14], we were interested in examining whether and how multiple passions are related to *psychosomatic health*, i.e., subjective vitality and somatic complaints, which can be considered as biologically-based characteristics of an individual. We believe that focusing on associations between passion and these "strong" psychosomatic variables (instead of strictly psychological ones), could lead to more robust and new findings on the role of passion in health.

We assessed HPs and OPs for the first favorite and the second favorite activities, as well as subjective vitality and somatic complaints. In general, it is assumed that HP serves as a protective factor, whereas OP acts as a risk factor for health. Based on the theory and past works on passion [13–15], we formulated the following hypotheses:

**Hypothesis 1 (H1).** *We expected to distinguish several groups of passionate people: (1) a HP for one activity, (2) an OP for one activity, (3) HPs for both activities, (4) OPs for both activities and (5) a HP for one activity and an OP for the other activity.*

**Hypothesis 2 (H2).** *We were interested in comparing these groups regarding subjective vitality and somatic complaints. We anticipated that if people were characterized by higher levels of HP (i.e., HPs for both activities, or a HP for one activity), they would have a better health status than people with an OP for one activity, or people with OPs for both activities, or people with a HP for one activity and an OP for the other activity. We based this hypothesis on the Schellenberg et al.'s study [15], which showed that passion profiles with pure HP were generally associated with more positive levels of physical health and psychological well-being compared to other profiles of passions.*

**Hypothesis 3 (H3).** We were also interested in examining the predictive role of multiple passion in vitality and somatic complaints (controlling for age and sex). For this analysis, we conducted a set of hierarchical multiple regression analyses. We predicted that passion scores for the first activity and passions scores for the second activity would be significant predictors of psychosomatic health outcomes.

## 2. Materials and Methods

### 2.1. Procedure

This research was conducted in accordance with the Declaration of Helsinki Ethical Principles. Our study recruitment was conducted from July to August 2022 via social networks, i.e., Facebook and Instagram, which included a link to an online anonymous survey. Participants filled out a short battery of psychological questionnaires on passion and its correlates. None of the current data on passion, subjective vitality and somatic complaints have been published previously.

Inclusion criteria were: (1) Polish-speaking people and (2) an age of 18 years or over. All the participants had provided their informed consent digitally before they filled out the questionnaires. The data were screened for accuracy (min. and max. range of each variable). There were no missing or invalid data. We recruited 276 participants. However, as we controlled effects of sex in our analyses, we excluded a small sample of our non-binary (gender identity, not sex) participants ( $n = 9$ ), therefore our final sample consisted of 267 participants.

### 2.2. Participants

The survey involved 267 Polish respondents (207 females and 60 males) aged 18–69 ( $M = 25.92$ ,  $SD = 11.34$ ) from the general population in Poland. In terms of education, 31.46% had higher education, 52.06% had secondary education, 4.87% had vocational education, and 11.61% had primary education. In this sample, 56.18% were single, whereas 43.82% were in relationships. In terms of residence, 32.96% of the respondents lived in a large city (over 100,000 inhabitants), 22.85% lived in a medium-sized city (from 20,000 to 100,000 inhabitants), 17.60% lived in a small town (up to 20,000 inhabitants), and 26.59% lived in a village.

### 2.3. Measures

In this study, our respondents filled out a socio-demographic background questionnaire (age, sex/gender, education, marital status, and residence) as well as other below-described measures. The questionnaire on passion was filled out twice, i.e., for the first and second favorite activities, respectively. For this study, internal consistency reliability coefficients for all administered measures are displayed in Table 1.

**Table 1.** Descriptive statistics, correlations, and Cronbach's alpha coefficients ( $n = 267$ ).

Variables	<i>M</i>	<i>SD</i>	Cronbach's Alpha	PC for the First Activity	HP for the First Activity	OP for the First Activity	PC for the Second Activity	HP for the Second Activity	OP for the Second Activity
PC for the first activity	6.11	0.77	0.77						
HP for the first activity	5.87	0.83	0.76	0.66 ***					
OP for the first activity	3.75	1.25	0.78	0.40 ***	0.22 ***				
PC for the second activity	5.73	1.04	0.84	0.21 ***	0.13 *	0.02			
HP for the second activity	5.66	0.98	0.82	0.21 **	0.28 ***	0.03	0.73 ***		
OP for the second activity	3.52	1.43	0.85	−0.00	−0.10	0.46 ***	0.46 ***	0.29 ***	
Subjective vitality	4.06	1.41	0.86	0.19 **	0.32 ***	−0.03	0.08	0.20 ***	−0.03
Exhaustion	4.11	2.15	0.75	−0.08	−0.18 **	0.13 *	−0.00	−0.10	0.17 **
Gastrointestinal complaints	2.06	2.12	0.70	−0.02	−0.05	0.06	−0.11	−0.12	−0.00
Musculoskeletal complaints	3.14	2.46	0.76	0.00	−0.10	0.05	−0.02	−0.08	0.12

Table 1. Cont.

