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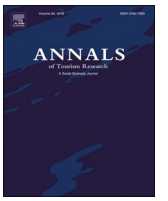

Mental health rescue effects of women's outdoor tourism: A role in COVID-19 recovery

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ABSTRACT

Mental and social health outcomes from a portfolio of women's outdoor tourism products, with ~100,000 clients, are analysed using a catalysed netnography of > 1000 social media posts. Entirely novel outcomes include: psychological rescue; recognition of a previously missing life component, and flow-on effects to family members. Outcomes reported previously for extreme sports, but not previously for hiking in nature, include psychological transformation. Outcomes also identified previously include: happiness, gratitude, relaxation, clarity and insights, nature appreciation, challenge and capability, and companionship and community effects. Commercial outdoor tourism enterprises can contribute powerfully to the wellbeing of women and families. This will be especially valuable for mental health recovery, following deterioration during COVID-19 coronavirus lockdowns worldwide.

Introduction

Leisure tourism is a discretionary activity to improve individual wellbeing. Worldwide, poor mental health and wellbeing impose large social and economic costs on human civilisations (McDaid, Park, & Wahlbeck, 2019; Patel et al., 2018). These costs amounted to ~10% of global GNP prior to the 2019/20 COVID-19 coronavirus pandemic. They are increasing currently through COVID-19 lockdown, isolation and quarantine measures (Brooks et al., 2020). By improving wellbeing, tourism can reduce these costs. This generates an economic value within the healthcare sector, additional to that within the tourism sector. In particular, exposure to nature generates a substantial and diverse set of mental health benefits (Bratman et al., 2019; Frumkin et al., 2017). These confer an additional economic value on national parks, estimated at > US$6 trillion p.a. worldwide (Buckley et al., 2019). This health services value is generated via outdoor nature and adventure tourism and recreation (Buckley, 2019, 2020). It is at least ten times larger than the direct economic value of tourism in parks (Balmford et al., 2015).

The health services value of nature and adventure tourism and recreation is already embedded in the structure of modern human societies and economies. If people did not engage in these activities as discretionary self-funded leisure, the costs of poor mental health would increase, by an estimated additional 7.5% (Buckley et al., 2019). These additional costs are indeed now being incurred, as one component of the social and economic costs of COVID-19 lockdowns. Costs include treatments, carers, lost workplace productivity, and increased antisocial behaviour, both public and domestic. Domestic violence, one of the key cost components, has already increased as one result of COVID-19 family confinement (Brooks et al., 2020).

Irrespective of the current COVID-19 pandemic, women worldwide are disproportionately susceptible to many of the causes of poor mental health (Halliday, Kern, & Turnbull, 2019; Hodes & Epperson, 2019). This occurs through: domestic violence and

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disharmony; damaging workplace dynamics; disproportionate expectations to act as carers for other family members; and reduced opportunities to alleviate stress by temporary escape from domestic social dynamics. In many countries and societies, there are social barriers to women taking time from workplace and domestic expectations, to recover mental health via outdoor nature-based recreation (Buckley, Westaway, & Brough, 2016).

Here, therefore, we examine how outdoor tourism and recreation may be able to generate mentally therapeutic outcomes, for urban women with families in a developed nation. This is the first step in calculating the economic value of such products and programs through their role in reducing the costs of poor mental health, their health services value (Buckley et al., 2019). We analyse self-reported mental and social health outcomes for clients of a portfolio of co-managed commercial outdoor tourism products, marketed and purchased principally or exclusively by women, and ranging from hours to months in duration. Outcomes may also include physical fitness, but we do not analyse that aspect.

Theoretical framework & literature review

Theoretical paradigm

The theoretical paradigm adopted in this analysis is that outdoor tourism and recreation can create therapeutic mental health benefits with economic value (Bratman et al., 2019; Buckley et al., 2019; Frumkin et al., 2017). This theoretical paradigm proposes that tourism and recreation can perform as therapy, in the formal healthcare sense of a treatment to heal or relieve an illness or disorder. This is a different paradigm from those used in previous research on wellbeing in tourism (Lengieza, Hunt, & Swim, 2019; Smith & Diekmann, 2017; Vada, Prentice, Scott, & Hsiao, 2020), or psychiatric research in mental health (Franken, Lamers, Ten Klooster, Bohlmeijer, & Westerhof, 2018; Keyes, 2005; Kinderman, 2005; Kinderman, Sellwood, & Tai, 2008; Westerhof & Keyes, 2010).

