Current Issues in Tourism

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rcit20

Optimism bias and perceived susceptibility to COVID-19 among Australian travellers

Wen Mao, P. Monica Chien & Sarah J. Kelly

To cite this article: Wen Mao, P. Monica Chien & Sarah J. Kelly (2021): Optimism bias and perceived susceptibility to COVID-19 among Australian travellers, Current Issues in Tourism, DOI: 10.1080/13683500.2021.2010672

To link to this article: https://doi.org/10.1080/13683500.2021.2010672

CURRENT ISSUES IN TOURISM
https://doi.org/10.1080/13683500.2021.2010672

Routledge
Taylor & Francis Group

RESEARCH LETTER

Optimism bias and perceived susceptibility to COVID-19 among Australian travellers

Wen Mao, P. Monica Chien and Sarah J. Kelly

UQ Business School, University of Queensland, Brisbane, Australia

ABSTRACT

This research examines how perceived vulnerability to disease (PVD) affects travellers' optimism bias towards COVID-19. Results from a large Australian panel show that individuals high on PVD – particularly on the 'perceived infectability' but not on the 'germ aversion' subdimension – are less likely to fall prey to the optimism bias. Results highlight the importance of disentangling the subdimensions of PVD in theory testing and could have implications for informing governments and tourism organizations of new avenues to educate travellers, which may help promote the adoption of preventive behaviours.

ARTICLE HISTORY
Received 18 October 2021
Accepted 18 November 2021

KEYWORDS
COVID-19; optimism bias; travel behaviour; perceived vulnerability to disease; risk perception

Introduction

The COVID-19 pandemic imposes significant risks to human lives. As destinations around the world prepare for an economic rebound, compulsory mandates in the tourism and hospitality contexts are contingent upon collective compliance to contain the virus (McCartney, 2020).

Travellers' risk perceptions are crucial to understanding their compliance and adoption of protective behaviours (Chi et al., 2021). Researchers have found various factors affecting travel risk perceptions that are either COVID-19 related (e.g. Sánchez-Cañizares et al., 2020) or unrelated (e.g. Ritchie et al., 2014). This research focuses on the optimism bias, the erroneous belief that risks and hazards are less likely to happen to self than to other people (Weinstein & Klein, 1995). Studying optimism bias in the tourism context is important, as optimistically biased individuals are less likely to take preventative behaviours (Fragkaki et al., 2021) and comply with the government's COVID spread mitigating measures (Dolinski et al., 2020). The optimism bias has been the focus of health risks research, which is not only associated with a hopeful outlook on life (Weinstein, 1980) but can also influence behaviours such as processing of incoming risk-behaviour information (e.g. Menon et al., 2002) and evaluation of occupational health and safety hazards (e.g. Caponecchia, 2010). While researchers have examined factors that could mitigate the impact of optimism bias (e.g. Helweg-Larsen & Shepperd, 2001), the effects of individual differences on optimistically biased risk perceptions have largely been overlooked.

This research examines an important individual difference variable – the 'perceived vulnerability to disease' (Duncan et al., 2009; henceforth, 'PVD'). PVD comprises two subdimensions: the perceived susceptibility to the disease ('perceived infectability') and the experience of emotional discomfort within a disease-transmittable environment ('germ aversion') (Díaz et al., 2016). Duncan et al. (2009) argued that perceived infectability captures one's subjective beliefs of contracting infectious diseases, while germ aversion represents one's psychological discomfort arising from pathogen-transmitting environments. This argument is consistent with the tricomponent attitude model (Ostrom, 1969) that views cognition and affect as distinct components of attitude.

CONTACT Wen Mao w.mao@business.uq.edu.au
The authors contributed equally to this paper; names were listed alphabetically.

This research hypothesizes that individuals higher on PVD are less susceptible to optimism bias. There is evidence that unrealistic optimism lowers subjective risk estimates (Menon et al., 2002), while PVD heightens perceived personal risks of contracting COVID (Hromatko et al., 2021). As such, the effects of optimism bias and PVD may cancel out each other, affording high PVD individuals a more realistic perception of COVID-related risks. The study of the relationship between optimism bias and PVD could have important implications for understanding travellers' perception and adoption of health-protective behaviours during the COVID-19 pandemic and offering practical insights for government and tourism in managing mandatory high-risk settings (Zhong et al., 2021).

