



Passion and risk of addiction in experienced female yoga practitioners

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ABSTRACT

Yoga is a popular leisure activity and health practice worldwide, especially among women. It could become a long-term lifestyle involving passion, but, like other exercises, it may become addictive. While exercise addiction is widely studied, addiction to yoga remains unexplored. In this cross-sectional study, we examined 215 *highly experienced* women who practiced yoga for at least three years and at least twice weekly. We scrutinized harmonious passion (HP), obsessive passion (OP), risk of exercise addiction (REA), and various yoga-related measures. Only 2/215 (0.93%) of the sample were at REA. Reported HP, OP, feeling guilty when missing a yoga session, and the tendency to practice yoga when injured predicted the REA by accounting for 42% of the variance. Yogis who regularly practiced *pranayama* (breathing exercises) scored higher on HP, weekly yoga practice, and posting messages on social media than those who never or seldom used breath regulation. Participants choose yoga primarily for health and social reasons. The posting of yoga-related messages on social media was positively related to HP, OP, REA, and frequency of practice. The conclusions of this study are 1) the REA among experienced female yogis is negligible, 2) HP is higher in yoga forms that involve pranayama, 3) yoga practice is primarily related to health and social factors, and 4) a more intense passion for yoga is related to more frequent social media activities.

1. Introduction

Yoga has evolved over hundreds of years in ancient India [1]. It is a complex practice involving physical, mental, and spiritual practices [2–4]. However, western yoga is a form of physical exercise [5–8]. Accordingly, a prominent yoga practice style, known as Hatha Yoga, emphasizes physical exercise. Still, its practice differs from other forms of physical activities due to its specific body postures, sustained maintenance of these postures, which are often combined with breath regulation, and constant mindful attention along with non-judgmental awareness during practice [2,5,9]. Consequently, exercise-oriented western yoga has been associated with greater self-compassion, spirituality, body awareness, and mindfulness than other forms of physical exercise [10–13].

The mental health benefits of yoga are documented in systematic reviews [14–17]. There is a consensus in the literature that different forms of yoga have beneficial effects on depression, stress, and anxiety symptoms. A systematic qualitative review found that 17 out of 18 studies reviewed reported a positive impact of yoga on depressive symptoms [18]. A more recent one even concluded that yoga's efficacy

is comparable to antidepressants' effects [14]. Kirkwood et al. [19] reviewed eight studies, all reporting a positive impact of yoga on anxiety and anxiety disorders. According to these findings, another review involving 27 studies showed that 19 had identified a reduction in state or trait anxiety (M [20]. A more recent literature review concluded that yoga could be an adjunct therapy for treating depression, anxiety, and stress [21]. Concerning yoga's specific effect on stress [17], found that *all* yoga forms and yoga-based interventions significantly improved the stress response. Indeed, a review including 306 randomized controlled trials (RCT) examining 53 different yoga styles found no difference between the various forms of yoga practices concerning their positive health results [22].

Yoga may be a coping method, considering its beneficial health effects [14,22] and stress-regulating properties [17]. It can play a *therapeutic* role. However, therapeutic exercise could become obligatory because, when unfulfilled, a negative outcome may emerge [23]. Therapeutic exercise is generally motivated by negative reinforcement, implying that the person performs the activity to avoid an undesired outcome [23]. The Health-Belief Model explains, at least in part, how an action (i.e., yoga) having therapeutic potential can be internalized in a

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controlled way [24]. Therapeutic exercise is also a primary path to developing an addiction to exercise based on the Interactional Model [25] and the Four-Phase Model of exercise addiction [26].

Indeed, compulsive exercise for health and well-being may manifest as an internally controlled or suppressed obsession with activity becoming an addictive pattern of behavior. The cognitive appraisal hypothesis [27] states that if an exercise (i.e., yoga) becomes a means of coping with stress, and its regular practice is not possible, additional inner pressure may arise. Although studies examined these addiction patterns, which could occur in different types of exercise, no empirical studies are specific to yoga. The yogis might become hooked to the activity to avoid the ill consequences of stress buffered by yoga practice [17] and the 'additional' stress resulting from a missed training session. Although [28] looks exploratively at the addictive aspects of yoga in her interviews, 'yoga addiction' did not receive empirical attention to date. Even those who admit that it is possible to become addicted to yoga interpret this relationship positively rather than as a possibly concern-causing behavior [29].

