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RESEARCH PAPER

The Role of Leisure Interest and Engagement for Subjective Well-Being

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Abstract During the last decades, the association between leisure engagement and subjective well-being (SWB) has been examined. Yet, the role of the interest in specific leisure activities for SWB has been neglected. Thus, we examined whether the pure leisure engagement or the opportunity to realize the longing to pursue a leisure activity is linked to well-being. A sample of 402 participants completed an online survey about interests and the frequency of engagement in diverse leisure activities as well as physical, cognitive, and affective well-being. The study revealed that leisure engagement showed stronger associations with all aspects of well-being than leisure interest per se. More specifically, interest and engagement in social activities and sports showed robust associations with different facets of well-being. Furthermore, a high individual fit between leisure interest and engagement across diverse activities incrementally predicted SWB beyond leisure engagement per se. Analyses of nonlinear associations indicated that too much leisure engagement was associated with lower levels of SWB, but high interest in leisure activities buffered this effect. Thus, the intrinsic motivation to leisure activities may play an important role for well-being in addition to the sheer leisure engagement.

Keywords Leisure engagement · Leisure interest · Interest-engagement fit · Subjective well-being · Habitual well-being

Philipp Schulz and Julian Schulte have contributed equally to this work.

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1 Introduction and Theory

Leisure is an important part of human life and contributes to recreation and well-being (Argyle 1999; Sheldon and Lyubomirsky 2004; Tkach and Lyubomirsky 2006). In recent decades, there have been several studies which have suggested a positive association between individual engagement in leisure activities and subjective well-being (SWB) (García-Villamisar and Dattilo 2010; Newman et al. 2014). Moreover, the positive influence of leisure program activation has been emphasized for the treatment of depression (Cuijpers et al. 2007). However, the role of interests in leisure activities concerned with the association between leisure engagement and SWB has been neglected. Even though motivational theories have repeatedly emphasized the importance of interests for SWB (e.g. Ryan and Deci 2000), the extent to which interest in leisure activities is relevant beyond the sheer engagement regarding the association with SWB has not yet been investigated. In the current study, we examined linear and nonlinear associations between different (cognitive, affective and physical) aspects of habitual well-being and leisure interests, the frequency of engagement, as well as the individual leisure interest-engagement fit (i.e., the individual profile correlation between interests and engagement across diverse leisure activities).

1.1 Leisure Engagement and Well-Being

SWB can be divided into different facets. It encompasses cognitive evaluations of one's own current and former life (life satisfaction) as well as pleasant and unpleasant temporary moods and long-term happiness (Diener et al. 1999). Life satisfaction and happiness—that is, the cognitive and affective facets—can be complemented by physical well-being, such as perceived health (Diener et al. 1999). There is increasing evidence that leisure engagement demonstrates significant positive associations with: life-satisfaction; long-term happiness (Brajša-Žganec et al. 2011; Hills and Argyle 1998; Tkach and Lyubomirsky 2006); and perceived health (Dubbert 2002; Iwasaki 2003).

A recent study showed that participants mentioned different leisure activities as important "ingredients" alongside other important issues within their personal "recipes" of overall long-term happiness (Caunt et al. 2013). This potential influence of leisure engagement on SWB has already aroused attention regarding the acute treatment of mood disorders (Dimidjian et al. 2006) and the reduction of the risk of the onset of depression (Wang et al. 2011). The large number of studies on the links between leisure engagement and SWB have been summarized in a recent meta-analysis (Kuykendall et al. 2015), which revealed a moderate positive correlation ($r = .26$) across different facets of SWB and measures of leisure engagement.

1.2 The Role of Leisure Engagement Measurement

In their meta-analysis, Kuykendall et al. (2015) differentiated between three different formats of leisure engagement measurement: (1) the *frequency* at which individuals engage in leisure activities (Bevil et al. 1994; Brajša-Žganec et al. 2011), (2) the *diversity* of leisure activities (Lu 2011; Lu and Hu 2005), and (3) the *quantity* of time they spent on those activities (Thornton and Collins 1986). Measures of diversity and frequency showed stronger associations with SWB ($r \approx .30$) than measures of quantity ($r \approx .10$).

Moreover, Kuykendall et al. (2015) distinguished between two types of leisure engagement operationalization: structural and subjective leisure engagement. The rather nomothetic operationalization of *structural leisure engagement* encompasses individual reports on leisure behavior based on a defined set of leisure activities. In addition to the benefit of standardization, this assessment has the advantage that leisure activities, which are often not seen as leisure activities but rather as chores (i.e., cooking, cleaning), are also considered. The rather idiographic operationalization of *subjective leisure engagement* comprises individual reports on engagement in individually defined leisure activities. This ensures that only the activities that are of interest to the interviewee are assessed.