Method

Australian travellers in Sydney and Melbourne (N = 447, mean age = 53.29 years, SD = 15.75 years, 57.5% female) were recruited via a consumer panel to join this study[1]. Among them, 64.2% and 48.1% had respectively taken at least one domestic and international leisure trip in 2019, and 16.6% had a hotel loyalty programme membership. Travel histories and loyalty programme memberships served as control measures to ensure that travel frequency and habits do not confound the testing of hypothesis (e.g. that as a self-protective mechanism, avid travellers are more optimistically biased due to greater travel needs and risk exposure).

Participants' optimism bias towards COVID-19 was measured in two ways (Otten & Van Der Pligt, 1996). A self-specific measure asked participants their perceived chance of contracting COVID-19, followed by their perceived chance of that of an average Australian, both on a 101-point scale ('0' = no chance at all, '100' = very high chance). A comparative measure asked participants their perceived chance of contracting COVID-19 compared to an average Australian on a 7-point scale ('1' = much below, '7' = much above).

PVD was measured on an abridged 10-item scale adapted from Duncan et al. (2009) (i.e. items with the highest factor loadings on the respective subdimensions were selected from the original 15-item scale).

Results

A principal axis analysis on PVD produced two factors. A confirmatory factor analysis suggests that a two-factor solution, representing perceived infectability ($a = 0.921$) and germ aversion ($a = 0.708$), generated a superior model fit ($\chi2$ (19) = 57.452, CFI = 0.978, SRMR = 0.059, RSMA = 0.067) than one that assumes PVD as a unidimensional construct ($\chi2$ (20) = 327.687, CFI = 0.827, SRMR = 0.149, RSMA = 0.186). The two factors correlated with each other with moderate effect size ($r = 0.363$, $p < 0.001$).

The optimism bias towards COVID-19 was observed from the self-specific measure (M = 0.35, $t = -8.752$, df = 446, $p < 0.001$; one-sample t-test) and the comparative measure ($M_{self} = 37.84$, $M_{others} = 39.16$, $t = -1.721$, df = 446, $p = 0.086$; paired-sample t-test).

For the two subdimensions of PVD, regression analyses revealed that, for the self-specific measure, perceived infectability ($\beta = 0.342$, $t = 7.376$, $p < 0.001$), and to a lesser extent, germ aversion ($\beta = 0.137$, $t = 2.943$, $p = 0.003$), both positively predicted optimism bias.

For the comparative measure, perceived infectability again positively predicted optimism bias ($\beta = 0.227$, $t = 4.798$, $p < 0.001$), whereas germ aversion did not ($\beta = -0.003$, $t = -0.063$, $p = 0.950$).

A spotlight analysis revealed that, at one standard deviation below the mean ($M < 3.14$), individuals low on PVD displayed optimism bias ($M = 2.82$, $t = -7.859$, df = 70, $p < 0.001$); in contrast, at one standard deviation above the mean ($M > 5.37$), individuals high on PVD displayed a reversed optimism bias (i.e. a 'pessimistic bias'; $M = 4.32$, $t = 2.243$, df = 71, $p = 0.028$). Delving deeper into the subdimensions of PVD, individuals low on perceived infectability ($M < 1.63$) displayed optimism bias on the self-specific measure ($M_{self} = 23.70$, $M_{others} = 29.53$, $t = -3.334$, df = 81, $p = 0.001$) and the comparative measure ($M = 3.02$, $t = -6.770$, df = 81, $p < 0.001$). In contrast, individuals high on perceived infectability ($M > 4.68$) no longer displayed optimism bias on either the self-specific ($M_{self} = 53.10$,

Table 1. Optimism bias between individuals high and low on PVD and subdimensions.