The positive view of yoga addiction stems from the paradox that certain yoga practices have been used successfully to treat different addictions [30]. For example, a review of eight RCTs testing yoga's impact on various substance use disorders showed that three examining yoga's effect on smoking cessation revealed increased abstinence rates, reduced nicotine cravings, and decreased negative affect. In addition, three other studies focusing on yoga's impact on alcohol dependence found improvement in dependency and depression symptoms. Another study with 24 men diagnosed with substance use disorder reported decreased anxiety and depression due to yoga practice. However, one of the eight studies found no difference between the research and control groups [31]. A further narrative review [32], examining 16 studies, including 12 RCTs, also concluded that yoga might be an effective intervention in addiction treatment and recovery. In addition, a recent systematic literature review of 10 RCTs showed that various yoga practices had beneficial effects on women diagnosed with drug, alcohol, and nicotine addictions [33]. Finally, the most recent systematic review, including eight RCTs and both genders, yielded the same conclusion [34]. Noteworthy is that these reviews focused on substance use disorders. At the same time, no empirical research exists on yoga's efficacy in treating behavioral addictions despite a recent recommendation for its use in treating internet addiction [35].

Persistent yoga practice involves passion. Passion includes pain and gain, suffering and joy [36]. The Dual Model of Passion, frequently adopted in sports and exercise literature [37], in a nutshell, associates obsessive passion (OP) with a controlled internalization through which the person becomes a 'slave' of the object of passion [38]. In contrast, harmonious passion (HP) is internalized autonomously in one's identity and triggers joy while maintaining control over it [38]. [39] investigated whether the effects of obsessively and harmoniously driven yoga practice yield different health effects. Their first study tested yogis who practiced for several years. Measures included OP, HP, positive-, negative affect, and state anxiety. HP was directly associated with positive affect and inversely related to negative affect and state anxiety. In a second longitudinal study, the authors examined changes in the same measures over 3-months of yoga practice. They replicated the first study's findings. For example, HP predicted a drop in negative affect, anxiety, adverse physical symptoms, and increased positive affect. On the other hand, OP was a predictor of negative affect during yoga classes. Consequently, HP in yoga appears related to beneficial mental health indices.

In contrast, OP is not only related to negative affect but also to exercise addiction. A study by [40]; testing 106 leisure exercisers, found a positive correlation between the risk of exercise addiction (REA) and OP, which explained 22.1% of the variance. A later survey of 360 exercisers [41] showed that OP was a predictor of the REA by accounting for 32% of the variance, while HP only accounted for 1.8% of the variance. Similarly, a large study of 1255 Danish fitness attendees [42]

reported that OP predicted an even more significant variance (48%) in the REA. Furthermore, a study of 384 university students [43] revealed a statistically significant correlation between the REA and OP, accounting for 27% of the common variance. However, HP was unrelated to addiction. Another study by the same research team showed a stronger correlation between the REA and OP than HP on two measures of the REA in 485 university students [44]. Therefore, in contrast to HP, primarily being an index of mental well-being, OP appears to be related to the REA. To date, however, no empirical research has examined the connection between passion and REA in yogis.

In very reductionist terms, the numerous yoga forms can be classified as a combination of 'asanas' (physical exercises) and 'pranayama' (breathing exercises) [45]. Not all forms of yoga involve pranayama; some western forms tend to omit it because they focus mainly on the physical aspects of the practice [46]. However, pranayama promotes mental clarity in addition to emotional and physical control [47]. Therefore, the most effective yoga forms combine asanas with pranayama [46,48]. In addition, *pranayama itself* effectively reduces stress [49,50]; V. K [51]. Accordingly, the therapeutic effect of pranayama-based yoga forms is more evident than that of other yoga styles [52]. Consequently, pranayama practice might be more closely related to the REA based on both Interactional- and Four-Phase Models [25,26].