Variables	M	SD	Cronbach's Alpha	PC for the First Activity	HP for the First Activity	OP for the First Activity	PC for the Second Activity	HP for the Second Activity	OP for the Second Activity
Cardiovascular complaints	1.95	2.04	0.58	−0.06	−0.14*	0.15*	0.02	−0.05	0.24 ***
GBB-8 Total score	11.26	6.49	0.80	−0.05	−0.16*	0.13*	−0.04	−0.12	0.18 **

Note. M = mean; SD = standard deviation; PC = passion criteria; HP = harmonious passion; OP = obsessive passion; GBB-8 = Giessen Subjective Complaints List. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

The *Passion Scale* (PS) [3,16] is a self-report questionnaire for assessing HP and OP for a favorite activity, as well as the PC. The PS consists of twelve statements, i.e., six for HP (e.g., “My activity is in harmony with other things that are part of me”), and six for OP (e.g., “This activity is the only thing that really turns me on”). The scale includes five additional statements for measuring the PC. These items refer to the time devoted to a passionate activity, whether people like it, whether it is important to them, and whether they describe it as their passion and consider it a part of themselves (e.g., “This activity is important to me”). The responses are given on a 7-point Likert scale from 1 (“strongly disagree”) to 7 (“strongly agree”). In this study, the Polish version of the PS was applied [17]. It has strong psychometric properties, such as an intended 2-factor structure, empirically supported convergent and divergent validity, and good internal consistency (Cronbach’s alpha  $\geq 0.74$ ) and test-retest reliabilities [17]. We used means of participants’ mean scores.

The *Subjective Vitality Scale* (SVS) [18] is a 5-item self-report questionnaire for assessing subjective vitality as a trait. The SVS consists of five statements (e.g., “I feel alive and vital”), rated on a 7-point Likert scale from 1 (“not at all true”) to 7 (“very true”). Higher scores indicate higher subjective vitality. In this study, the Polish version of the SVS was used [19]. It has strong psychometric properties, such as an intended 1-factor structure, empirically supported convergent and divergent validity, and good internal consistency reliability (Cronbach’s alpha = 0.85) [19]. We used means of participants’ mean scores.

The *Giessen Subjective Complaints List* (GBB-8) is an 8-item self-report questionnaire for measuring eight somatic symptoms in four categories [20]. The GBB-8 has four 2-item subscales, namely exhaustion (e.g., “Being easily exhausted”), gastrointestinal (e.g., “Feeling bloated or distended”), musculoskeletal (e.g., “Neck or shoulder pain”), and cardiovascular complaints (e.g., “Palpitations or heart pounding”). A total score can also be calculated. The GBB-8 uses a 5-point Likert scale from 0 (“not at all”) to 4 (“very much”). Higher scores indicate higher somatic symptoms. In this study, the Polish version of the GBB-8 was applied [21]. It has strong psychometric properties, such as an intended 4-factor structure with a higher-order factor (GBB-8 Total score), representing general somatic symptom burden, empirically supported convergent and discriminant validity, and good internal consistency (Cronbach’s alpha  $\geq 0.71$ , except for the cardiovascular complaints subscale with a low Cronbach’s alpha of 0.57) and test-retest reliabilities [21]. We used means of participants’ sum scores.

#### 2.4. Statistical Analyses

Statistical analysis was carried out using JASP version 0.18.0. Descriptive statistics were calculated for the study variables. We calculated Cronbach’s alpha coefficients for assessing the internal consistency reliability of the questionnaires used. Pearson correlations between the study variables were calculated.

Paired *t*-tests were used to compare the mean scores of HP, OP, and the PC between passion for the first activity and passion for the second activity. For these tests, we calculated Cohen’s *d* effect size, with the following interpretation: Cohen’s *d* < 0.20 very small, 0.20–0.49 small, 0.50–0.79 moderate, and  $\geq 0.80$  large [22].