In contrast to their hypothesis, Kuykendall et al. (2015) found a stronger correlation between structural measures of leisure engagement and SWB than between subjective leisure engagement and SWB, in their meta-analysis. They explained this by stating that the included studies, which examined correlations between subjective leisure engagement and SWB, most often used the quantity measure of engagement, which, if at all, showed lower associations with SWB (Derous and Ryan 2008). Newman et al. (2014) and Kuykendall et al. (2015) suggested that a comprehensive measurement of leisure engagement should encompass the individuals' pure engagement (i.e., frequency) in leisure activities within a comprehensive set (i.e., structural measurement) of diverse leisure activities (i.e., diversity) as well as the assessment of the interest in those activities. The latter of which allowed the additional consideration of the subjective value of leisure engagement (in the following discussed as *leisure interest* in our study).

1.3 The Role of Leisure Interest

Interests can be conceptualized as concrete and intrinsically driven preferences for certain actions or particular objects of experiences (Deci and Ryan 2002; Krapp 2000). They are generally seen as important leading forces for long-term adaptational functions such as the development of certain skills and expertise (Silvia 2001). That is, individual interests appear to be strongly linked to aspects of individual emotional, motivational (intrinsic) and learning processes as well as aspects of personality (e.g., openness to experiences, idle curiosity). Thus, they can be considered as preconditions for the attainment of personal goals across one's lifetime (Hidi 1990; Reeve 1993). In view of the important role of goal attainment for SWB, the link between SWB and interest realization in work or in leisure time becomes obvious.

Leisure interests can be defined as relatively stable behavioral tendencies that intrinsically motivate individuals to activities in different areas of leisure (Todt 1995). According to the self-determination theory (Ryan and Deci 2000): the consideration of intrinsic motivation for a specific leisure activity in addition to pure engagement is important, because autonomy is the most central motive of human self-regulation. Thus, intrinsically but not extrinsically motivated leisure activities may have positive effects on SWB. However, people can show frequent engagement in a specific leisure activity for which they are not intrinsically motivated (e.g., household, shopping). Conversely, people may also be interested in leisure activities that they do not have or do not perceive to have the possibility to pursue (e.g., no time, too expensive). Both scenarios highlight the role of leisure interests with regards to the positive association between leisure engagement and SWB. To the best of our knowledge, no study has systematically examined the association between SWB and leisure interest, in addition to leisure engagement or the role of the individual fit between leisure interests and leisure engagement for SWB.

1.4 Aims of the Current Study

In the current study, we measured leisure interest and leisure engagement, as well as the individual interest-engagement fit across diverse leisure activities, to examine the association between these leisure aspects and different components of SWB. In line with the considerations presented above, we expected a positive linear correlation between leisure interest and overall SWB (Hypothesis 1). Similarly, we hypothesized that higher leisure engagement is significantly associated with higher SWB (Hypothesis 2). Even though the current study was primarily focused on the role of the individual level of interest, engagement, and interest-engagement fit across diverse leisure activities, we explored the role of the type of leisure activity. Thus, we also investigated the associations between specific facets of SWB and the individual interest, as well as engagement in specific leisure activities.

The primary aim of the current study was the examination of the role of the interest for SWB, in addition to the pure frequency of engagement across diverse types of leisure activities. In this regard, and based on the suggestion that a better fit between interest and engagement is beneficial, individuals should show a higher degree of SWB with a higher intra-individual profile correlation between interests and the frequency of engagement across diverse leisure activities (i.e., individual interest-engagement fit). In other words: a high interest-engagement fit indicates that activities evaluated as more interesting would be performed more often and the higher this individual fit, the better the individual well-being (Hypothesis 3).

According to the rationale that motivation should affect behavior: we examined whether the association between leisure interest and SWB is mediated by leisure engagement, and whether interest across diverse leisure activities incrementally predicts SWB beyond the engagement in these activities. We expected that the link between leisure interest and SWB is mediated, at least partially, by leisure engagement (Hypothesis 4).

In line with the self-determination theory, the intrinsic motivation for a specific activity should be important. Therefore, we hypothesized that the interest-engagement fit across diverse leisure activities account for additional variance in SWB beyond the pure leisure engagement (Hypothesis 5). In a similar vein, we examined whether the association between leisure engagement and SWB was moderated by the degree of interest in the respective activities. We hypothesized that the positive association between overall leisure engagement and SWB increased with increasing leisure interests (Hypothesis 6). Within this context, we allowed for potential nonlinear associations between SWB and leisure interests, as well as leisure engagement, exploring the existence of a decreasing association between leisure engagement and SWB with increasing leisure engagement; because, it is plausible that SWB cannot be continuously enhanced by an infinite increase of leisure engagement in more and more leisure activities.

2 Methods

2.1 Participants and Data Collection

Participants were recruited via: social networks, mailing lists or by word-of-mouth, and were asked to complete an online survey between January to June 2015, which consisted of demographic information and rating scales measuring leisure interest and leisure

engagement, as well as different facets of SWB. Participants were asked to complete a whole page before they were allowed to answer the next page's items. This ensured that participants produced completed data sets. The order of instruments and items within the instruments were randomized. Participants who did not finish the survey were excluded from the analyses.