Although it may depend on its form, yoga practice is more prevalent among women than men [53,54]. In China, for example, in 2018, 94.5% of the yoga practitioners were women, while the gender gap in yoga practice is lower in the US, but women still outnumber men in a 4/1 ratio [55]. Yoga practitioners' gender distribution in Hungary is similar to that in the US [56]. In England, 88% of yoga practitioners are women [57]. However, in India, the situation is different; more men (48% of the population) than women (28%) practice yoga [58]. Still, based on recent data published by a health research-oriented group, among the estimated 300 million Yoga practitioners worldwide, 72% are women [59].

As noted earlier, considering its stress-regulating properties [17], yoga may become an antidote to stress and, over time, assume a therapeutic role for some practitioners. Furthermore, therapeutic exercise is obligatory because negative consequences may emerge if unfulfilled [23]. Indeed, therapeutic exercise is a primary path to exercise addiction based on theoretical models [25,26]. Regrettably, addiction to yoga did not receive empirical attention to date. Therefore, the current study aimed to examine the REA to yoga in individuals practicing for at least *three years* (having a chance to adopt yoga for therapeutic purposes) and at least twice a week. In selecting participants, we did not focus on specific yoga types but classified them *a posteriori* as involving or not breathing exercises (pranayama). Furthermore, the study aimed to test the relationship between the REA and passion. Finally, based on the beneficial health effects of pranayama practice reported in the literature [52], this research also sought to test the differences in passion and addiction between regular pranayama practitioners and those who seldom or never used pranayama in their yoga practice.

2. Hypotheses

- The REA in the experienced yogis will be similar or higher to those in other exercises.
- Yoga involving pranayama practice will be associated with a higher REA and passion.
- Passion, especially OP, will predict the REA in female yogis.

3. Materials and methods

3.1. Participants

Ethics. Despite the anonymous nature of the study, the Research Ethics Board (REB) of the Faculty of Education and Psychology at ELTE Eötvös Loránd University in Budapest, Hungary, examined the research

proposal and granted ethical clearance for it (No. 2021/425). Furthermore, the REB ensured that the work conforms to the ethical guidelines for internet-mediated research of the British Psychological Society [60] and the research principles with human participants established in the Helsinki Declaration [61]. Finally, all participants read and agreed to an informed consent form before completing the anonymous online questions.

We posted a call on several yoga-oriented Facebook groups and used the snowball method to recruit participants. Since an experienced yoga target group is a hard-to-find, it was practical to use the snowball method for subject recruitment. In this method, yogis refer to each other, directing to the researcher the right study group quickly and reliably. Given that there are more than 50 yoga styles [22], we did not set criteria for the style. Instead, we employed a classification based on whether the practiced form of yoga included *regular pranayama* or not. Furthermore, the call only solicited responses from individuals who had already practiced yoga for at least three years and a regular frequency of at least two times a week. These criteria were set because more than two years of practice may be considered as long-term exercise [41] and regularly practicing yogis exercise, on average, for more than 2 h per week [62], which, considering 60–90 min of practice [63], amounts to at least two occasions per week. However, we also received responses from many yogis who did not meet these criteria. Therefore, their responses were excluded from the final dataset. Accordingly, 215 replies from women aged between 20 and 71 years ($M = 40.91 \pm SD = 10.77$), out of 325 incoming responses, were used in the final data analyses after verifying conformity for the set criteria. The final sample's characteristics are presented in Table 1.

3.2. Materials

The revised Exercise Addiction Inventory (EAI-R [64]; was used to measure the REA. This scale contains six items (salience, conflict, mood modification, withdrawal, tolerance, and relapse) based on the components model of addiction [65]. Its items are rated on a 6-point Likert scale. The minimum score is 6, and the maximum is 36. For example, a sample item assessing salience is "Exercise is the most important thing in my life." The validity and reliability of the EAI-R were presented by its developers [64]. In the current study, the psychometrically validated Hungarian version (EAI-R-HU) was employed. Its internal reliability is (Cronbach's α) 0.71 [66].