Our conceptual framework, formalised from the suggestions of Buckley (2019, 2020), is as follows. Tourism can be therapeutic: at least some commercial outdoor tourism products and experiences can generate mental health benefits, for at least some clients. These benefits may include preventive components, i.e. maintaining the mental health of individuals who have not demonstrated any clinical symptoms of poor mental health. National healthcare systems include publicly or patient-funded preventive components, as well as therapeutic clinical components funded partly through health insurance. The mental health benefits of tourism have social and economic values, for societies, employers and insurers as well as individuals, and these can be identified and measured. Values derive from improved individual wellbeing, workplace performance, and pro-social behaviours, and from reduced costs of mental health treatments and carers. These therapeutic effects can be evaluated at individual scale by using qualitative and quantitative social science approaches, applied widely in tourism research.

As yet, there has been rather little directly comparable research under this specific paradigm (Buckley, 2020). There is a large body of relevant previous research that underpins this field, however, across multiple disciplines (Table 1). This includes research in:

Table 1
Disciplinary paradigms relevant to tourism as therapy.

Discipline	Practice paradigm	Research paradigm
Wellbeing tourism, eg spas, yoga	Individuals travel to buy spa, yoga or other wellness experiences.	Tourism: providers capitalise on individual discretionary expenditures to improve self-perceived wellbeing
Medical tourism	Individuals travel for mainstream or cosmetic medicine, to get better price, quality, equipment, safety, legality.	Tourism business: medical facilities as attraction. Individual discretionary choices, funding, outcomes.
Nature and adventure tourism	Individuals travel to watch wildlife, see scenery, experience emotions, achieve adventure goals.	Tourism: interactions between commercial tour operators and their clients, including geography, motivations, satisfaction, etc.
Leisure, stress reduction	Some discretionary leisure activities can reduce stress, eg from the workplace.	Leisure studies: similar approaches to tourism research, but with a distinct set of research literature.
Therapeutic landscapes	Some natural landscapes can have a calming effect on individuals who enter those landscapes.	Geography: a small component of the literature on space, place, landscape and planning.
Outdoor recreation	Some individuals experience transformative psychological or lifestyle changes from outdoor recreation, which may become addictive and consume discretionary time and resources.	Social sciences: qualitative and quantitative analyses of participants of various personalities and capabilities, in different activities, examining social patterns, individual emotions, lifestyle aspects.
Outdoor education	Individuals can achieve greater mental strength, resilience, social behaviour, and leadership, through outdoor experiences.	Education: curriculum design, equity, social implications, policy. Some social science analyses as for outdoor recreation.
Psychology: mental outcomes of nature exposure	Some individuals can gain improved mental health, cognition, attention, etc., from exposure to nature; this is relevant to health care at national scale.	Science: randomised controlled experimental interventions, quantitative tests for differences in specific psychological parameters from specific nature exposures.
Healthcare and policy	Medical practitioners can prescribe outdoor therapies for patients with mild mental health conditions.	Medicine: diagnostic tools, prescriptible products, insurable treatment costs, public health policies.
Conservation	Conservation reserves have an additional economic value via mental health benefits to visitors, including tour clients.	Economics: value to individual, enterprise, employer, insurer, nation. Social sciences: who benefits most, and from what types of experience.

tourism and wellbeing; medical tourism; leisure and wellbeing; outdoor recreation; outdoor education; nature and mental health; therapeutic landscapes; healthcare policy; the economics of nature conservation; and women's outdoor recreation and mental health specifically.

Tourism research: wellbeing and wellness

In tourism, the most relevant theoretical framework has been that of wellbeing, quantified through descriptive quality-of-life measures (Lengieza et al., 2019; Uysal, Sirgy, Woo, & Kim, 2016). This is a heavily studied field, with several recent reviews (Pyke, Hartwell, Blake, & Hemingway, 2016; Smith & Diekmann, 2017; Uysal et al., 2016). There is also a parallel but more prescriptive field known as positive psychology (Coghlan, 2015; Filep & Laing, 2019; Nawijn & Filep, 2016; Vada et al., 2020). All this research has focussed on healthy individuals, not medical patients.

There are distinct sets of research on spa, retreat, yoga and wellness tourism (Bowers & Cheer, 2017; Chen & Li, 2018; Gabor & Oltean, 2019; Pyke et al., 2016); and on medical tourism (Hoz-Correa, Munoz-Leiva, & Bakucz, 2018; Mathijsen, 2019). Those, however, do not address the social and mental health outcomes of tourism generally. Leisure research argues that non-work discretionary activities reduce stress (Denovan & Macaskill, 2017), and improve quality of life (Iwasaki, 2017; Wensley & Slade, 2012), through preventive and therapeutic pathways (Fenton et al., 2017; L. Fenton, White, Gallant, Hutchinson, & Hamilton-Hinch, 2016; L. Fenton, White, Hamilton-Hinch, & Gilbert, 2018; Y. Iwasaki et al., 2014; Y. Iwasaki, Coyle, & Shank, 2010).

