Body Image 24 (2018) 82–94

Contents lists available at ScienceDirect

Body Image

journal homepage: www.elsevier.com/locate/bodyimage

Exposure to natural environments, and photographs of natural environments, promotes more positive body image

Viren Swami [a,b,*], David Barron [b], Adrian Furnham [c]

[a] Department of Psychology, Anglia Ruskin University, Cambridge, UK
[b] Centre for Psychological Medicine, Perdana University, Serdang, Malaysia
[c] Department of Clinical, Educational and Health Psychology, University College London, London, UK

ARTICLE INFO

Article history:
Received 8 October 2017
Received in revised form
18 December 2017
Accepted 20 December 2017

Keywords:
Body image
Natural exposure
Natural environment
Body appreciation
Nature

ABSTRACT

Five studies were conducted to understand the impact of nature exposure on body image. In three studies using different designs and outcome measures, British university students were exposed to photographs of natural or built environments. Results indicated that exposure to images of natural, but not built, environments resulted in improved state body image. In Study 4, British community participants went on a walk in a natural or built environment, with results indicating that the walk in a natural environment resulted in significantly higher state body appreciation, whereas the walk in a built environment resulted in significantly lower scores. In Study 5, British participants were recruited as they were entering a designed green space on their own volition. Results indicated that spending time in the green space led to improved state body appreciation. These results indicate that exposure to isomorphic or in-situ natural environments has positive effects on state body image.

1. Introduction

Positive body image, as distinct from negative body image, can be defined as a multi-faceted construct that includes holding favourable opinions of the body, respecting the body, rejecting prescriptive ideals of appearance, inner positivity influencing outer demeanour, and a broad conceptualisation of beauty (Tylka & Wood-Barcalow, 2015a). To promote and develop positive body image, researchers have focused on *embodying activities* through which individuals gain a sense of connection with their bodies, feel empowered in relation to their bodies, are able to voice their bodily desires, and are attuned to the self-care needs of their bodies (Menzel & Levine, 2011; Piran, 2002, 2015, 2016). A number of such embodying activities have been identified in the literature, including participation in sports (e.g., Abbott & Barber, 2011), dance (e.g., Swami & Harris, 2012; Tiggemann, Coutts, & Clark, 2014), yoga (Mahlo & Tiggemann, 2016), and life drawing (Swami, 2016, 2017; Swami and Shaw, 2017). Research on the effects of natural environments holds out promise as a complementary method of promoting positive body image, but studies on this topic remain limited. To develop this body of work, a series of experimental studies were conducted to examine the impact of natural environments on positive body image.

1.1. Natural environments and well-Being

The surrounding environment can be viewed as a continuum between wild nature through designed natural environments (e.g., green spaces, parks, and gardens) to built-up, urban landscapes (Abraham, Sommerhalder, & Abel, 2010). In particular, the broad distinction between natural and urban environments is important because a wealth of evidence suggests that time spent in, and engagement with, natural environments has wide-ranging benefits in terms of health and well-being. For example, reviews of the literature and meta-analyses (Abraham et al., 2010; Bowler, Buyung-Ali, Knight, & Pullin, 2010; Grinde & Patil, 2009; Russell et al., 2013; Sandifer, Sutton-Grier, & Ward, 2015) consistently indicate that exposure to natural environments is associated with improved physiological (e.g., better general and perceived health, reduced mortality rates, and faster healing from trauma), psychological (e.g., improved well-being, higher self-esteem, more positive mood, and increased vitality), and social well-being (e.g., increased social interaction and greater social empowerment).

