

# Assessing the Stress-relief Benefit of Outdoor Travel Using Physiological and Psychological Measures

Chun-Chu Chen  
*University of Idaho*

Follow this and additional works at: <https://scholarworks.umass.edu/ttra>

---

Chen, Chun-Chu, "Assessing the Stress-relief Benefit of Outdoor Travel Using Physiological and Psychological Measures" (2016).  
*Travel and Tourism Research Association: Advancing Tourism Research Globally*. 1.  
[https://scholarworks.umass.edu/ttra/2016/Academic\\_Papers\\_Visual/1](https://scholarworks.umass.edu/ttra/2016/Academic_Papers_Visual/1)

This Event is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Travel and Tourism Research Association: Advancing Tourism Research Globally by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact [scholarworks@library.umass.edu](mailto:scholarworks@library.umass.edu).

# **Assessing the Stress-relief Benefit of Outdoor Travel Using Physiological and Psychological Measures**

## **Introduction**

Tourism, which can be defined as leisure travels outside an individual's usual environment, has been widely recognized as a necessity of human life (Richards 1999). Thus, scholars from different disciplines have paid increasing attention to the topic of travel benefits (Chen, Petrick, and Shahvali 2016a). For example, several studies have found that leisure travels can help relieve stress and anxiety (Frtiz and Sonnentag 2006; Strauss-Blasche et al. 2005; Westman and Etzion 2001), which is arguably an important finding because chronic stress can lead to poor health conditions (Matousek, Dobkin, and Pruessner 2010). However, most studies examining the stress relief benefit of travel only used psychological measures by asking respondents to self-report their perceived levels of stress (Chen and Petrick 2013). As it is well-documented that there are often discrepancies between physiological measures and psychological perceptions of the same affective state (Matousek et al. 2010), the goal of this study is to assess how the stress level fluctuates during an outdoor travel using the physiological measure of salivary cortisol as well as the psychological perceptions of stress.

## **Literature Review**

More recent studies in tourism have frequently examined the potential of tourism as a means to health and wellness. For example, tourism academics and practitioners have paid particular attention to wellness tourism, focusing on how tourism businesses and destinations can attract individuals whose primary travel motivation is the pursuit of activities or services (such as yoga, spa, or hot springs) that lead to wellness (Chen, Prebensen, and Huan 2008; Lehto, Brown, Chen, and Morrison 2006; Mueller and Kaufmann 2001). However, as argued by Chen, Huang, and Petrick (2016b), as taking a leisure travel provides a relatively long and uninterrupted period of leisure time, an individual can potentially benefit from any form of leisure travel because it is the experience that matters.

Therefore, other efforts have been made to identify various benefits of tourism experience, including stress relief (Chen et al, 2016a), perceived health (Strauss-Blasche, Ekmekcioglu, and Marktl 2002; Tarumi, Hagihara, and Morimoto 1998), family and relationships (Durko and Petrick 2013; 2015), life satisfaction (Neal, Sirgy, and Uysal 1999; Sirgy, Kruger, Lee, and Yu 2011), and educational benefits (Cohen 2014; Stone and Petrick 2013). These findings have important practical implications in that different members of the tourism industry can communicate with the general public about the travel benefits. If the general public were to have a better awareness of the tourism benefits, they would likely travel more, which means they would have more opportunities to receive these benefits while the tourism industry would likely to receive more revenue (Chen and Petrick 2014).

Arguably, the topic of travel benefits deserve more attention. According to Chen and Petrick (2013), there was only 29 empirical studies testing the benefits of travel from 1986 to 2012. More importantly, a majority of these studies used psychological measures to assess travel benefits, while this study proposes to assess the stress-relief benefit of travel using a physiological measure of salivary cortisol. Since the discrepancies between physiological measures and psychological

perceptions of the same affective state have been well-documented (Matousek et al. 2010), it is imperative to assess how the stress level fluctuates during a leisure travel using the physiological measure of salivary cortisol as well as the psychological perceptions of stress.

## **Methodology**

The proposed study seeks to answer the following research questions:

1. How does an individual's stress level fluctuate during an outdoor travel?
2. What are the discrepancies between physiological and psychological measures of stress during an outdoor travel?
3. How does the intensity of outdoor activities influence the fluctuation of stress level during an outdoor travel?

This study will involve collecting data in four outdoor field trips in Fall 2016 and Spring 2017. Each field trip is required as part of one Recreation course at a public research university in the Northwest United States. These field trips are selected for the following reasons. First, as mentioned before, this study intends to assess how the stress level fluctuates during an outdoor travel using the physiological measure of salivary cortisol as well as the psychological perceptions of stress. However, saliva sample can be influenced by numerous factors, such as food intake, rigorous exercise, caffeine consumption, or smoking, so these three highly-structured field trips (participants in each trip will participate in similar activities in the same outdoor environment with similar food intake) are selected in order to control these factors. Second, the duration of each field trip is three days, which is ideal for data collection in that previous research has suggested that the collection of repeated measures per day over multiple days is necessary to obtain a more accurate cortisol results (Matousek et al. 2010). Finally, each field trip will have only 10 participants, which makes data collection more feasible operationally.