From the 622 people who clicked on the survey link, we received 402 complete data sets, of which 147 were male (36.6%) and 255 were female (63.4%). Our target sample size was based on previous findings, indicating that a sample size of at least $N = 250$ was necessary to provide sufficiently robust estimates for correlations (Schönbrodt and Perugini 2013). Participants ranged in age between 14 and 69 years ($M = 27.08$; $SD = 8.88$) and were mostly students (65.7%). Participants were asked for their marital status (52.7% single; 35.1% in a partnership; 10.7% married; 1.5% divorced) and for their level of education (47.5% high school; 30.3% university; 7.0% secondary school, 7.0% vocational high school; 0.9% other). On average, participants had 15.69 h of paid work per week.

2.2 Measures

SWB was captured with two instruments: The Habitual Subjective Well-Being Scale (HSWBS; Dalbert 1992) and the "Fragebogen zur Erfassung körperlichen Wohlbefindens" (FEW-16; English: questionnaire measuring physical well-being; Kolip and Schmidt 1999). The HSWBS is a 13-item questionnaire capturing general SWB consisting of affective (e.g.: "I mostly feel quite happy.") and cognitive facets (e.g.: "I am satisfied with my life."). The items were rated on a 6-point Likert Scale from 1 (absolutely not true) to 6 (absolutely true). Correlations with comparable questionnaires confirmed concurrent validity as reported by Dalbert (1992). In the current study, both facet and overall scale scores, showed very good internal consistency (both subscales: $\alpha = .90$, overall: $\alpha = .94$). The FEW-16 includes 16 items to measure physical well-being. Items (e.g.: "My body is robust.") were also rated on a 6-point Likert Scale from 1 (absolutely not true) to 6 (absolutely true). The authors of the FEW-16 demonstrated concurrent validity by means of correlations with comparable questionnaires (Kolip and Schmidt 1999). The reliability was excellent ($\alpha = .92$). Overall SWB scores were computed across the FEW-16 and both HSWBS measures by summing up the individual subscale scores.

Leisure interest and engagement were measured with a revised form of the German "Fragebogen-Inventar für Freizeitinteressen" FIFI (Piepenburg and Kandler 2016). The FIFI-R includes a list of 134 common leisure activities (e.g.: "Going to the cinema") followed by two rating scales. The subscale *Leisure Interest* (LI) captures how much the participants like to do or would like to do the respective activities on a 5-Point Likert Scale from 0 (very unwillingly) to 4 (very willingly). The subscale *Leisure Engagement* (LE) captures the frequency individuals engage in the respective activities on a 5-Point Likert Scale from 0 (never) to 4 (very often). The 134 items of the FIFI-R can be aggregated into 21 primary scales measuring different areas of leisure activities. Table 1 displays descriptive statistics and an example item for each primary scale. Piepenburg and Kandler (2016) reported good psychometric quality for the 21 primary scales. The current study provided comparable internal consistency (see Table 1).

The current study was primarily focused on the interest or engagement across diverse leisure activities. Therefore, we calculated individual sum scores for leisure interest by summing up all item responses on the LI subscales ($\alpha = .93$). Similarly, individual leisure engagement scores were calculated by summing up all item responses on the LE subscales ($\alpha = .93$). Within this context, it is important to note that participants who show a medium

Table 1 Descriptive statistics and internal consistency of the 21 FIFI primary scale scores

FIFI primary scales	Example item	Leisure interest			Leisure engagement		
		M	*SD*	α	*M*	*SD*	α
Social activities	Going to a party	3.05	.62	.81	2.07	.63	.83
Virtual life	Chatten	2.24	.62	.66	2.16	.61	.62
Home relaxation	Watching TV	2.88	.60	.62	1.97	.60	.61
Music	Listening to music	2.87	.75	.73	2.04	.79	.74
Vacation	Writing postcards	2.61	.72	.69	1.58	.70	.72
Cultural activities	Going to a theatre	2.61	.65	.78	1.54	.58	.76
Outdoor activities	Camping	1.90	.74	.70	.62	.41	.65
Animals	Visiting a zoo	2.23	.95	.82	1.27	.89	.82
Near-natural recreation	Enjoying landscapes	2.81	.81	.67	1.81	.79	.66
Games and puzzles	Playing games	2.08	.67	.70	1.12	.52	.67
Wellness	Sauna/massage	2.20	.73	.74	1.22	.57	.66
Household tasks	Cleaning a flat/house	1.64	.75	.77	2.41	.72	.76
Handicraft activities	Painting pictures	1.94	.82	.84	1.12	.64	.82
Social support	Care of a child	2.83	.68	.80	2.06	.77	.80
Cooking and baking	Cooking	2.70	.89	.75	2.04	.90	.72
Self-educational activities	Reading newspapers	2.55	.61	.72	2.13	.63	.67
Intellectual activities	Reading poems	1.80	.65	.77	.94	.46	.66
Religion and spirituality	Pray	1.21	.96	.86	.77	.73	.82
Finances	Comparing prices	1.14	.76	.83	1.12	.62	.75
Car and motorbike	Car maintenance	1.08	.91	.77	.57	.65	.74
Sports	Team sports	1.80	.99	.86	1.14	.84	.85

FIFI = Fragebogeninventar für Freizeitinteressen (engl. questionnaire for leisure interests); scale range for leisure interest: 0 (very unwillingly) to 4 (very willingly); scale range for leisure engagement: 0 (never) to 4 (very often)

degree of interest and engagement in many activities may show identical scores to people who are highly interested and engaged in few specific activities. Leisure interest and leisure engagement scores showed a positive correlation ($r = .52, p < .01$), indicating that people who are more interested in specific leisure activities tend to show more engagement in these activities.