Another instrument used in the study was the Passion Scale (PS; [67], which measures both harmonious passion (HP) and obsessive passion (OP), each based on six statements. The items are rated on a 7-point

Table 1
Demographics and yoga practice-related characteristics of the sample.

Demographics	Frequency n (percent %)
Living area	Capital area: 81 (37.7%), City: 96 (44.7%), Small town or village: 38 (17.6%)
Occupation	Works: 196 (91.2%), Studies: 9 (4.2%), Pensioner or unemployed: 9 (4.2%), Missing: 1 (0.4%)
Education	High school: 45 (20.9%), University: 156 (72.6%), Postgraduate: 14 (6.5%)
Reason for yoga practice	Mental/physical health: 94 (43.7%), Skill: 18 (8.4%), Spiritual: 26 (12.1%), Social: 77 (35.8%)
Form of practice	Alone: 43 (20.0%), In a group: 20 (9.3%), Both alone and a group: 152 (70.7%)
Time of yoga practice	When she feels like: 16 (7.4%), At a usual time of the day: 125 (58.1%), Whenever she has time for it: 74 (3.4%)
Practices regularly breathing exercises (pranayama)	Yes: 133 (61.9%), No: 82 (38.1%)
Frequency of yoga practice	Range 2–11 times/week ($M = 4.51 \pm SD = 2.11$)
History of yoga practice	Range 3–35 years ($M = 8.55 \pm SD = 6.38$)
Posts about yoga on various social media	Never: 127 (59.1%), Monthly: 46 (21.4%), Weekly: 21 (9.8%), More than once a week: 21 (9.8%)

Likert scale. Sample items of the PS are "This activity (yoga) is in harmony with the other activities in my life." (HP) or "If I could, I would only do (yoga) my activity." (OP). Marsh and his colleagues [67] have reported excellent psychometric properties for the PS. In the current study, the words "exercise" from the EAI-R and "activity" from the PS have been replaced with "yoga" to make it more specific to this form of physical activity. In the present work, the Hungarian version of the PS was used. The internal reliability of its HP subscale is .66, while that of the OP subscale is .81 [68].

3.3. Procedure

The length of the data collection was less than two months (i.e., from 25 to 10–2021 to 14-12-2021). Participants accessed the study on the Qualtrics research platform. Following their consent to participation, confirmed by selecting the "Yes" button (after reading the consent form on the first page of the research website), the participants completed the online study consisting of demographic questions and the two validated psychometric tools.

Data analyses. In addition to calculating the descriptive statistics, correlations were performed between the REA, OP, HP, and other yoga practice-related measures. Then a bootstrapped (1000 samples) hierarchical linear regression was used to identify the REA predictors and their amount of contributions in the best model. Furthermore, a multivariate analysis of covariance (MANCOVA) tested the differences between individuals who regularly practice pranayama versus those who do not. Finally, correlations were calculated to examine the relationship of social media activity with the REA, OP, HP, history, frequency, and reason for yoga practice. All statistical tests were performed with the Statistical Package for Social Sciences (IBM SPSS, v. 28 [69]; computer software.

4. Results

4.1. Risk of exercise addiction

The REA in the current sample of experienced female yogis was less than one percent, given that only two individuals scored ≥ 29 on the EAI-R considered to the cut-off value between low and high REA [64]. Age did not correlate with any of the measures. However, the REA correlated positively and statistically significantly with HP ($r = 0.35, p < .001$), OP ($r = 0.54, p < .001$), the weekly yoga frequency, ($r = 0.30, p < .001$), feeling guilty when missing a planned yoga session ($r = 0.48, p < .001$), tendency to practice yoga when injured ($r = 0.30, p < .001$), and posting messages on social media ($r = 0.14, p = .04$). Subsequently, using these measures as independent variables, a bootstrapped hierarchical linear regression was performed to identify the predictors of the REA. Its results were statistically significant. The best model (Durbin Watson = 0.947, $R = 0.655, R^2 = 0.429, Adjusted R^2 = 0.418, F(4, 210) = 39.38, p < .001$) included four statistically significant predictors comprising HP ($R^2 = 0.122$), OP ($R^2 = 0.178$), feeling guilty when missing practice ($R^2 = 0.115$), and tendency to practice when injured ($R^2 = 0.014$). The