Data collection will be implemented by a couple of research assistants. The plan is to collect three saliva samples and self-report measures of stress from all 10 participants per day during the field trip. It is also worth noting that participants in three field trips will engage in outdoor activities with different levels of intensity

## **Significance of the Study**

The significance of this study is two-fold. First, given that Americans work longer hours and take less vacation time than most workers in other developed countries (Expedia 2013; Organization for Economic Cooperation & Development 2014), more than one third of American workers experience chronic stress (American Psychological Association 2014), which has been demonstrated to be associated with increased rates of heart attack, hypertension and other disorders

(Evans and Steptoe 2001). Therefore, it is important to assess the potential of leisure travel as a solution to stress. Second, salivary cortisol has been widely accepted as an objective biological marker of stress (Matousek et al. 2010), while most scholars in the field of tourism and leisure studies are not familiar with physiological assessment. It is thus believed that the current investigation will provide important scientific evidence to demonstrate the stress-relief benefit of leisure travel.

## References

- American Psychological Association (2014). "2013 American Work and Well-being Survey." Retrieved January 1, 2015 from <http://www.apaexcellence.org/assets/general/2013-work-and-wellbeing-survey-results.pdf>
- Chen, Chun-Chu, and James F. Petrick (2013). "Health and wellness benefits of travel experiences: A literature review." *Journal of Travel Research*, 52(6): 709-719.
- Chen, Chun-Chu, and James F. Petrick (2014). "The roles of perceived travel benefits, importance, and constraints in predicting travel behavior." *Journal of Travel Research*. Published online before print December 24, 2014, doi: 10.1177/0047287514563986
- Chen, Chun-Chu, James F. Petrick, and Moji Shahvali (2016a). "Tourism experiences as a stress reliever: Examining the effects of tourism recovery experiences on life satisfaction." *Journal of Travel Research*, 55(2): 150-160.
- Chen, Chun-Chu, Wei-Jue Huang, and James F. Petrick (2016). "Holiday experiences, stress relief and life satisfaction - is there a relationship?" *Tourism Management*, 53, 140-147.
- Chen, Joseph S., Nina Prebensen, and T. C. Huan (2008). "Determining the motivation of wellness travelers." *Anatolia*, 19(10): 103-115.
- Cohen, Erik H. (2014). "Self-assessing the benefits of educational tours." *Journal of Travel Research*. Published online before print September 11, 2014, doi: 10.1177/0047287514550098
- Durko, Angela, and James F. Petrick (2013). "Family and relationship benefits of travel experiences: A literature review." *Journal of Travel Research*, 52(6): 720-730.
- Durko, Angela, and James F. Petrick (2015). "Travel as relationship therapy examining the effect of vacation satisfaction applied to the investment model." *Journal of Travel Research*. Published online before print July 5, 2015, doi: 10.1177/0047287515592970
- Evans, Olga, and Andrew Steptoe (2001). "Social support at work, heart rate, and cortisol: A self-monitoring study." *Journal of Occupational Health Psychology*, 6(4), 361-370.
- Expedia (2013). "Expedia Vacation Deprivation Study." Retrieved November 1, 2015 from <http://images.trvl-media.com/media/content/expus/graphics/other/pdf/Expedia-VacationDeprivation2012.pdf>
- Fritz, Charlotte, and Sabine Sonnentag (2006). "Recovery, well-being, and performance-related outcomes: The role of workload and vacation experiences." *Journal of Applied Psychology*, 91(4): 936-945.
- Lehto, Xinran Y., Sally Brown, Yi Chen, and Alastair M. Morrison (2006). "Yoga tourism as a niche within the wellness tourism market." *Tourism Recreation Research*, 31(1): 25-35.

- Matousek, Rose H., Patricia L. Dobkin, and Jens Pruessner (2010). "Cortisol as a marker for improvement in mindfulness-based stress reduction." *Complementary Therapies in Clinical Practice*, 16(1), 13-19.
- Mueller, Hansruedi, and Eveline L. Kaufmann (2001). "Wellness tourism: Market analysis of a special health tourism segment and implications for the hotel industry." *Journal of Vacation Marketing*, 7(1): 5-17.
- Neal, Janet D., M. Joseph Sirgy, and Muzaffer Uysal. (1999). "The Role of Satisfaction with Leisure Travel/Tourism Services and Experience in Satisfaction with Leisure Life and Overall Life." *Journal of Business Research*, 44(3): 153-63.
- Organization for Economic Cooperation & Development (2014). "Work-life balance: Better life index." Retrieved January 1, 2014 from <http://www.oecdbetterlifeindex.org/topics/work-life-balance/>
- Richards, Greg (1999). "Vacations and the quality of life: Patterns and structures." *Journal of Business Research*, 44(3): 189-198.
- Sirgy, M. Joseph, P. Stephanes Kruger, Dong-Jin Lee, and Grace B. Yu. (2011). "How does a travel trip affect tourists' life satisfaction?" *Journal of Travel Research*, 50(3): 261-75.
- Stone, Matthew J., and James F. Petrick (2013). "The educational benefits of travel Experiences: A literature review." 52(6): 731-744.
- Strauss-Blasche, Gerhard, Barbara Reithofer, Wolfgang Schobersberger, Cem Ekmekcioglu, and Wolfgang Marktl (2005). "Effect of vacation on health: Moderating factors of vacation outcome." *Journal of Travel Medicine*, 12(2): 94-101.
- Strauss-Blasche, Gerhard, Cem Ekmekcioglu, and Wolfgang Marktl. (2002). "Moderating Effects of Vacation on Reactions to Work and Domestic Stress." *Leisure Sciences*, 24(2): 237-49.
- Tarumi, Kimio, Akihito Hagihara, and Kanehisa Morimoto. (1998). "An Investigation into the Effects of Vacations on the Health Status in Male White-Collar Workers." *Environmental Health and Preventive Medicine*, 3(1): 23-30.
- Westman, Mina, and Dalia Etzion. (2001). "The Impact of Vacation and Job Stress on Burnout and Absenteeism." *Psychology & Health*, 16(5): 595-606.