Annals of Tourism Research xxx (xxxx) xxx

Contents lists available at ScienceDirect

Annals of Tourism Research

journal homepage: https://www.journals.elsevier.com/annals-of-tourism-research

RESEARCH NOTE

Effect of adventure tourism activities on subjective well-being

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ARTICLE INFO

Article history:
Received 15 April 2020
Received in revised form 22 December 2020
Accepted 4 January 2021
Available online xxxx

Associate editor: Jeroen Nawijn

Keywords:
Adventure tourism benefits
Elderly subjective well-being
Psychological constraints
Physical constraints
Three-way interaction model

Introduction

Adventure tourism studies (Buckley, 2018, 2019; Hickman, Stokes, Gammon, Beard, & Inkster, 2018; Houge Mackenzie & Hodge, 2020) have shown that adventure tourism activities could benefit subjective well-being in the elderly. However, participation constraints on such activities need to be addressed before any improvement in subjective well-being can be achieved. The constraints can be divided into three major categories; intrapersonal, interpersonal and structural (Gilbert & Hudson, 2000). As each demographic group faces different constraints, it is necessary to look at them individually. For example, Doran, Schofield, and Low (2018, 2020) demonstrate this phenomenon regarding the problem and countermeasures of tourism constraints for women. Previous studies focusing on elderly adventure tourism (Buckley, 2018, 2020; Holm, Lugosi, Croes, & Torres, 2017) have overlooked the psychological and physical constraints typically affecting the elderly synchronically and the resultant negative multiplication effect when participating in adventure tourism. For example, Buckley's (2020) article is one of the few addressing constraints to the elderly's participation in adventurous activities through its proposing of requisite coping strategies. However, the article is a qualitative study and cannot distinguish between psychological and physical constraints when they influence concurrently. Hence, in this study, the focus will be on the self-reported psychological and physical aspects of intrapersonal constraints.

For the elderly, the motivation for participating in tourism activities largely reflects their high-level psychological needs, identified through this model as 'esteem' and 'self-actualization' as in Maslow's theory (Wang, 2008). Adventure tourism places more emphasis on making participants feel valued, important and/or self-fulfilled (Holm et al., 2017; Walle, 1997). Furthermore,

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https://doi.org/10.1016/j.annals.2021.103147
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adventure tourism activities can also present physical challenges (Buckley, 2010), potentially leading to positive growth in one's self-assessed physical condition (Buckley, 2020).

Conversely, intrapersonal constraints predominantly originate from the participants themselves through self-evaluated psychological and physical conditions, yet are more likely to be overcome by the benefits of adventure tourism (Buckley, 2019; Hanna et al., 2019).

The primary question is whether these constraints could: a) be removed through participation in adventure tourism activities; and b) once removed, contribute toward improving subjective well-being in the elderly. Buckley (2020) posits that the benefits of such participation are obvious and positively supported. However, there exists a soft-to-hard continuum in the adventure activities, and the benefits of soft adventure tourism are evident (Rantala, Hallikainen, Ilola, & Tuulentie, 2018). Debate remains as to whether high-risk hard adventure tourism activities equally benefit the elderly, and if these benefits are effective enough to overcome the inevitable psychological and physical constraints. These two tend to function simultaneously in the elderly—causing a negative effect—consequently jeopardizing elderly subjective well-being (Singh & Misra, 2009).

Based on the above, we assert that psychological and physical constraints will moderate the relationship between adventure tourism benefit and subjective well-being. In the following, we propose hypotheses and a conceptual model reflecting the joint moderating effect in Fig. 1.

Hypothesis 1. The benefits of adventure tourism will be positively related to subjective well-being. However, the psychological and physical constraints will be negatively related to subjective well-being.

Hypothesis 2. The psychological and physical constraints will moderate the relationship between the benefits of adventure tourism and subjective well-being such that the relationship will be weaker when moderator is high.

Hypothesis 3. The psychological and physical constraints will jointly moderate the relationship between the benefits of adventure tourism and subjective well-being such that the relationship will be weaker when one or both of the moderators are high.

Procedure and sample

Questionnaires were distributed to various adventure clubs asking whether elderly tourists with adventure tour reservations were willing to participate in this study. In the first stage, participants were asked to submit basic background information and answer questions about psychological and physical constraints (PSC and PHC). They then filled out question sets about the benefits of adventure tourism (ATB) after participating in adventurous activities. Finally, questions about subjective well-being (SWB) were asked through online questionnaires after they had returned home.