Table 2
The table illustrates the significant predictors of the risk of exercise addiction (REA).

	Standardized β (beta)	t	p	95% Confidence intervals	
				Lower	Upper
Harmonious passion (HP)	.137	2.255	.025	.017	.251
Obsessive passion (OP)	.358	5.614	<.001	.140	.292
Feel guilty when missing practice	.313	5.388	<.001	.662	1.426
Tendency to practice when injured	.127	2.259	.025	.053	.778

results of the best model are summarized in Tables 2 and 3.

The MANCOVA, which included age as a covariate, compared yogis who regularly use pranayama with those who never or seldom use it on eight dependent measures: REA, HP, OP, tendency to practice when injured, feeling guilty when missing a practice session, history of the practice, frequency of practice, and posting on social media. The multivariate test result was statistically significant (Pillai's Trace = .089, $F[8205] = 2.5, p = .013$, effect size on the basis of partial ETA squared [η_p^2] = 0.089, observed power [$1 - \beta$] = 0.903). The univariate tests revealed statistically significant differences between the two groups in three measures, including HP, frequency of weekly practice, and posting messages on social media. The regular pranayama practicing group scored higher than the not or seldom practicing group (Table 4). Age (the covariate) was a statistically significant mediator only of the history of yoga practice ($F(1,212) = 29.69, p < .001, \eta_p^2 = 0.123$).

The frequency of posting on social media correlated statistically significantly with the REA ($r = 0.14, p = .04$), HP ($r = 0.35, p < .001$), OP ($r = 0.22, p < .001$), and weekly frequency of yoga practice ($r = 0.38, p < .001$). Last, as seen in Table 1, most participants in the current study practiced yoga for health reasons (mental or physical), social, spiritual, and skill development. These groups did not differ statistically significantly on any of the dependent measures.

5. Discussion

The current results indicate that the risk of addiction in female long-term yoga practitioners is very low or even negligible compared to most forms of recreational physical activities. Indeed, the 0.93% prevalence observed in this *experienced* sample is insignificant compared to the rates reported for various physical activities ranging from 3.5% to 15.3% [70]. It is even lower than the rate reported for the general population, found to be 1.9% [70]. The REA screened via questionnaires may never materialize in clinical dysfunction; instead, it reflects a 'possible risk' of developing an addiction to the adopted physical activity [23]. Therefore, only deep clinical interviews could identify whether those at high REA exhibit a dysfunction. Our results indicate that the REA in long-term female yoga practitioners is lower than in the general population.

However, similarly to previous studies [41,71,72], passion was a predictor of the REA. Still, the shared variance was lower than in previous studies with other exercisers. Indeed, OP accounted for only 17.8% of the variance in the risk of yoga addiction, while HP accounted for 12.2%. The lower contribution of HP in contrast to OP is a general finding across several studies [41,71,72]. In addition to passion, feeling guilty when missing a yoga practice also predicted the REA (11.5%). Finally, although statistically significant in the model, the tendency to exercise when injured only accounted for 1.4% of the variance in yoga addiction, which is negligible. Still, these four measures accounted for 42% of the variance in the risk of yoga addiction, the prevalence of which was extremely low in the current sample of experienced yogis.

Table 3

Bootstrapped (1000 samples) coefficients of the hierarchical linear regression estimating the predictors of the REA.