Recreation research: benefits of nature

Non-commercialised outdoor recreation, including exposure to nature, can yield a wide range of health benefits, both physiological and psychological (Biedenweg, Scott, & Scott, 2017; Bratman et al., 2019; Davies, 2018; Kondo, Jacoby, & South, 2018; Twohig-Bennett & Jones, 2018). Those benefits include reduced incidence of medically diagnosed syndromes, such as clinical depression and Alzheimer's and Parkinson's diseases (Hansson et al., 2019; Svensson et al., 2019; Tomas, Martina, Ulf, Stefan, & Tomas, 2019). Critically, they include marginal gains beyond those of exercise alone (Araújo, Brymer, Brito, Withagen, & Davids, 2019; Bélanger et al., 2019; Blondell, Hammersley-Mather, & Veerman, 2014; Chekroud et al., 2018; Clough, Mackenzie, Mallabon, & Brymer, 2016; Elbe, Lyhne, Madsen, & Krustrup, 2019; Frühauf et al., 2016; Horowitz et al., 2020; Niedermeier, Einwanger, Hartl, & Kopp, 2017; Pasanen, White, Wheeler, Garrett, & Elliott, 2019; White et al., 2016).

Mental health benefits have been shown for many different types of adventurous outdoor recreation (Araújo et al., 2019; Buckley, 2018a; Collins & Brymer, 2018; Frühauf et al., 2016; Hansson et al., 2019; Hetland, Kjelstrup, Mittner, & Vitterso, 2019; Holland, Powell, Thomsen, & Monz, 2018; Holmbom, Brymer, & Schweitzer, 2017; Morris & Scott, 2019; Niedermeier et al., 2017; Roberts, Jones, & Brooks, 2018; White et al., 2016). Benefits have also been demonstrated for contemplative outdoor activities, such as forest walks (Chen, Yu, & Lee, 2018; Hansen, Jones, & Tocchini, 2017; Kobayashi et al., 2018; Lyu et al., 2018; Morita et al., 2007; Oh et al., 2017). There is a parallel field of geographical research on therapeutic landscapes (Bell, Foley, Houghton, Maddrell, & Williams, 2018).

Research in outdoor recreation has focussed on healthy individuals, rather than clinically diagnosed patients, though a few studies have compared healthy and unhealthy subjects (Ower et al., 2018). Mental health benefits from activities in outdoor nature have been summarised in several recent reviews and meta-analyses (Bratman et al., 2019; Buckley & Brough, 2017a; Frumkin et al., 2017; Kondo et al., 2018; Oh et al., 2017; Seymour, 2016; Shanahan et al., 2016). Benefits can occur across a wide range of mental health parameters, environments (Biedenweg et al., 2017; Wyles et al., 2017), and personality types (Wang et al., 2017). They may have considerable economic value (Buckley et al., 2019).

Health research: preventive and therapeutic nature exposure

In the health sector, the fundamental paradigm is the diagnosis and treatment of patients who present with illnesses. Only the public health subsector includes preventive measures for individuals currently in good health, as well as therapies for those who are not. Poor health, mental as well as physical, is considered to incur substantial social and financial costs, at all scales from individual to national economy (McDaid et al., 2019; Patel et al., 2018). Considerable effort is devoted to measuring and minimising each component of these costs.

Implementation of nature-based therapies in mental healthcare lags research (Buckley & Brough, 2017b; Buckley, Brough, & Westaway, 2018; van den Berg, 2017). Prescriptible therapies need design, dose, and duration of individual treatments and entire courses of therapy, in relation to symptoms, severity, and patient personality. Quantitative data on design-dose-duration-response relationships are not yet available (Bratman et al., 2019; Buckley, Brough, 2017b; Frumkin et al., 2017; Shanahan et al., 2016), though research has begun (White et al., 2019). Prescriptible therapies need institutional systems for diagnosis, prescription, certified providers, and funding (Buckley et al., 2018). Commercial outdoor tourism can capitalise on this by repackaging tourism products as therapies (Buckley, 2019).

Economics research: costs of poor mental health

Maintaining and improving mental health is valuable both socially and economically. Many people are mentally languishing rather than flourishing (Keyes, 2002; Knoesen & Naudé, 2018; Momtaz, Hamid, Haron, & Bagat, 2016). In developed nations, ~20%

of the population each year experience common mental health disorders (Australia Institute of Health and Welfare, 2018). Treatment by prescribing opioid antidepressants has created very large secondary social costs through addiction (Johnson, Eriator, & Rodenmeyer, 2018; Kolodny et al., 2015; Kolodny & Frieden, 2017; Murthy, 2016). This opioid epidemic has triggered trillion-dollar litigation worldwide, and is one factor driving recent interest in outdoor therapies as alternatives.