The Gilbert and Hudson (2000) scale was adopted as PHC (four items) and PSC (four items) scales totaling eight questions. A sample PHC item reads, "self-conscious or embarrassed learning", while a PSC counterpart reads, "Afraid of injury". The ATB scale totaled 19 questions based predominantly on the psychological and physical benefit factors of participating in adventure tourism activities as proposed by previous scholars (Brown, 1999; Doran, 2016; Pomfret, 2019). A sample item reads, "Have a sense of accomplishment". A17-item scale adapted from previous literature measured SWB (Stock, Okun, & Benin, 1986). The items were measured with a multi-category ordinal scale. A sample item reads, "As happy as younger".

In the analysis of three-way interaction, we adopted the methodology proposed by Dawson and Richter (2006), estimating the following regression model:

$$SWB = a_0 + a_1 ATB + a_2 PSC + a_3 PHC + a_4 ATB{*}PSC + a_5 ATB{*}PHC + a_6 PSC{*}PHC + a_7 ATB{*}PSC{*}PHC \quad (1)$$

Eq. (1) can be rewritten to illustrate that the relationship between ATB and SWB is conditional on PSC and PHC.

$$SWB = a_0 + a_2 PSC + a_3 PHC + a_6 PSC{*}PHC + (a_1 + a_4 PSC + a_5 PHC + a_7 PSC{*}PHC) ATB \quad (2)$$

The interview period was from September 2017 to June 2018. 500 questionnaires were distributed, with 226 responses—a recovery rate of 45.2%. The sample for this study was comprised of retired Taiwanese individuals aged 50 plus (41% were between 51 and 60; 24% were 61 plus), all first-time participants in hard adventure activities such as hang gliding, paragliding, white water

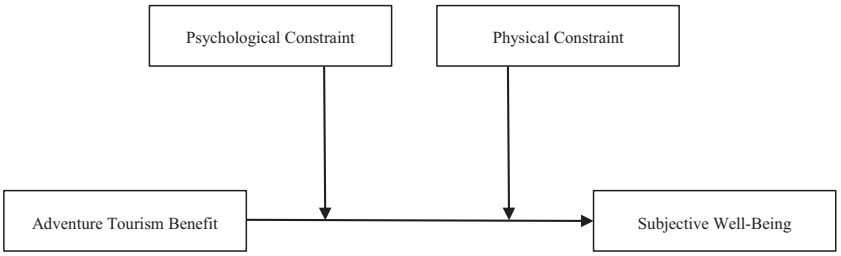

Fig. 1. Conceptual model of joint moderating effect.

rafting and surfing. In our study, 65% participants reported physical illness increasing with age. No other significant correlations existed between independent demographic characteristics (e.g., age/wealth/physical illness).

Results

To assess internal consistency reliability, Cronbach's alpha reliability coefficients were computed, revealing Chronbach's alphas to all be above 0.85 for each of PSC, PHC, ATB, and SWB, indicating high scale reliability. Furthermore, intercorrelation results identified positive and significant relationships between ATB and SWB ($r = 0.60$, $p < .01$) while demonstrating significant PSC/PHC correlation ($r = 0.78$, $p < .01$).

Hierarchical regression analyses were conducted to test the hypothesized interaction; visual representations of full regression results are presented in Fig. 2. Predictors were centered around their respective means, and interaction terms were based on mean-centered scores (Aiken & West, 1991). We found that the demographic characteristics, PSC, and PHC showed no significant effects on SWB, yet positive and significant main effects of ATB on SWB existed. Thus, Hypothesis 1 was partially supported. Regarding interaction terms, PSC-PHC and ATB-PSC-PHC interactions were significantly related to SWB. Thus, Hypothesis 2 was not supported and Hypothesis 3 was supported.

To further interpret the interaction effect, we applied Aiken and West's (1991) approach to plot the three-way interactions in Fig. 3. Simple slope analyses revealed weakness in the positive and significant relationship between ATB and SWB when PSC is low and PHC is high (slope 3).

Furthermore, we applied the slope difference test to the data as a post hoc test, finding the difference between simple slopes at low PSC and high PHC (slope 3) and at low PSC and low PHC (slope 4) to be statistically significant. However, there is basically no slope difference between slope 2 (high PSC and low PHC) and slope 4. We argue that in elderly with both low PSC and PHC, increasing PHC would impair the positive relationship between ATB and SWB, unlike when PSC is increased.

Moreover, when simultaneously increasing PSC and PHC, the simple slopes were still statistically positively significant, with no slope difference between slope 1 (high PSC and high PHC) and slope 4, suggesting that when the elderly have both high PSC and PHC, the positive relationship between ATB and SWB would not weaken.

In summation, we conclude that adventure tourism activities benefit the elderly subjective well-being with high psychological constraints rather than those with high physical constraints. More precisely, even with high physical constraints, adventure tourism activities still benefit elderly subjective well-being with high psychological constraints. In other words, the benefits of adventure tourism were effective enough to overcome high psychological constraints, independent of physical constraint levels.