	PVD		Perceived infectability		Germ aversion	
Optimism bias	high	low	high	low	high	Low
Self-specific measure	4.32* [0.04, 0.60]	2.82*** [−1.48, −0.98]	4.15 [−0.12, 0.43]	3.02*** [−1.26, −0.69]	3.90 [−0.36, 0.16]	2.94*** [−1.35, −0.77]
Comparative measure	3.14 [−1.22, 7.50]	−5.44** [−9.42, −1.45]	3.36 [−0.47, 7.19]	−5.84*** [−9.33, −2.36]	−1.28 [−5.78, 3.23]	−3.82* [−7.07, −0.57]

Note: (1) * < 0.05, **<0.01, ***<0.001.
(2) 'high' and 'low' denote scores at one standard deviation above and below the mean on that measure, respectively; numbers in parentheses are 95% CI of the difference.

$M_{others} = 49.74$, $t = 1.743$, df = 83, $p = 0.085$) or the comparative measure ($M = 4.15$, $t = 1.121$, df = 83, $p = 0.266$). In fact, optimism bias was reversed on the self-specific ($M_{self} = 63.44$, $M_{others} = 56.15$, $t = 2.599$, df = 47, $p = 0.012$) and comparative risk measure ($M = 4.48$, $t = 2.426$, df = 47, $p = 0.019$) when participants scored 5.25 or higher on perceived infectability. See Table 1 for additional results.

The key results and conclusions remain virtually the same after controlling for participants' travel histories and hotel loyalty programme memberships (c.f., Chua et al., 2021).

Discussion

The results supported the hypothesis that higher PVD was associated with less optimism bias. In particular, on this sample at least, individuals high on PVD displayed a reversal of the optimism bias (i.e. a 'pessimistic bias'), a pattern particularly pronounced for those scoring high on the perceived susceptibility subdimension. Our findings have two important implications. It is one of the first to show a *reversal* of optimism bias by an individual difference variable, particularly in the tourism context amid the global pandemic (c.f., Dolinski et al., 2020). Second, perceived infectability and germ aversion should be treated as distinct subdimensions within PVD. Indeed, our results show that perceived infectability and germ aversion only moderately correlated with each other, and the CFA results produced a better fit to the hypothesized model that operationalizes perceived infectability and germ aversion as separate constructs.

While individuals higher in neuroticism are also less susceptible to the optimism bias (Darvill & Johnson, 1991), this trait is largely maladaptive, damaging wellbeing and hindering personal growth. In contrast, the PVD serves as an evolutionarily adaptive mechanism (Díaz et al., 2016), prompting individuals to steer away from contagion and fatal disease. Our results show that PVD could also effectively reduce the optimism bias and potentially motivate people's prompt adoption and compliance with health-preventive behaviours amid the current pandemic.

Our findings form the basis for informing governments, health, and tourism organizations of new avenues for disarming unrealistic risk perceptions and debunking optimism bias. For example, marketing communications focused on pandemic education could highlight the realism of contagion and disease vulnerability, whereas interventions at tourism facilities or hospitality premises may be directed toward educating the optimism bias to reduce complacency, which may help prompt compliance amid the COVID pandemic.

Acknowledgments

The authors gratefully acknowledge an internal research fund from the University of Queensland Business School for data collection of this research.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by University of Queensland Business School at the University of Queensland: [Grant Number undisclosed].

ORCID

Wen Mao http://orcid.org/0000-0002-5628-7114
P. Monica Chien http://orcid.org/0000-0003-1666-0479
Sarah J. Kelly http://orcid.org/0000-0002-4664-5248

References

Caponecchia, C. (2010). It won't happen to me: An investigation of optimism bias in occupational health and safety. *Journal of Applied Social Psychology*, *40*(3), 601–617. https://doi.org/10.1111/j.1559-1816.2010.00589.x

Chi, X., Cai, G., & Han, H. (2021). Festival travellers' pro-social and protective behaviours against COVID-19 in the time of pandemic. *Current Issues in Tourism*, 1–15. https://doi.org/10.1080/13683500.2021.1970119

Chua, B. L., Al-Ansi, A., Lee, M. J., & Han, H. (2021). Impact of health risk perception on avoidance of international travel in the wake of a pandemic. *Current Issues in Tourism*, *24*(7), 985–1002. https://doi.org/10.1080/13683500.2020.1829570