In urbanised developed nations, the total economic costs of poor mental health were estimated, prior to the COVID-19 pandemic, at ~10% of GDP (Buckley, Brough, 2017a, 2017b; Australia, Productivity Commission, 2019). Costs include treatments, carers, lost workplace productivity, and antisocial behaviours (Buckley et al., 2018). In the longer term, costs are growing, because of increasing individual longevity, workplace stress, and childhood videophilia (Cooper, 2018; Pergams & Zaradic, 2008; Soga & Gaston, 2016; Zhang, Goodale, & Chen, 2014). As children spend less time outdoors, this creates health costs that persist throughout adulthood (Engemann et al., 2019; Lee et al., 2017; Stafford et al., 2015). As individuals live longer in poor mental health, this imposes additional health costs through the need for mental health care and treatment over an extended period of years. Currently, COVID-19 lockdowns are increasing these costs worldwide (Liu, Bao, Huang, Shi, & Lu, 2020; Mazza et al., 2020; Pierce et al., 2020; Vizard, Davis, White, & Beynon, 2020; Wang et al., 2020).

Research on women in outdoor tourism & recreation

Women have historically been under-represented in outdoor tourism research and practice, though there is now a growing recognition of gender differences (Evenson et al., 2002; Pohl, Borrie, & Patterson, 2000), across the entire life course (Carmichael, Duberley, & Szmigin, 2015; Cosgriff, Little, & Wilson, 2009; Wharton, 2018). Women may have different motivations and learning styles than men (Kiewa, 1994; Whittington, 2006); face different barriers and encouragements to take part in various outdoor activities (Doran, Schofield, & Low, 2018; Little, 2002; Loeffler, 1997; McNiel, Harris, & Fondren, 2012; Morris, Van Riper, Kyle, Wallen, & Absher, 2018); and attach importance to different aspects and achievements (Kiewa, 2001; Nolan & Priest, 1993). There is also a small and recent research literature on family adventure tourism, where parents and children take part jointly (Pomfret, 2018; G. Pomfret & Varley, 2019).

Regular walking groups and programs as a form of low-key therapy, especially for women, have received particular attention recently (Davies, 2018; Duncan, Gordon, & Scott, 1991; Hanson & Jones, 2015; Kelly et al., 2018; Legrand & Mille, 2009; Marselle, Warber, & Irvine, 2019; Robertson, Robertson, Jepson, & Maxwell, 2012). Simply encouraging people to walk regularly, however, is ineffective (Hillsdon, Thorogood, White, & Foster, 2002; Ogilvie, Foster, & Rothnie, 2007). A suite of social levers is required to achieve high take-up and repeat activity (Buckley et al., 2018).

Research on women's mental health

Women may also experience different patterns in mental health than men, at all life stages. These may depend on social and cultural context as well as individual physiological factors. Across all life stages, higher proportions of women than men experience depression, in a wide range of countries and societies (Bale & Epperson, 2015; Halliday et al., 2019; Hodes & Epperson, 2019; Kessler, 2003; LeMoult & Gotlib, 2019; Salk, Hyde, & Abramson, 2017). Any measures, including outdoor tourism, that can counteract poor mental health in women specifically, thus gain particular social and economic value.

Research on tourism as therapy

All of these considerations point towards a new social importance of outdoor tourism, and a new and potentially very large market for outdoor tourism products. This has only recently been identified. Buckley (2019) reanalysed previously published ethnographic datasets from a range of nature and adventure tourism products, picking out components related to mental health. Outcomes included positive emotions, recovery from stress, and changed worldview. Levi, Dolev, Collins-Kreiner, and Zilcha-Mano (2018) conducted repeated clinical interviews, using a psychiatric rating scale, with 14 patients diagnosed with major depressive disorders, who were voluntarily taking part in self-purchased tourism products, of various types. They found that mental health condition improved for some patients, but worsened for others. Their sample was too small, and non-randomised, to identify causes of these differences. Buckley (2020) conducted brief interviews with 238 tourists visiting forest and beach parks in Australia, and found that 82% perceived park visits as contributing to health and happiness, rather than the reverse. Overall, there has been quite limited research to date on the role of tourism as a prescriptible therapy.

Methods

Approach

The approach taken here differs from any of these previous studies. We analyse a portfolio of closely related and cross-marketed tourism products, offered repeatedly by the same company in multiple years and locations. We focus specifically on mental and social health outcomes perceived by participants. This appears to be the first analysis to adopt this approach. In addition, the tourism products in this portfolio are marketed principally or exclusively to women. This analysis examines effects not only on participants, but also on their families. This appears to be a novel dimension in this research field. The authors are experienced in outdoor tourism and recreation, but are not psychologists or mental health practitioners.