A series of one-way analysis of variance was used to compare the levels of study variables between different groups of people with specific combinations of passions. We also applied hierarchical multiple linear regression for predicting the levels of subjective

vitality and somatic complaints, based on the levels of HP and OP for the first favorite activity and the second favorite activity.

We calculated a required sample size for our regression analysis using G\*Power version 3.1.9.7. We considered six predictors (age, sex, HPs and OPs for the first and the second favorite activities),  $\alpha = 0.05$ , power = 0.80, and medium effect size ( $f^2 = 0.15$ ). The estimation showed that our sample should consist of at least 98 participants, therefore our sample was appropriate for this analysis.

### 3. Results

#### 3.1. Descriptive Statistics and Correlations

Table 1 presents descriptive statistics, correlations, and Cronbach's alpha coefficients for all the study variables. The study variables were reasonably normally distributed, with an absolute value for skewness of 1.17, and for kurtosis of 2.47. For all the measures used, the internal consistency reliability was acceptable (Cronbach's alpha  $\geq 0.70$ ), except for the GBB-8 cardiovascular complaints subscale (Cronbach's alpha = 0.58; see Table 1).

Our participants indicated a lot of different favorite activities which they considered as their passions. For instance, these activities were horse riding, reading, drawing, singing, dancing, listening to music, playing computer games, writing, playing on musical instruments, practicing sports, etc.

Our correlation analysis revealed that HPs were statistically significantly and positively related to subjective vitality, whereas only HP for the first activity was negatively associated with somatic complaints. OPs were not statistically significantly correlated with subjective vitality, whereas OPs were statistically significantly and positively associated with somatic complaints, with higher links for OP for the second activity.

We compared scores of HP, OP, and the PC on the first favorite activity and the second favorite activity. This analysis included only those who met the criteria for having both passions, i.e., mean  $\geq 4$  for the PC [23] on the first and the second activities. Paired *t*-tests indicated that HP, OP, and the PC scores were higher for the first favorite activity compared to the second favorite activity with statistically significant differences only for PC:  $t_{PC}(1, 244) = 4.61, p < 0.001$ , Cohen's  $d = 0.29$ ;  $t_{HP}(1, 244) = 1.97, p = 0.051$ , Cohen's  $d = 0.13$ ;  $t_{OP}(1, 244) = 1.86, p = 0.064$ , Cohen's  $d = 0.12$ .

#### 3.2. Regression Models for Predicting Subjective Vitality and Somatic Complaints

Based on the variable-centered approach, we conducted a set of multiple regression analyses to examine whether scores of HP and OP for the first and second activities could predict significant variance in subjective vitality and somatic complaints (controlling for sex and age). For these analyses, we excluded people with one passion. In the first step, sex and age were input as predictors of subjective vitality and somatic complaints. In the second step, HP and OP scores for the first activity were added as predictors. Then, in the third step, HP and OP scores for the second activity were input (Table 2).

**Table 2.** Regression models for predicting subjective vitality and somatic complaints based on the levels of HP and OP for the first and second activities among people with two passions ( $n = 245$ ).

Predictors	Subjective Vitality		Exhaustion		Gastrointestinal Complaints		Musculoskeletal Complaints		Cardiovascular Complaints		GBB-8 Total Score	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	0.00		0.03 *		0.08 ***		0.02		0.06 ***		0.07 ***	
Sex		0.00		-0.18 **		-0.27 ***		-0.11		-0.22 ***		-0.26 ***
Age		-0.01		0.00		-0.08		0.09		-0.15 *		-0.04
Step 2	0.13 ***		0.06 ***		0.01		0.02		0.04 **		0.05 **	
Sex		-0.02		-0.16 **		-0.26 ***		-0.10		-0.20 **		-0.24 ***
Age		-0.03		0.02		-0.08		0.11		-0.14 *		-0.02
HP for the first activity		0.36 ***		-0.21 **		-0.06		-0.12		-0.14 *		-0.18 **



Table 2. Cont.