	B	Bias	Standard error	p	95% Confidence intervals	
					Lower	Upper
Harmonious passion (HP)	.134	-.003	.057	.016	.020	.241
Obsessive passion (OP)	.216	.000	.046	<.001	.124	.303
Feel guilty when missing practice	1.044	-.003	.195	<.001	.657	1.442
Tendency to practice when injured	.416	.000	.198	.034	.027	.811

Table note: B = beta.

Table 4

Means (M) and standard deviations (SD) of eight dependent measures in pranayama practicing and not or only seldom practicing groups also show the univariate test results and effect sizes (η_p^2) of statistically significant differences between them. The degrees of freedom (df) in all instances are: between participants = 1, error = 212, (NS = Not Significant).

Dependent measure	Pranayama group (n = 133)	No pranayama group (n = 82)	F	p	η_p^2
	M ± (SD)	M ± (SD)			
Risk of exercise addiction (REA; the scores range from 6 to 36)	11.27 (4.83)	17.05 (4.96)	.177	.675 NS	.001
Harmonious passion (HP; the scores range from 7 to 42)	35.92 (4.76)	33.91 (5.14)	8.304	.004	.038
Obsessive passion (OP; the scores range from 7 to 42)	20.57 (4.99)	19.46 (7.82)	.957	.329 NS	.004
Feeling guilty when missing yoga practice (1–6 rating scale)	2.57 (1.48)	2.52 (1.43)	.159	.691 NS	.001
Tendency to practice injured (1–6 rating scale)	2.37 (1.49)	2.52 (1.48)	.286	.593 NS	.001
Frequency of posting messages on social media (never, monthly, weekly, more than once a week)	1.84 (1.05)	1.48 (0.86)	8.383	.004	.038
Frequency of weekly yoga practice (times/week)	4.89 (2.10)	3.89 (1.99)	12.657	<.001	.056
History of yoga practice (years)	8.82 (6.25)	8.11 (6.60)	2.438	.120 NS	.011

Table note: η_p^2 = partial ETA squared; M = mean; SD = Standard Deviation.

Noteworthy is that few studies examined *experienced* exercisers, or set criteria for exercise history, as we did in the present work. At the same time, they still disclosed higher REA than we did in female yogis who practiced regularly for at least three years. Therefore, our findings are relatively robust in showing that the risk of yoga addiction is small. Moreover, even the most devoted practice is unlikely to be directly associated with mental health risks. Consequently, according to the extant literature, they could be expected to contribute to maintaining and promoting mental health [14–17] without threats to the latter.

We also found that yogis who regularly practiced pranayama scored higher on HP, reported more weekly yoga practice, and posted messages on social media than those who never or seldom used breath regulation. These measures together suggest a deeper involvement in yoga practice. Still, despite the enhanced affiliation, pranayama practitioners did not exhibit higher OP or risk of yoga addiction than their non-regularly practicing counterparts. Higher HP in pranayama practitioners might be associated with factors not examined in the current work. Evidence shows that an acute breathing exercise, lasting only 3 min, induces decreased negative affect, simultaneously increasing positive affect, and if exercise-related expectancy is associated with the breathing exercise, there is a higher increase in positive affect [73]. Being directly associated with HP [37], the latter may be a key variable responsible for higher HP observed in pranayama practitioners. Earlier research has identified a positive relationship between HP and positive affect in yogis [39]. This plausible but speculative interpretation requires experimental scrutiny via a controlled intervention study.

Another reason for higher HP in pranayama practitioners may be

related to the documented effects of these exercises. Pranayama relaxes the mind and predisposes it to enter a meditative state characterized by decreased arousal [74] and an altered state of consciousness [75]. Hence, practicing it for only a few minutes [73] induces mental calmness and relaxation, a general state of harmony. Indeed [76], connects HP to positive activities and, as an example, points to meditation. Furthermore, the average of one day more yoga practice in those who embed pranayama in their exercise (Table 4) could also make a difference in HP. Finally, research suggests that exercise volume is directly associated with passion [41,77]. In addition to empirical support, this connection can be expected based on common sense; the more passionate a person is about a chosen activity, the more time they will devote to it.