Participants

Our participants are drawn from the clientele of an Australian tourism enterprise that offers three relevant products. The first consists of one-day hiking tours, now a widespread tourism product (Davies, 2018; Ower et al., 2018). The second consists of multi-week wilderness hiking and trekking tours worldwide, part of the global adventure tourism sector. The third consists of three-month commercial charity challenge events (Coghlan & Filo, 2013), run in various Australian States (Buckley et al., 2016; Westaway, 2018). The company has ~100,000 clients to date, about 1% of the adult female population of Australia. This portfolio was selected since: (a) it is offered and repeated regularly; (b) it encompasses a wide range of durations, to maximise the opportunity to generate mental and social health changes; (c) at least for the introductory products, it is inexpensive, so that individuals can take part across a wide range of socioeconomic circumstances; and (d) the 3 products each have entirely or largely female clientele.

Methodology: passive and catalysed netnographies

The methodology adopted is internet-based ethnography, known as netnography (Kozinets, 2002, 2015). This is a minimally-intrusive, open-ended, qualitative methodology, analysing internet-accessible electronic text written directly by the participants themselves. Such approaches are now widespread throughout the social sciences, including leisure and tourism (Canavan, 2018; Mkono & Markwell, 2014; Tavakoli & Mura, 2018; Veal, 2017). They are non-invasive, and can capture a large volume of material rapidly. Their main disadvantage is that the researcher does not interview the participants directly, and hence cannot use the cues of spoken or body language in interpretation, nor ask follow-up questions or probe for inconsistencies. In addition, the researcher may not share the participants' experience.

The analysis used both a standard passive netnography based on social media postings, and an actively catalysed variant. For the former, the first author trawled through publicly accessible Facebook® posts by clients of the company concerned. These were identified by starting with the social-media "friends" of the founder's professional page, and expanding to "friends of friends" where permitted by privacy settings. This was continued until well over 1000 individual posts had been examined, posted by several hundred different individuals, all female. Many posts were responses to a video presentation (Westaway, 2018). We excluded posts referring only to physical fitness, and very brief posts with limited conceptual content.

For the catalysed netnography, we used a 4000-member private Facebook® group, all female, maintained by tour company clients. An administrator posted an enquiry, and relayed the response posts to the first author, anonymously. The question was neutral, asking how participants' mental health, and their families', was affected by these tourism products. The enquiry outlined the research, and included consent for use of responses. This is netnography, since materials were posted on social media, visible to other group members, and analysed without interviews, exchanges, or identification. It is catalysed, since the enquiry posted by the administrator led members to post complex comments specifically in response.

All text was analysed jointly using constant-comparison grounded-theory paradigms (Glaser & Strauss, 2017; Stern & Porr, 2017). Concepts were extracted, coded, and classified iteratively, to build a coding tree (Buckley, 2018b; Glaser & Strauss, 2017; Stern & Porr, 2017). Coding was checked by two independent analysts. Iterations were repeated until theoretical saturation and efficient coding were achieved (Aldiabat & Navenec, 2018; Buckley, 2018b; Denovan & Macaskill, 2017; Nelson, 2017; Saunders et al., 2018).

Netnography reveals the range of outcomes perceived by participants, but not their distribution. Outcomes are not clinical assessments, but most participants' mental health concerns were sub-clinical, where their own perceptions are sufficient. Therefore, this approach is a reliable first step in assessing mental and social health benefits achieved through participation in nature-based outdoor tourism.

Results

Participants & coding tree

As in all netnographies, the demographic and socioeconomic characteristics of individuals posting each item are unknown unless revealed within individual posts. For this analysis, items were posted under real names, verified by the tour company. All participants were female. Most are urban women with families, with a few younger members. From a tourism perspective, they are domestic rather than international clients. In the analysis, saturation was achieved rapidly. The coding tree is summarised in Table 2. Major constructs are expanded below, with illustrative quotes. Posts focussed heavily on the experience and its outcomes for themselves and their friends and families, matching the aims of this study.

Happiness & gratitude

Participants referred to their overall state of health, saying that participation *"definitely improved my state of mind, physical and emotional health",* producing a *"healthy mind, body and spirit".* Some added that they *"gain mental strength", "feel so good", "so happy",* or even an *"overabundance of joy and happiness".* One said: *"when I have been out walking, I feel … amazing, happy, fulfilled, rich, in love, energetic, inspired, unbeatable, exhilarated, motivated, strong, clever, fit".* They felt *"lucky", "fortunate"* and *"blessed",* and that they had received *"a gift"* or even *"the greatest gift ever".* They said that they took the opportunity to *"immerse myself in nature"* and *"appreciate the beautiful surroundings".* They referred to *"amazing places", "beauty", "magic"* and *"positive energy."*

Table 2
Coding: concepts, constructs, & key terms.