2.3 Analyses

To test Hypotheses 1 and 2, we first calculated correlations with 95% confidence intervals between all SWB scores and leisure interest, as well as leisure engagement. We then calculated the individual fit between leisure interest and engagement via idiographic profile correlation between LE scores and corresponding LI scores across the 134 leisure activity items for each individual. Then, we investigated the links between individual interest-engagement fit scores and SWB scores, in expectation of a positive linear association (Hypothesis 3).

To explore the specific associations between particular leisure activities and facets of SWB, we computed correlations between FIFI primary scale scores and SWB facets as a

first step. In subsequent multiple regression analyses, we predicted SWB facets by using FIFI primary subscale scores. We used a stepwise deletion procedure to find the most parsimonious model determining the interest and engagement in specific leisure activities that specifically predicts SWB facets beyond the common prediction by leisure interest and engagement.

The hypothesis that leisure engagement at least partially mediates the association between leisure interests and SWB (Hypothesis 4) was tested using a path model analysis with effect paths from leisure interest to SWB and to leisure engagement, as well as from leisure engagement to SWB. The model analysis allowed estimates of total, direct and indirect effects. Then, we added the personal leisure interest-engagement fit to the model as an additional predictor testing its incremental prediction of SWB beyond leisure interest and engagement (Hypothesis 5).

Finally, we examined whether leisure interest moderates the correlation between leisure engagement and SWB (Hypothesis 6), using a response surface analysis (Box and Draper 2007). In this analysis, overall SWB as well as facets of well-being were considered as response (i.e., dependent) variables, and leisure interests as well as leisure engagement were the explanatory variables. This analysis allowed for possible linear and nonlinear main effects, as well as interaction effects of leisure interest and engagement on SWB.

3 Results

In line with Hypotheses 1 and 2, we found significant positive correlations between all measures of SWB and leisure interest as well as leisure engagement (see Table 2). Correlations between SWB and leisure engagement ($r = .28$ to $r = .37$) tended to be larger than those between SWB and leisure interest ($r = .19$ to $r = .28$). Moreover, the links of leisure engagement as well as leisure interest with affective well-being tended to be larger than those with other well-being facets.

Focusing on specific leisure activities, almost all areas of leisure activities were positively correlated with well-being facets, but interest and engagement in social activities showed the strongest association (see Table 3). Results of multiple regression analyses with stepwise deletion procedure revealed that interest and engagement in social activities and sports were the most robust predictors of SWB across all facets of SWB (see Table 4). Whereas, social activities were primarily associated with affective well-being, interest and engagement in sports showed the largest associations with physical well-being. Interest and engagement in other leisure activities showed specific associations with specific SWB

Table 2 Correlations between subjective well-being (SWB) scores and measures of leisure behavior

	Leisure interest	Leisure engagement	Leisure interest-engagement fit
SWB total score	.26 * [.16, .35]	.37 * [.28, .46]	.23 * [.14, .32]
Affective well-being	.28 * [.18, .36]	.36 * [.27, .45]	.16 * [.07, .25]
Life satisfaction	.20 * [.10, .30]	.31 * [.22, .39]	.20 * [.10, .29]
Physical well-being	.19 * [.10, .29]	.28 * [.18, .37]	.25 * [.17, .34]

Affective well-being and life satisfaction were measured with the HSWBS; physical well-being was captured with the FEW-16

* $p < .01$; 95% CIs reported in brackets

Table 3 Correlations between FIFI primary scale scores and facets of subjective well-being (SWB)

FIFI primary scales	Leisure interests and SWB			Leisure engagement and SWB		
	Affective	Cognitive	Physical	Affective	Cognitive	Physical
Social activities	.34**	.22**	.18**	.46**	.39**	.30**
Virtual life	−.02	−.03	−.01	.03	.04	−.03
Home relaxation	.09	.11*	−.03	.05	.07	.00
Music	.09	.07	.06	.14**	.08	.15**
Vacation	.26**	.19**	.05	.26**	.22**	.13**
Cultural activities	.24**	.20**	.09	.27**	.29**	.19**
Outdoor activities	.17**	.09	.16**	.20**	.24**	.19**
Animals	.08	.07	.08	.14**	.14**	.10
Near−natural recreation	.12*	.08	.13*	.17**	.11*	.19**
Games and puzzles	.02	.00	.10*	.10	.06	.15**
Wellness	.20**	.13**	.10*	.31**	.23**	.28**
Household tasks	.12*	.16**	.13**	.15**	.13**	.10
Handicraft activities	.18**	.13**	.13*	.18**	.16**	.11*
Social support	.18**	.15**	.03	.21**	.21**	.07
Cooking and baking	.10*	.09	.03	.17**	.13**	.08
Self-educational activities	.11*	.14**	.14**	.11*	.08	.17**
Intellectual activities	.01	−.05	−.02	.11*	.04	.05
Religion and spirituality	.09	.04	.05	.09	.05	.07
Finances	.08	.07	.17**	−.01	.03	.09
Car and motorbike	.02	.00	.05	.07	.03	.03
Sports	.19**	.18**	.23**	.22**	.21**	.26**