Predictors	Subjective Vitality		Exhaustion		Gastrointestinal Complaints		Musculoskeletal Complaints		Cardiovascular Complaints		GBB-8 Total Score	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
OP for the first activity		−0.16 **		0.17 **		0.12		0.09		0.18 **		0.19 **
Step 3	0.03 *		0.03 *		0.02		0.03 *		0.04 **	0.04 **		
Sex		−0.03		−0.18 **		−0.26 ***		−0.12		−0.23 ***		−0.26 ***
Age		−0.03		0.02		−0.07		0.11		−0.13 *		−0.02
HP for the first activity		0.31 ***		−0.13		−0.00		−0.03		−0.05		−0.07
OP for the first activity		−0.19 *		0.06		0.11		−0.01		0.04		0.06
HP for the second activity		0.17 *		−0.13		−0.15 *		−0.15 *		−0.11		−0.19 **
OP for the second activity		0.04		0.20 *		0.02		0.17 *		0.25 **		0.21 **

Note.  $R^2$  = the proportion of variance explained. HP = harmonious passion; OP = obsessive passion; GBB-8 = Giessen Subjective Complaints List. Standardized regression coefficients ( $\beta$ ) are reported. Sex is coded as following: females = 0, males = 1. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Beyond sex and age, HP and OP scores for the first activities statistically significantly explained from 4% (cardiovascular complaints) to 13% (subjective vitality) of the variance in the dependent variables. The addition of HP and OP scores for the second activity into the regression models statistically significantly increased the amount of variance in subjective vitality and somatic complaints from 3% to 4%. These statistically significant changes occurred for subjective vitality and all somatic complaints (except gastrointestinal complaints), indicating that passion for the second activity explained the differences in well-being and ill-being scores.

### 3.3. Group Classification and Comparisons

We also applied a person-centered approach. Based on the mean scores of PC for the first and second activities, we distinguished several passion groups. People were classified as having either a HP or an OP for activities based on the higher of the two scores, i.e., HP and OP scores for the first activity, and HP and OP scores for the second activity. We distinguished six groups: (1) people with a HP for both activities ( $n = 223$ ; 83.52%), (2) people with a HP for the first activity and an OP for the second activity ( $n = 20$ ; 7.49%), (3) people with a HP for the first activity ( $n = 17$ ; 6.36%), (4) people without passion for two activities ( $n = 3$ ; 1.12%), (5) people with OPs for both activities ( $n = 2$ ; 0.75%), and (6) people with an OP for the first activity ( $n = 2$ ; 0.75%).

Descriptive statistics for the study variables in these six groups are presented in Table 3. Due to the small size of some groups, we could not compare all six groups between each other. We compared the levels of subjective vitality and somatic complaints between the following three groups: (1) people with a HP for both activities, (2) people with a HP for one activity, and (3) people with a HP for the first activity and an OP for the second activity. A series of one-way analysis of variance revealed no statistically significant differences in the levels of subjective vitality and somatic complaints between the compared groups ( $p > 0.05$ ).

Table 3. Descriptive statistics for subjective vitality and somatic complaints levels in six groups, and group comparisons.

Passion Groups	Subjective Vitality	Exhaustion	Gastrointestinal Complaints	Musculoskeletal Complaints	Cardiovascular Complaints	GBB-8 Total Score
	<i>M (SD)</i>					
HP for both activities ( $n = 223$ )	4.11 (1.40)	4.01 (2.09)	2.00 (2.12)	3.10 (2.45)	1.86 (2.00)	10.98 (6.33)
HP for one activity ( $n = 17$ )	4.26 (1.46)	4.12 (2.26)	2.59 (2.09)	3.35 (2.52)	1.71 (1.83)	11.76 (6.89)
HP for the first activity and OP for the second activity ( $n = 20$ )	3.52 (1.35)	4.70 (2.36)	2.10 (2.07)	3.25 (2.53)	2.70 (2.32)	12.75 (7.06)
OP for both activities ( $n = 2$ )	3.20 (0.85)	7.50 (0.71)	4.50 (0.71)	6.50 (2.12)	5.50 (0.71)	24.00 (1.41)

Table 3. Cont.

Passion Groups	Subjective Vitality	Exhaustion	Gastrointestinal Complaints	Musculoskeletal Complaints	Cardiovascular Complaints	GBB-8 Total Score
	M (SD)					
OP for one activity ( <i>n</i> = 2)	5.00 (0.00)	4.00 (1.41)	0.00 (0.00)	2.00 (1.41)	1.00 (0.00)	7.00 (2.83)
People without passion ( <i>n</i> = 3)	2.73 (1.21)	5.33 (3.79)	2.33 (2.52)	2.67 (2.08)	3.33 (3.21)	13.67 (7.77)
Analysis of variance for three groups (HP for both activities, HP for one activity, HP for the first activity and OP for the second activity)						
Model parameters	$F(2, 257) = 1.79,$ $p = 0.168$	$F(2, 257) = 0.98,$ $p = 0.378$	$F(2, 257) = 0.61,$ $p = 0.546$	$F(2, 257) = 0.11,$ $p = 0.899$	$F(2, 257) = 1.70,$ $p = 0.185$	$F(2, 257) = 0.78,$ $p = 0.461$

Note. *M* = mean; *SD* = standard deviation; GBB-8 = Giessen Subjective Complaints List.