Constructs, concepts	Key terms
Psychological	
Happiness	Joy, happy
Gratitude	Thanks, lucky, blessed, gift, reward
Beauty, energy	Amazing, beauty, magic, energy
Relaxation	Unwind, switch off, release, relax, peace
Clarity, insights	Redefine, answers, balance
Challenge, capability	Challenges, push myself, stamina, worth it
Mental strength	State of mind, mindful, unbeatable, motivated
Transformation	Lifechanging impact
Missing component	Missing link, new world, need nature
Psychological rescue	Darkest times, lost, low, coping, way forward, saved my mind, lifesaving
Social	
Companionship	Flourish, unique, vision, connect, group, community
Attitude to family	Invigorated, energy, patience, nicer
Flow-on to children	Inspires kids, ask to go too, go together
Spouse support	Not happy at first, used to it now, supports me
Family cohesion	Together, bonding, happier, cohesive

Relaxation, release, clarity

Participants mentioned that: *"I instantly feel relaxed the moment I'm out in nature", "it allows me to unwind or switch off when I need to",* and that it provides *"a big stress release"* allowing them to *"find peace"* and *"sleep better"*. Some referred to the high stresses of daily life, and the need for escape: *"pretty hectic .. small kids .. working .. demanding job .. getting out is my only real 'me time'"; "busy city … stresses & strains … rat race … craving time outside"*. As a result, participants found that *"nature gives me the answers"* to *"clear [my] head"* so as to *"find myself, redefine myself"*, through *"'thinking' me-time",* which *"fills my mind with balance"*.

Capability, transformation, & missing life component

Participants said that taking part in these outdoor hiking tours *"gives me challenges"* or even *"challenged me to push myself more than I would ever have thought possible"*. They found *"strength and stamina you never knew existed in you",* and that ultimately *"every step … is possible",* and that *"however difficult, [it is] so worth it"*. Transformation was mentioned frequently: *"life changer", "changed my life", "huge impact on my life", "it can change your life for a minute, a day, a lifetime", "that mountain called life becomes so climbable*". The theme of new opportunity, or a previously missing life component, was reflected in phrases such as *"missing link", "the piece of me that had been missing", "whole new world",* and *"you don't know how much you need nature until you take that step outside"*.

Psychological rescue

The most powerful mental health theme was that hiking in natural surroundings with like-minded female companions had rescued them psychologically from dark and difficult times. They said that it *"got me through some of my darkest times"* or *"brought me back from dark times",* providing *"a way forward when I was lost"*. They referred specifically to mental state, saying that it *"improved my state of mind when I hit an all-time low"* or *"helped me regain the state of mind I felt I had lost forever"*. Some went even further: *"I don't know how I would have coped without it", "it saved my mind many times over"*.

Companionship & community

Participants referred repeatedly to companionship, community, and support: an *"amazing community of women", "powerful and nurturing"*, with a *"big vision"*. They argued that *"women need other women to flourish",* and spoke of the *"camaraderie of so many like-minded women."* At a smaller and shorter scale, they mentioned *"walking in nature with friends",* using terms such as *"friendship", "connecting", "group", "safe group"* and *"team"*. One said that she was *"inspired to create my own weekly women's walking group"*. Participants acknowledged staff of the tour company, saying *"thank you for everything you do for us",* and also companions: *"my fellow hikers .. have taken me into their hearts"*.

Family attitudes & children

Participants referred to a general improvement in their own attitudes towards their families after taking part in these products, saying that they *"come home to my family from my walks feeling rested and invigorated",* with *"renewed positivity and resilience"* and *"a lot more energy and patience to give to my husband and two small kids"*. One said *"I'm a nicer person, mother and wife when I get out in nature",* and another, that her husband *"definitely sees a positive effect in me"*. In summary, *"happy Mum usually equals happy family."* Some

mentioned that their children had followed their example: *"they know I do it … they ask to go too"; "it inspires my kids to go out bushwalking";* and *"my five-year-old decided to go for a run".* For some, the effect flowed in the opposite direction: *"my daughter inspired me",* or both at once: *"my daughter and I [took part] together".*

Spousal support & family cohesion

Many of these women reported that it took some time for their husbands or partners to accept and respect it: *"my husband was not happy at all at first"*, but now *"he has got used to it".* For some, this *"inspired my husband to enjoy his own pursuits 'guilt-free'".* For others, their husband now *"encourages and supports me to get out there",* and *"fully supports my involvement".* The overall outcome was improved family cohesion. Participants said that *"my family …. thinks it's amazing"* and that *"a family that walks together lives happily".* They said their children *"love it when we go on bush walks together",* that *"we really enjoy going for long hikes together",* and that they treat *"walks with our kids as special family bonding time that we treasure".* The end result is a *"happier more cohesive household".*

Synthesis

We identified 58 basic themes, classified into 10 psychological constructs and 5 social constructs (Table 2). We presented the psychological constructs in 4 groups: happiness and gratitude; relaxation, release, and clarity; capability, transformation, and missing life components; and psychological rescue. We presented the social constructs in 3 groups: companionship and community; family attitudes and children; and spousal support and family cohesion.