FIFI = Fragebogeninventar für Freizeitinteressen (engl. questionnaire for leisure interests); affective and cognitive well-being were measured with the HSWBS; physical well-being was captured with the FEW-16; * $p < .05$; ** $p < .01$

facets (e.g., engagement in wellness and affective, as well as physical well-being) and in some cases there were even negative correlations (e.g., interests in intellectual activities and life satisfaction). The regression models accounted for at least 10% of the variance in the respective SWB facet (all $p's < .001$).

The individual profile correlations between leisure interest and engagement across the 134 leisure activities ranged between $r_Q = -.27$ and $r_Q = .99$ (on average: $r_Q = .64$). These interest-engagement fit scores showed a significant positive correlation with leisure engagement scores ($r = .32$; $p < .001$), but were significantly negatively associated with leisure interest scores ($r = -.26$; $p < .001$). The positive correlation indicates that the more people are engaged in diverse leisure activities, the more they are interested in these activities. The negative correlation indicates that the more people are interested in diverse leisure activities, the less they can realize them in their leisure time. Consistent with Hypothesis 3, these individual interest-engagement fit scores were significantly associated with all measures of SWB (see last column of Table 2). However, contrary to the pattern of associations with pure leisure interest and pure leisure engagement, the association between interest-engagement fit and physical well-being tended to be larger than those with other well-being facets.

Table 4 Multiple regressions of subjective well-being (SWB) facets on FIFI primary scale scores

FIFI primary scales	Leisure interests and SWB			Leisure engagement and SWB		
	Affective	Cognitive	Physical	Affective	Cognitive	Physical
Social activities	.26***	.14*	.20***	.38***	.37***	.24***
Virtual life	=0	=0	=0	=0	=0	−.10*
Home relaxation	=0	=0	−.13*	=0	=0	=0
Vacation	.13*	=0	=0	=0	=0	=0
Cultural activities	=0	.14*	=0	=0	=0	=0
Games and puzzles	−.09†	=0	=0	=0	=0	=0
Wellness	=0	=0	=0	.16**	=0	.16**
Household tasks	=0	.13*	.12*	=0	=0	=0
Handicraft activities	.16**	.11*	=0	=0	=0	=0
Intellectual activities	−.11*	−.19***	=0	=0	=0	=0
Sports	.21***	.19***	.21***	.11*	.14**	.18***
Adjusted R^2	.18***	.12***	.10***	.24***	.17***	.16***

FIFI = Fragebogeninventar für Freizeitinteressen (engl. questionnaire for leisure interests); affective and cognitive well-being were measured with the HSWBS; physical well-being was captured with the FEW-16; values represent standardized regression weights; =0: regression weights fixed to zero due to exclusion of variables after stepwise deletion procedures; FIFI primary scales excluded from all models are not shown

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

The path model analyses (see Fig. 1) revealed that the association between leisure interests and overall SWB was completely mediated by leisure engagement. The same was found for specific facets of well-being, except for affective well-being, for which the effect of leisure interest was nearly completely mediated. These findings were consistent with Hypothesis 4. The models accounted for 14.2, 14.1, 9.8, and 8.2% of the variance in overall SWB, affective well-being, life satisfaction and physical well-being, respectively.

The next step was the examination of the additional contribution of leisure interest-engagement fit to SWB, in the presence of pure leisure engagement across diverse leisure activities. The results are shown in Fig. 2. In line with Hypothesis 5, leisure interest-

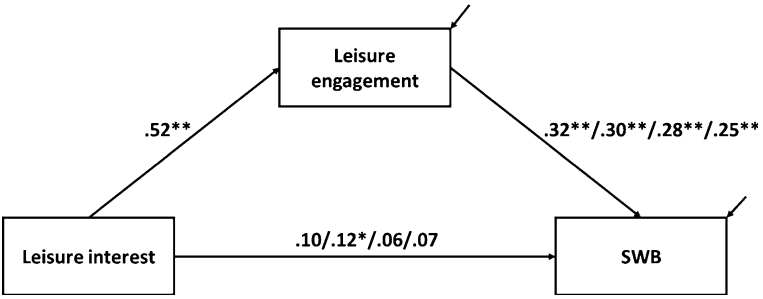

Fig. 1 Saturated path model of the regression of SWB to leisure interest and the mediation by leisure engagement: standardized regression coefficients are shown for the association between leisure interest and leisure engagement as well as their links to overall SWB, affective well-being, life satisfaction, and physical well-being (in that order separated by slashes). *$p < .05$; **$p < .01$