Darvill, T. J., & Johnson, R. C. (1991). Optimism and perceived control of life events as related to personality. *Personality and Individual Differences*, *12*(9), 951–954. https://doi.org/10.1016/0191-8869(91)90184-D

Díaz, A., Soriano, J. F., & Beleña, Á. (2016). Perceived vulnerability to disease questionnaire: Factor structure, psychometric properties and gender differences. *Personality and Individual Differences*, *101*, 42–49. https://doi.org/10.1016/j.paid.2016.05.036

Dolinski, D., Dolinska, B., Zmaczynska-Witek, B., Banach, M., & Kulesza, W. (2020). Unrealistic optimism in the time of coronavirus pandemic: May it help to kill, if so-whom: Disease or the person? *Journal of Clinical Medicine*, *9*(5), 1464. https://doi.org/10.3390/jcm9051464

Duncan, L. A., Schaller, M., & Park, J. H. (2009). Perceived vulnerability to disease: Development and validation of a 15-item self-report instrument. *Personality and Individual Differences*, *47*(6), 541–546. https://doi.org/10.1016/j.paid.2009.05.001

Fragkaki, I., Maciejewski, D. F., Weijman, E. L., Feltes, J., & Cima, M. (2021). Human responses to covid-19: The role of optimism bias, perceived severity, and anxiety. *Personality and Individual Differences*, *176*, 110781. https://doi.org/10.1016/j.paid.2021.110781

Helweg-Larsen, M., & Shepperd, J. A. (2001). Do moderators of the optimistic bias affect personal or target risk estimates? A review of the literature. *Personality and Social Psychology Review*, *5*(1), 74–95. https://doi.org/10.1207/S15327957PSPR0501_5

Hromatko, I., Tonković, M., & Vranic, A. (2021). Trust in science, perceived vulnerability to disease, and adherence to pharmacological and Non-pharmacological COVID-19 recommendations. *Frontiers in Psychology*, *12*, 664554. https://doi.org/10.3389/fpsyg.2021.664554

McCartney, G. (2020). The impact of the coronavirus outbreak on macao. From tourism lockdown to tourism recovery. *Current Issues in Tourism*, 1–10. https://doi.org/10.1080/13683500.2020.1762549

Menon, G., Block, L. G., & Ramanathan, S. (2002). We're at as much risk as we are led to believe: Effects of message cues on judgments of health risk. *Journal of Consumer Research*, *28*(4), 533–549. https://doi.org/10.1086/338203

Ostrom, T. M. (1969). The relationship between the affective, behavioral, and cognitive components of attitude. *Journal of Experimental Social Psychology*, *5*(1), 12–30. https://doi.org/10.1016/0022-1031(69)90003-1

Otten, W., & Van Der Pligt, J. (1996). Context effects in the measurement of comparative optimism in probability judgments. *Journal of Social and Clinical Psychology*, *15*(1), 80–101. https://doi.org/10.1521/jscp.1996.15.1.80

Ritchie, B. W., Monica Chien, P., & Watson, B. M. (2014). It can't happen to Me: Travel risk perceptions. In *Woodside, A.G.(Ed.), Tourists' behaviors and evaluations (advances in culture, tourism and hospitality research, Vol. 9)* (pp. 65–73). Emerald Group Publishing Limited. https://doi.org/10.1108/S1871-317320140000009008.

Sánchez-Cañizares, S. M., Cabeza-Ramírez, L. J., Muñoz-Fernández, G., & Fuentes-García, F. J. (2020). Impact of the perceived risk from covid-19 on intention to travel. *Current Issues in Tourism*, *24*(7), 970–984. https://doi.org/10.1080/13683500.2020.1829571

Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, *39*(5), 806–820. https://doi.org/10.1037/0022-3514.39.5.806

Weinstein, N. D., & Klein, W. M. (1995). Resistance of personal risk perceptions to debiasing interventions. *Health Psychology*, *14*(2), 132. https://doi.org/10.1037/0278-6133.14.2.132

Zhong, L., Sun, S., Law, R., & Li, X. (2021). Tourism crisis management: Evidence from covid-19. *Current Issues in Tourism*, 1–8. https://doi.org/10.1080/13683500.2021.1972941