However, not only the time spent with the activity can be connected with passion, but also the strength of involvement. For example, the pranayama practitioners in the current study practiced yoga more frequently than non-practitioners or only occasional practitioners, and they posted messages connected to yoga more frequently on social media. This connection between the level of involvement in physical activity and social networking activity has already been reported in the literature [78]. Further, it was shown that passion for an activity, in this case, yoga, favors engagement in social media activities and directly influences the nature and frequency of posting on social media [79]. In our case, those with more substantial involvement in yoga may also use social media for connection, experience and practice-related forums, and general information sharing.

Finally, the results suggest that most yogis practice for health-related reasons. These findings agree with several reports in the literature [80, 81] and contrast a study by Park et al. [82] showing that students and teachers adopted yoga mainly for exercise and stress relief. However, over 62% of students and 85% of teachers changed their primary reason during their regular practice. Most changes were related to spirituality, which was the third reason for practice after various social motives in the current study. However, in contrast to our sample characterized by women who practiced yoga for at least three years and twice a week, Park et al. [82] studied a majority female sample who took at least five yoga classes within the past three months. Therefore, the main reason for yoga practice, and the interim change in motivation, should be studied systematically. Such investigation should preferably adopt a longitudinal design since cross-sectional research might result in inaccurate findings due to memory distortion over time.

6. Strengths and limitations

A strength of the study is that it represents pioneering research to study the risk of addiction in yoga. The selection and examination of experienced practitioners is another strength. Further, the findings showed that the risk of REA in yoga is even less than that reported for the general population [70], which is another novel information. Further, the higher HP in pranayama practitioners substantiates the benefits of breathing exercises. Furthermore, identifying some key predictors of the REA in yoga is also essential. Last, the finding that yoga practice is associated with elevated social media activity could reflect a more intense behavioral commitment (without addiction), which is a finding that merits further examination.

This study also has limitations. First, due to its cross-sectional nature, there are no causal links. Second, self-selection to participate in this research might reflect deeper involvement in yoga practice. Third, classification as regular pranayama performers or non-performers ignores the differences between yoga styles, which may be relevant despite literature reviews showing no difference between the various yoga styles. Fourth, cultural differences in yoga may also exist [83]; thus, the current findings beg for replication in other cultures. Finally, we delimited our research to women only, which does not permit the generalizability of the results to men. Future research should examine specific physical (i.e., Hatha Yoga) and spiritual (i.e., Raja Yoga) forms of yoga and experienced men yogis to broaden the current findings

meaning, reliability, and consistency.

7. Conclusions

The REA among experienced female yogis appears to be negligible (i.e., <1.0%). Still, the REA scores in this sample are predicted by passion (both HP and OP), the tendency to practice when injured, and the feelings of guilt when missing a planned practice. These measures accounted for 42% of the variance in the REA. Further, the weekly number of yoga practices, HP, and the frequency of posting yoga-related messages on social media seem to be higher in yoga forms that involve pranayama. Yoga practice was primarily health-related in this sample, followed by social reasons. Furthermore, yoga-related messaging on social media was positively associated with REA, passion (HP and OP), and weekly yoga practice. These results suggest that yoga is a passionate, health and social factors-oriented activity with no or minimal addictive features even in those women who have practiced it for a relatively long time.

Author statement

Attila Szabo Conceptualization Methodology/Study design Formal analysis Writing – original draft Supervision Project administration Approved final version Krisztina Ábel Conceptualization Methodology/Study design Formal analysis Data curation Approved final version Vilmos Lukács Validation Data curation Visualization Project administration Approved final version Szilvia Boros Conceptualization Methodology/Study design Software Validation Approved final version Validation Formal analysis Data curation Writing – original draft Approved final version.

Ethics

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Data availability

The raw data used to support the findings of this study have been deposited in the Mendeley data repository: <https://doi.org/10.17632/xd3gr27mmn.1>

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Declaration of competing interest

The authors have no conflict of interest to declare.

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