This is a novel set of results, not reflecting any previous analysis. It is a different set of constructs from that identified previously for a much broader range of outdoor adventure tourism participants (Buckley, 2019). That previous analysis indicated that mental health outcomes of outdoor tourism could be classified into short-term emotional responses, medium term stress-recovery effects, and longer-term worldview changes (Buckley, 2020). Below, therefore, we discuss in more detail, which of our findings are comparable to those from previous research, and which appear to be entirely new.

Discussion

COVID-19 considerations

The COVID-19 pandemic during 2020 has created major social, economic and environmental changes, the "anthropause" (Rutz et al., 2020), with unknown future scale and duration. There is widespread deterioration in mental health, due to concerns over family health, loss of livelihood, and lockdowns (Brooks et al., 2020; Liu et al., 2020; Mazza et al., 2020; Mucci, Mucci, & Diolaiuti, 2020; Pierce et al., 2020; Vizard et al., 2020; Wang et al., 2020). International tourism is interrupted, and domestic tourism re-emphasised, with surges in national park visitation. There are thus new opportunities for outdoor tourism enterprises demonstrating psychotherapeutic outcomes (Buckley, 2019). Here, we showed that relatively low-key, localized outdoor tourism products can indeed improve the mental health of their clients. Our data were compiled prior to the pandemic, but their importance has increased as a consequence of the pandemic.

The tourism-nature-health theoretical paradigm

Our approach adopts the recently proposed tourism-nature-health theoretical paradigm (Buckley, 2019, 2020; Buckley, Zhong, & Martin, 2020). This paradigm argues that for the US$600 billion p.a. parks and nature tourism sector (Balmford et al., 2015), mental health is an integral consideration across the entire sector. Our findings here, from a commercial outdoor tourism clientele now representing 1% of the adult female population of Australia, show that tourism can generate substantial and widespread psychotherapeutic benefits. These are novel findings, with considerably greater scale, scope, and generality than any previous analyses (Buckley, 2020). They provide large-scale empirical support for the tourism-nature-health paradigm. Maintaining or improving mental health is a major motivation to visit parks and nature, and tourism provides the mechanism. This paradigm is broader than previous theoretical approaches to tourism and health, which framed wellness tourism as purchasable products or luxury goods (Lengieza et al., 2019; Smith & Diekmann, 2017; Vada et al., 2020). It will influence how we analyse the motivations, expectations, experiences, satisfaction, and intentions of nature tourists; and the design, pricing and marketing of nature tourism products and destinations. Its theoretical ramifications are thus widespread.

Novel psychotherapeutic outcomes

Our findings here confirm emotional, restorative, and worldview psychological outcomes (Buckley, 2020; Xie & Fan, 2017). They also demonstrate, for the first time, that commercial nature tourism can create therapeutic effects such as psychological rescue, recognition of previously missing life components, and flow-on to family members, which are key aims of clinical mental health treatments such as chemotherapies and counselling (Bourdon, El-Baalbaki, Girard, Lapointe-Blackburn, & Guay, 2019; Lee, Bullock, & Hoy, 2016; Mueser et al., 2007; Swan, Keen, Reynolds, & Onwumere, 2017). The concept of emotional rescue is well established within popular culture (Richards & Jagger, 1980), but using tourism to achieve it is a new addition to social practices (Buckley et al., 2016).

The concept of a missing life component, revealed through outdoor tourism products based on walking in nature, is also novel. There is extensive research on what constitutes a full or meaningful life, in different cultures (Hooker, Masters, & Park, 2018; Steptoe & Fancourt, 2019). The perspective put forward here by individual participants, however, that their lives were unknowingly incomplete until nature was included, is novel. Previous research on tourism and wellbeing has treated holidays as adding quantitatively to quality of life, but here we show that it can also add a qualitatively new life component, a more powerful finding.

Flow-on effects of improved mental health to other family members are also a novel finding. It has been well established that poor mental health in parents, both female and male, has flow-on consequences for children (Bowlby, 1951; Flouri & Buchanan, 2003; Lavenda & Kestler-Peleg, 2018; Luebbe & Bell, 2014; Repetti, Taylor, & Seeman, 2002), and that these may persist lifelong (Fingerman, Huo, Graham, Kim, & Birditt, 2017; Lee et al., 2017; Mallers, Charles, Neupert, & Almeida, 2010; Stafford et al., 2015). Here we show that women's walking-in-nature tourism also yields benefits for partners and children. Future research could therefore include interviews with all the family members concerned. Outdoor tourism may also yield direct benefits for men's mental and social health, and for singles, grandparents and retirees, not included in the current study.