Conclusion

This research contributes to existing literature by revealing that adventure tourism benefit interacted with psychological and physical constraints to predict subjective well-being. We explored the influence of adventure tourism benefits and found they were positively related to subjective well-being. The reason might lie in that this constraint combination is evaluated by first-

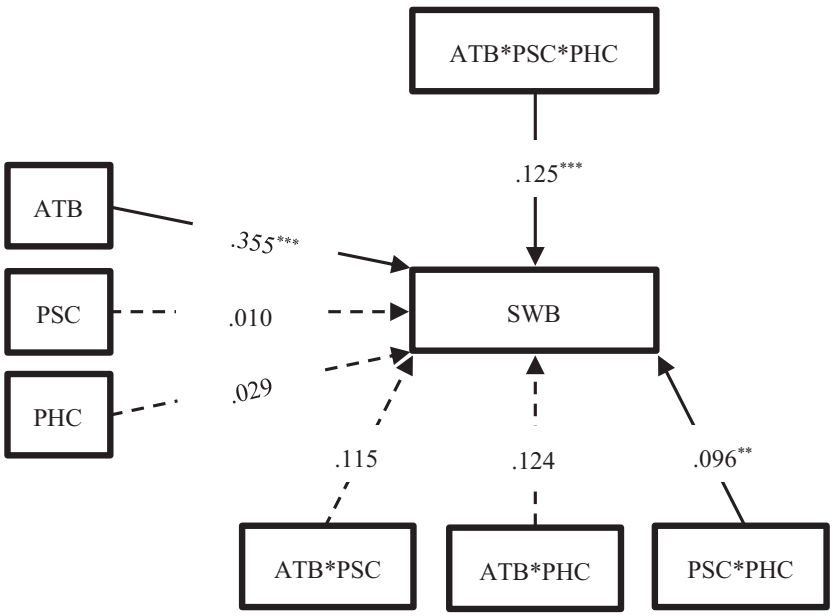

Fig. 2. Three-way interaction structural model. ** $p < .05$. *** $p < .001$.

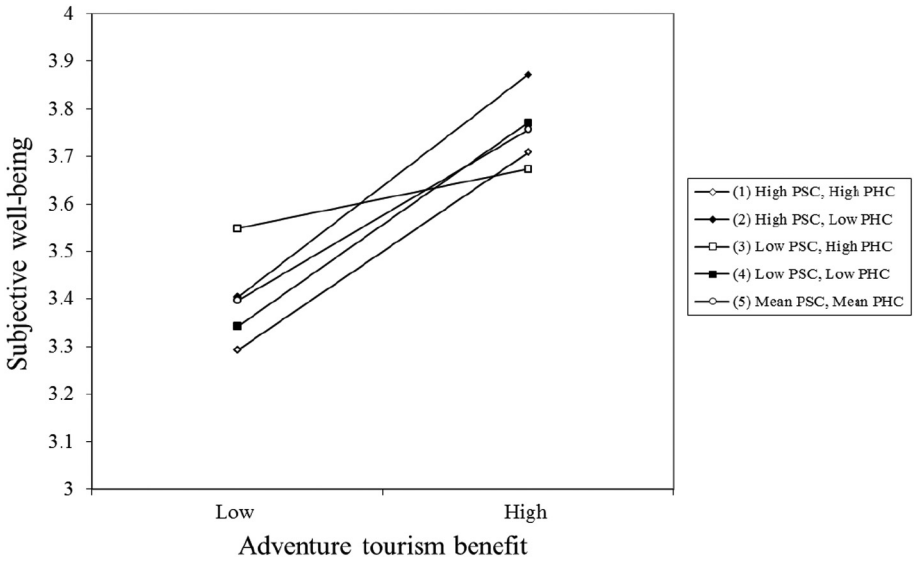

Fig. 3. Interaction effects of ATB, PSC, and PHC on SWB. *High and low values indicate mean values + and – one standard deviation.

time participants as surmountable or acceptable in terms of risk, possibly echoing the fact that participants are seeking challenges rather than high-level risks (Beedie & Hudson, 2003).

Another finding is enlightening as it suggests that participating in adventure tourism activities will help the elderly to remove psychological constraints, regardless of whether or not they also have physical constraints. However, similar results for the elderly to overcome physical constraints were not obtained. A possible explanation for such a situation is that the elderly with physical constraints are more likely to have physical illnesses. Hence, if we want to improve subjective well-being in the elderly through participation in adventure tourism activities, more attention should go toward preventing the increase of self-assessed physical constraints.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.annals.2021.103147.

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