#### 4. Discussion

In this study, we used variable-centered and person-centered approaches to examine whether and how multiple passions were associated with positive and negative indicators of psychosomatic health, i.e., subjective vitality and somatic complaints, respectively. Overall, we highlighted that studying multiple passions can explain the differences in well-being and ill-being in our Polish sample.

We revealed that people could be passionate about more than one activity in their lives, while the majority of our participants reported having two passions. OPs for both activities were found to be very rare, which is in line with prior studies [8,24]. It was slightly more common to have one HP and the other OP, which was also observed in previous work [14]. As most our respondents had two passions, passion therefore can be considered as a common and important psychological factor in this Polish sample. High prevalence of people with passion as well as with multiple passions suggested that people were interested in the development of passionate activities. Thus, this can be taken into account when introducing positive psychological help programs for a general community sample.

We revealed no statistically significant differences in the levels of subjective vitality and somatic complaints between three groups: (1) people with a HP for both activities, (2) people with a HP for one activity, and (3) people with a HP for the first activity and an OP for the second activity. Due to a very small sample size of the following groups, i.e., people with OP for both activities (*n* = 2), and OP for one activity (*n* = 2), and people without passion (*n* = 3), we could not compare these groups with the previous ones. Our data indicated that the prevalence of these multiple passion profiles was extremely low, and this fact should be taken into account in writing future research plans.

In our hierarchical regression analysis (step 3), both HP for the first and the second activities were associated with higher subjective vitality. Subjective vitality refers to a sense of having energy and vigor [18]. Being known for the regenerative qualities, subjective vitality fosters increased engagement in other activities, leading to maximizing positive outcomes of such involvement. Our findings are consistent with the previous research [14]. We also revealed that OP for the first activity was associated with lower subjective vitality. This also aligns with previous findings, indicating that subjective vitality tends to be higher when people are engaged in autonomously motivated activities [18], and this fact may explain the negative link between OP (characterized by controlled or not autonomous forms of motivation) and subjective vitality.

OP is characterized by a rigid involvement in an activity, which may lead to harmful consequences for physical health, such as exhaustion [25]. In our regression analysis (step 3), we revealed statistically significant links between OP for the second activities and individual somatic complaints, with no statistically significant links between OP for the first activity and all somatic complaints. All things considered, it seems that HPs were relatively strong positive correlates of subjective vitality and weak negative correlates of somatic complaints, whereas OPs were relatively strong positive correlates of somatic complaints and weak negative correlates of subjective vitality.

Our regression analysis provided detailed and specific findings on the passion for the second activity. In particular, the clinical relevance of passion for the second activity was

revealed for musculoskeletal complaints, where HP for the second activity contributed as a protective factor, whereas OP for the second activity did as a risk factor for these complaints. In many cases, OP for the second activity (as a risk factor) was the strongest predictor of somatic complaints than HP for the second activity. Beyond sex and age, OP for the second activity was a unique predictor for exhaustion and cardiovascular complaints. We revealed that HP for the second activity showed protective properties against gastrointestinal and musculoskeletal complaints. OP for the second activity was a statistically significant predictor of exhaustion (which had also been supported in prior studies [26]), as well as musculoskeletal and cardiovascular complaints. It seems that high levels of OP may be harmful to heart health.

We would like to indicate that the first passion described from 4% to 13% of the explained variances in the measures of well-being and ill-being (beyond the sex and age), with the highest variance for subjective vitality (13%) and exhaustion (6%). In contrast, the second passion statistically significantly added from three to four more percent for these variances. On the one hand, this suggested that the prediction models describing passions for the first and second activities were, in general, not strong enough. On the other hand, these models were statistically significant and explained meaningfully the significant variance in both biologically based characteristics such as well-being (i.e., subjective vitality) and ill-being (i.e., several somatic symptoms). Based on these considerations, these models with multiple passions can be considered meaningful, and clinically relevant.