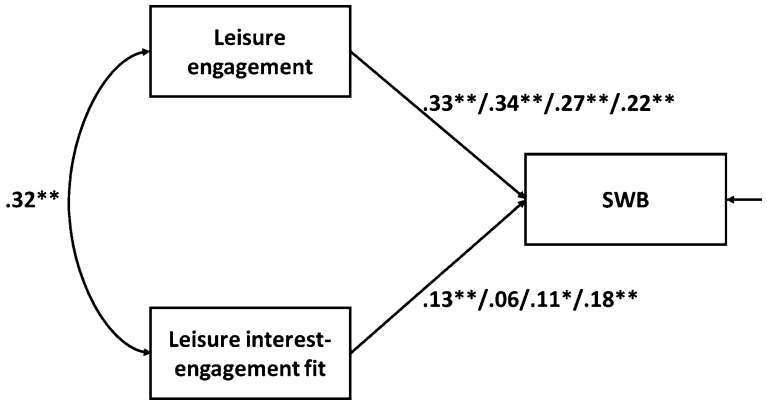

Fig. 2 Saturated path model of the regression of SWB to leisure engagement and leisure interest-engagement fit: standardized regression coefficients are shown for the association between leisure engagement and interest-engagement fit as well as their effects on overall SWB, affective well-being, life satisfaction, and physical well-being (in that order separated by slashes). *$p < .05$; **$p < .01$

engagement fit showed significant additional associations with SWB and all facets (except affective well-being) beyond pure leisure engagement. The models accounted for 15.0, 13.3, 10.6, and 10.9% of the variance in overall SWB, affective well-being, life satisfaction and physical well-being, respectively.

Finally, we tested for nonlinear (quadratic) effects as well as interaction effects of leisure interest and engagement, accounting for variance in SWB. In the final stage of data analyses, response surface regressions were run for overall SWB, as well as facets of well-being as outcome variables and leisure interests, as well as leisure engagement as explanatory variables. The results are illustrated in Fig. 3. We found a significant, non-linear reversed U-shaped association between leisure engagement and overall SWB ($\beta^2_{LE} = -.11$; $p < .05$), life satisfaction ($\beta^2_{LE} = -.11$; $p < .05$), and physical well-being ($\beta^2_{LE} = -.20$; $p < .01$). Leisure interest showed neither significant linear nor nonlinear correlations with overall SWB, except the small linear association with affective well-being ($\beta_{LI} = .12$; $p < .05$).

Even though Fig. 3 suggested the expected beneficial moderation effect of high interest on the positive association between leisure engagement and well-being (Hypothesis 6), this interaction effect was not statistically significant, except by trend for physical well-being ($\beta_{LI \times LE} = .10$; $p < .10$). With increasing leisure engagement from a low to a medium level, SWB increased and the association between leisure engagement and well-being tended to increase with an increasing level of leisure interest. However, SWB tended to decrease with increasing leisure engagement from a medium level to a high level. This negative association between leisure engagement and well-being decreased with an increasing level of leisure interests. Thus, high interest tended to buffer the negative association between excessive leisure engagement and SWB.

Similar results were found for models with leisure-engagement fit as additional predictor instead of leisure interest (see Fig. 4). However, the analyses suggested significant interaction effects between leisure engagement and interest-engagement fit in case of: overall SWB ($\beta_{LI \times LE} = .11$; $p < .05$), affective well-being ($\beta_{LI \times LE} = .12$; $p < .05$) and life satisfaction ($\beta_{LI \times LE} = .11$; $p < .05$), as response variables. Thus, high interest-