Results reported here reveal a much wider variety of mental health outcomes than previous analyses of outdoor recreation. Some of the outcomes identified, such as transformation, gratitude, and clarity, whilst not reported previously for hiking, have been identified for highly active outdoor pursuits, including extreme sports (Booth, 2018; Buckley, 2018a; Collins & Brymer, 2018; Holmbom et al., 2017; Houge Mackenzie & Brymer, 2018; Morris & Scott, 2019; Roberts et al., 2018; Zanon, Curtis, Lockstone-Binney, & Hall, 2018). Other outcomes identified here, such as happiness, relaxation and destressing, challenge, and companionship, have been reported in previous qualitative studies of hiking (Davies, 2018; Kelly et al., 2018; Lyu et al., 2018; Richardson & McEwan, 2018; Wensley & Slade, 2012).

Real-life tourism products and clients

Results reported here are derived directly from real-life tour clients, not experimental subjects. Except for recovery from stress, outcomes identified here are very different from those reported in previous experimental psychology research on nature exposure. Parameters such as improved attention and cognition, and reduced use of antidepressants, were not mentioned at all by participants in the current study, in contrast to previous experimental approaches (Biedenweg et al., 2017; Bratman et al., 2019; Buckley, Brough, 2017a, 2017b; Clough et al., 2016; Frühauf et al., 2016; Frumkin et al., 2017; Niedermeier et al., 2017; Oh et al., 2017; Seymour, 2016; Shanahan et al., 2016; Wang et al., 2017; White et al., 2016, 2019; Wyles et al., 2017). Qualitative methods, such as the netnography used here, routinely provide opportunities to extend the range of parameters considered.

From an economic or health-services perspective, at least some of our participants had experienced severe mental and social health obstacles, which they overcame by taking part in outdoor tours, at no public cost, with no side effects, and with benefits lasting months, years or longer. Worldwide, poor mental health is increasingly prevalent and costly (McDaid et al., 2019; Patel et al., 2018). Chemotherapies and counselling are focussed on clinical cases. Therapeutic opportunities from outdoor tourism are thus globally significant for individual wellbeing and quality of life, and for the economics of national healthcare systems.

Focus on urban women's mental health

Participants in this study were drawn from one particular demographic and socioeconomic group, namely urban and suburban women with families, in a developed country. This group experiences differentially high levels of depression, and social and family barriers to outdoor adventure (Buckley et al., 2016). The tourism products analysed here provide them with accessible and affordable outdoor experiences, and a social atmosphere and sense of community amongst the regular clients. These yield mental health benefits that range from happiness and relaxation, to psychological transformation and rescue; and social health benefits derived from carryover to other family members, whether or not those other members took part themselves. These are significant and valuable outcomes.

Mental health is always important for everyone, and everyone's mental health is suffering during the COVID-19 pandemic (Liu et al., 2020; Mazza et al., 2020; Mucci et al., 2020; Pierce et al., 2020; Vizard et al., 2020; Wang et al., 2020); but women's mental health is under particular threat from disproportionate loss of income and employment, family stresses, and domestic violence, with reduced options for escape (Brooks et al., 2020; Graham-Harrison, Giuffrida, Smith, & Ford, 2020). There will be strong demand for mental health rehabilitation during post-pandemic social and economic recovery. The role of outdoor nature-based tourism in women's mental health is thus particularly critical currently.

Conclusions

This research showed that commercial outdoor tourism enterprises can contribute powerfully to the wellbeing of women and families. This provides empirical support for a new tourism-nature-health theoretical paradigm. Three of the outcomes identified are entirely novel: psychological rescue, missing life-component, and family flow-on effects. We now need to test how these outcomes depend on details of tourism experiences and client circumstances; and compare other demographic and socioeconomic sectors, and other countries and cultures.

Practical adoption appears to have leapfrogged research. In the US and UK, government healthcare systems, health insurers, and employers have recently begun to fund nature therapies at large scale (Schmidt, 2018; UK, NHS, 2020). Currently, these rely mainly on charitable and community providers, but a move to commercial providers, such as parks concessionnaires and tourism enterprises,

appears imminent (Beckwith, Buckley, Jarvis, & Schmidt, 2020).

The COVID-19 pandemic and associated lockdowns have led to worldwide deterioration in mental health, especially for women with families in urban environments. Our data were compiled prior to COVID-19, but our findings are especially relevant for post-COVID recovery. Women's walking in nature works well.

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