#### *4.1. What Potential Psychosomatic Pathways May Explain Our Results?*

Prior studies have shown that people with OP have greater emotional reactivity to the experience of success and failure than people with HP [27]. Vallerand et al. [28] noted a correspondence between passion and cardiovascular reactivity measures (heart rate, stroke volume, and blood pressure). Their findings suggested that HP induced adaptive psychological and physiological responses to a stressful situation related to one's passion, whereas OP might lead to less adaptive ones. These consequences can be explained through relationships between passion, mainly HP, and cognitive appraisals [28], as higher HP was associated with more adaptive emotion regulation [29–31], which in turn, led to a better mental and somatic health.

Previous studies also noted that OP was positively related to negative emotional reactivity, i.e., activation, intensity and duration of negative emotions [30], and higher levels of negative emotional reactivity are considered as risk factors for psychopathology [32], psychosomatic disorders [33], and cardiovascular health [34]. Based on the theory and past work, therefore, it seems that OP is positively associated with heart symptoms through more vulnerable psychological health. At the same time, this mechanism may explain why OP was positively connected with exhaustion, musculoskeletal and other complaints. Being associated with negative emotions, including prolonged stress-related affective activation, which enhances physiological activation (e.g., cardiovascular, endocrinological activity) [35], OP may negatively impact on psychosomatic health.

#### *4.2. Limitations of the Study*

Being the first Polish study on multiple passions, we believe that our study makes a useful contribution; however, limitations of the study should be indicated. Our sample was moderate in size and it consisted of predominantly females, and this limits the generalizability of our findings. Our respondents participated in the study based on self-selection, and therefore there was a risk for a potential response bias. However, this risk is always present, as studies like our are voluntary. The study was cross-sectional; therefore, no conclusions can be drawn regarding the temporal order of multiple passions and the measures of well-being and ill-being. Therefore, longitudinal studies are required to examine empirically the dominant links between the study variables.

In our analyses, we did not control potential psychological covariates (e.g., depression), however, we controlled psychosocial factors (i.e., age and sex). We also did



not analyze the role of potential moderators, e.g., type of passions (for instance, reading books or riding a bicycle) in psychosomatic health outcomes. In this study, the GBB-8 cardiovascular complaints subscale has low internal consistency reliability (Cronbach's  $\alpha = 0.58$ ), as in the Polish validation study of the GBB-8 [21]. Therefore, the results on this subscale should be interpreted with caution.

#### 4.3. Future Directions and Practical Implications

In our future studies, we intend to control other potential covariates and moderators as well as the indicated limitations. We are interested in determining what drives some people to have multiple passions of obsessive nature, and what factors can decrease the negative effects of these passions in people's lives. We will focus on a mixed methods approach to a more in-depth examination of what factors support the development of HP and mitigate the potentially harmful effects of OP on psychosomatic health.

Taking into account the limitations of this study, we provided only tentative conclusions on the prevalence and differences between passions groups. As such, we were very modest and careful when introducing the following recommendations. As this was a cross-sectional study, and the variables were associated bi-directionally, therefore they might lead to one another or they might have an impact on each other. In order to change this cycle, interventions should be provided basically to all these variables, i.e., for the developing HP, decreasing negative effects of OP [36], and improving somatic health as well as vitality levels [37,38].

We also believe that the development of OP may be related not only to intrapersonal factors (e.g., temperamental traits) but also to interpersonal and environmental (e.g., family and organizational) ones. Focusing on all these factors, it may be possible to identify the most effective strategies to support the development of HP and mitigate the potentially harmful effects of OP on health [39], for instance, through social activities aimed at promoting HP for various activities.

## 5. Conclusions

In our study, we revealed that the majority of our respondents had multiple passions, mainly HPs for their two favorite activities. OPs for both one and two activities were very rare.

Our analysis showed that HP contributes to higher vitality levels and seems to play a moderate protective role for somatic complaints, whereas OP seems to be a relatively strong risk factor psychosomatic health. OP, mainly for the second activity, was a high-risk factor for somatic health, chiefly for high exhaustion and cardiovascular symptoms. Therefore, having an OP or multiple OPs may be related to ill-being.

It is not excluded that a vulnerable psychosomatic status may not allow HP to develop; therefore, some people have passions of obsessive nature. In essence, the research in this area should focus on the pathways or mechanisms underlying these psychosomatic relationships. Based on this study, we indicated the correlational links between passion and subjective vitality along with different somatic symptoms. In our opinion, these links are bi-directional, most likely with the paths from passion to subjective vitality being predominant. Future longitudinal studies are required to examine these links empirically.

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