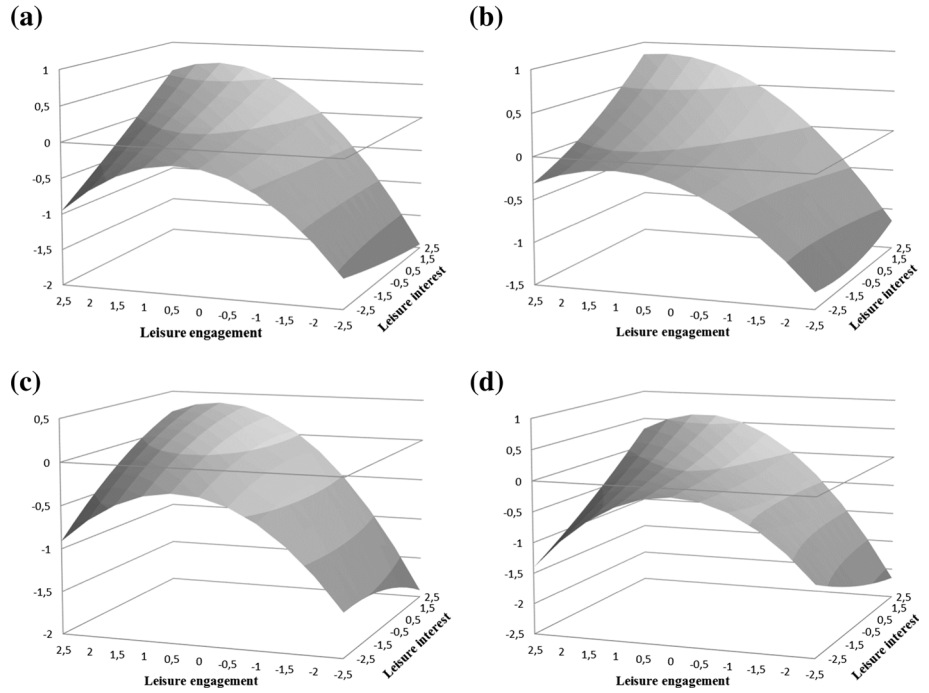

Fig. 3 3-D response surface with second-degree polynomial functions based on z-standardized values: explanatory variables are leisure interest and engagement; response variables are **a** overall SWB, **b** affective well-being, **c** life satisfaction, and **d** physical well-being; dark color reflects low well-being and bright color reflects high well-being

engagement fit buffered the negative association between excessive leisure engagement and SWB.

4 Discussion

The results of this study confirm previous findings on the significant positive association between leisure engagement and SWB. Leisure interest is also positively correlated with SWB, and this link appears to be completely mediated by leisure engagement. This may indicate that the realization of leisure interests via engagement in respective activities is important for SWB. However, it may also indicate that just being engaged in leisure is sufficient in relation to well-being, beyond individual preferences for leisure activities. But this is not the whole story. Further findings of our study indicate a more complex role of leisure interest, in addition to the frequency of engagement across diverse leisure activities, for the association between leisure activity and SWB. The individual leisure interest-engagement fit appears to play an important role in addition to pure leisure engagement. On the one hand, a person could be highly interested in many activities that they "never" actually perform (i.e., they are not allowed or unable to). On the other hand, another person could evaluate many activities as "unwillingly" but perform them "frequently". Either could have the same low level of interest-engagement fit. Our results revealed that those

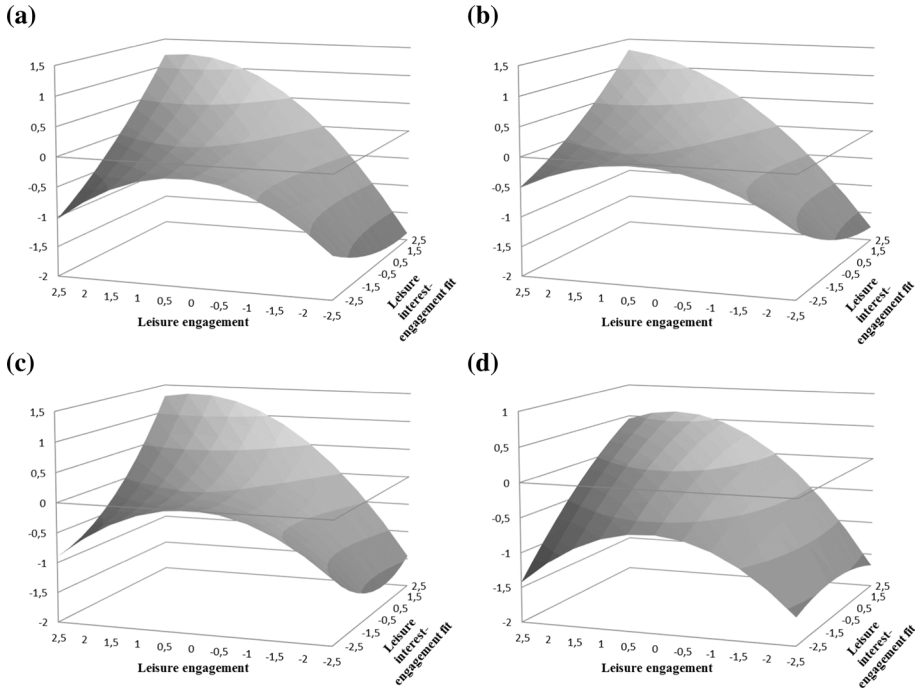

Fig. 4 3-D response surface with second-degree polynomial functions based on z-standardized values: explanatory variables are leisure engagement and leisure interest-engagement fit; response variables are **a** overall SWB, **b** affective well-being, **c** life satisfaction, and **d** physical well-being; dark color reflects low well-being and bright color reflects high well-being

low levels of interest-engagement fit are associated with lower levels of overall SWB and its specific facets.

The mediation of the association between leisure interest and SWB by leisure engagement, and the incremental prediction of SWB by leisure interest-engagement fit, may have different implications. First, the results are consistent with the self-determination theory (Ryan and Deci 2000): the intrinsic motivation for leisure activities and the individual's opportunity to realize their leisure interests may play an important role in enhancing their well-being (bottom-up perspective). However, it is also plausible that higher levels of SWB are important to facilitate the intrinsic motivation in leisure activities (top-down perspective). Consistent with both bottom-up and top-down perspectives, a reciprocal dynamic association between interests in activities and well-being is conceivable. That is, intrinsic motivation in leisure activities may drive leisure engagement that could enhance SWB, which in turn may reinforce intrinsic motivation to (new) leisure activities that further enhance SWB and so on. Longitudinal studies can shed light on the explanatory processes underlying the association between leisure interest and well-being.

Second, our results have implications for clinical interventions, because they highlight the importance of the consideration of individual interests within the context of behavioral activation to reduce depressive symptoms and enhance well-being (Dimidjian et al. 2006). Behavioral activation should be facilitated when therapists use their clients' interests as basis for activation.

Third, the findings have implications for the measurement of leisure activity. Some measures only include items that capture the frequency of leisure activities (i.e., engagement; e.g. Goldberg 2010); others are only based on willingness items (i.e., interest per se; see Hansen 1998). Although there is an economic advantage to the reduction to leisure engagement items as the more powerful correlate of SWB, the significant incremental prediction of SWB by the individual interest-engagement fit, in addition to pure leisure engagement, suggests that both aspects of leisure activity, i.e., interest and engagement, do not share the same information. They should, therefore, be jointly considered within comprehensive measurements of leisure behavior.

The patterns of correlations between leisure interest and SWB, as well as between leisure engagement and SWB were similar across the facets of well-being: Affective well-being and life-satisfaction tended to show stronger associations with leisure interest and engagement than physical well-being. In contrast, the individual fit between interest and engagement showed a reverse pattern of correlations. Thus, performing leisure activities (in particular active and recreational activities, such as sports and wellness), which are intrinsically motivated appears to show larger associations with physical well-being than with moods and life satisfaction. This is a remarkable result, which should be replicated in future studies.

Linear correlation and regression analyses revealed that pure leisure engagement showed the strongest associations with SWB: more leisure engagement accompanies higher SWB. However, analyses allowing for nonlinear associations and interaction effects revealed a more differentiated picture with significant nonlinear associations between leisure engagement and all facets of well-being. This may indicate that too much or excessive leisure engagement may act to reduce well-being, whereas the reverse direction of causation appears to be less plausible. Moreover, our findings suggest that higher levels of interest in the activities in which people are mostly engaged tended to enhance the beneficial effects of median leisure engagement and tended to reduce the negative influences of excessive leisure engagement. This again highlights the important role of leisure interest for the association between leisure engagement and SWB.

Our study was primarily focused on the associations between SWB and both overall leisure interest and overall leisure engagement, but these associations vary across diverse leisure activities. Some leisure activities appear to show no association with SWB (e.g., virtual life, religion and spirituality), whereas others show moderate to substantial positive links (e.g., social and cultural activities, sports and wellness) and even specific negative links (e.g., interest in intellectual activities and cognitive well-being). Our results revealed that interest and engagement in social activities and sports are robustly and independently associated with affective, cognitive, and physical well-being, beyond the potential contributions of interests and engagement in other leisure activities. This is basically consistent with considerations of the self-determination theory, which highlights the important role of social activities for well-being (Ryan and Deci 2000). One could hypothesize that the probability of more recreational activities with others and social life are essential for different facets of SWB, in particular affective (i.e., happiness) and cognitive aspects (i.e., life satisfaction); whereas, engagement in physical activities (i.e., sports) may be particularly important for physical well-being. Thus, leisure interest and engagement may have different psychological consequences depending on the type of leisure activities. However, it is also conceivable that positive affect and satisfaction during an activity may drive the interest and engagement in this activity. Consistent with this consideration, a recent study suggests that individuals spend more time on activities with more affective value (Segerstrom and Evans 2016). Those findings highlight the importance of a

disentanglement of person effects from activity effects. The additional assessment of activity-related affective, cognitive, and physical well-being would be an important and fruitful extension to the design used in our study. Such a study design could shed more light on the activity-dependent associations between SWB and leisure engagement.

Even though our study has several strengths, there are limitations, which have to be overcome in future studies. First, more than half of the participants in this study were students, who may have different leisure interests than others. This range restriction may have led to reduced correlations between well-being and leisure engagement or leisure interest. Studies based on more representative and balanced samples with respect to socioeconomic status or occupational status may find stronger links. Second, our study was based on a cross-sectional design. Longitudinal studies are necessary to examine the developmental interplay between leisure activity and well-being. Those studies can also provide information on the directionality of effects between leisure interest, leisure engagement, and different facets of SWB. Even though the direction of causation from leisure interests via leisure engagement to SWB may be plausible, it is also possible that individuals with higher levels of SWB are more motivated to be active, more interested and more engaged than persons with lower SWB. Prospective studies with at least two measurement points would be necessary to test the direction of causation between leisure engagement and SWB.

In summary, our study results emphasize the beneficial role of leisure interest and engagement for SWB. The positive association between leisure interest and SWB is mediated by leisure engagement. The actual realization of interest in leisure activities adds to the leisure engagement in the prediction of SWB. Social activities and sports seem to be particularly important leisure activities in relation to affective, cognitive and physical aspects of well-being. Moreover, we found evidence that excessive leisure engagement may accompany reduced well-being and that this negative association can be partially buffered by high interest in the respective leisure activities. Further research is necessary to replicate and generalize our findings and to allow causal inference for the directionality of the linear and nonlinear associations between leisure behavior and SWB found in this cross-sectional study.

Compliance with Ethical Standards

Conflict of interest The author(s) declared no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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