Two prominent and co-existing frameworks have been advanced to explain the relationships between exposure to natural environments and positive outcomes (Hartig, 2005; Hartig, Böök, Garvill, Olsson, & Gärling, 1996). First, the Psychophysio-

* Corresponding author at: Department of Psychology, Anglia Ruskin University, East Road, Cambridge, Cambridgeshire CB1 1PT, UK.
E-mail address: viren.swami@anglia.ac.uk (V. Swami).

https://doi.org/10.1016/j.bodyim.2017.12.006
1740-1445/

logical Stress Recovery Theory (Ulrich, 1981, 1983) suggests that human beings have an evolutionary preference for surroundings with depth, complexity, and structure. Exposure to such environments is thought to reduce stress by restricting negative thoughts, eliciting positive emotions, and supporting parasympathetic nervous system activity. Second, Attention Restoration Theory (Kaplan, 1995; Kaplan & Kaplan, 1989) provides a cognitive framework concerned with recovery from directed attention fatigue. In this view, restorative environments such as natural landscapes allow individuals to rest inhibitory mechanisms on which directed attention depends and thus facilitate speedier recovery from mental fatigue. Both explanatory frameworks suggest that natural environments contain intrinsic qualities that offer emotional and cognitive restorative advantages over urban environments.

Several other mechanisms may explain the association between exposure to natural environments and well-being (e.g., de Vries, Verheij, Groenewegen, & Spreeuwenberg, 2003; Ward Thompson & Aspinall, 2011). First, natural environments offer vital spaces for social interaction and promote opportunities for social contact, which in turn can promote a sense of community and feelings of safety (Wood & Giles-Corti, 2008; Zhang, Piff, Iyer, Koleva, & Keltner, 2014), as well as better mental health outcomes (Maas, van Dillen, Verheij, & Groenewegen, 2009). In addition, greater access to natural environments may mean that individuals spend a larger part of their time being physically active outdoors (Addy et al., 2004), which in turn promotes improved physical and mental outcomes (de Vries et al., 2003; Maas, Verheij, Spreeuwenberg, & Groenewegen, 2008). Finally, nature exposure also promotes greater feelings of connectedness to nature, which is independently associated with more positive psychological outcomes (Mayer & Frantz, 2004; Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009).

1.2. Natural environments and body image

Looking beyond psychological well-being in general, it is also plausible that spending time in natural environments is an activity that promotes positive body image. For example, based on the notion that natural environments are restorative, it is possible that exposure to nature helps to restrict negative appearance-related thoughts, limits the influence of internalised negative appearance-based stereotypes, and promotes speedier recovery from threats to body image (Swami, Barron, Weis, & Furnham, 2016). Time spent in natural environments (or "being away" from routine activities and thoughts; Kaplan, 1995) may also allow individuals to distance themselves both physically and mentally from societal contexts that are heavily appearance-focused (Hennigan, 2010; see also Scott, 2010), which in turn provides a space to develop faculties to critically appraise appearance ideals and engage in behaviours that are body-protective (Swami, Barron, et al., 2016). Changes in self-perception as a result of nature exposure may also lead to behavioural changes, such as a relinquishing of impression management rituals, which are experienced as empowering and embodying (Holloway, Murray, Okada, & Emmons, 2014). Finally, access to nature may also mean that individuals spend more time outdoors engaging in embodying activities that focus one's attention on the body's functionality rather than its aesthetics.

In short, spending time in nature may be an experience that promotes more positive body image, but to date only a handful of studies have directly tested these assumptions. In a study of adults from the United States, Swami, Barron, and colleagues (2016) found that self-reported exposure to natural environments was significantly and positively associated with greater body appreciation in both women and men. Using path analysis, these authors also reported that the association between nature exposure and body appreciation was mediated by self-esteem and feelings of connectedness to nature, respectively. An earlier study also reported that greater connectedness to nature was both directly, and indirectly via self-esteem, associated with more positive body image in British women (Swami, von Nordheim, & Barron, 2016). Qualitative research also supports the notion that spending time in nature promotes more positive body image by allowing women to distance themselves from prescriptive societal standards of appearance (Hennigan, 2010).

These studies would seem to support the hypothesis that nature exposure is associated with more positive body image, but the available evidence is limited by a reliance on cross-sectional data. This is important because it limits the types of causal conclusions that can be drawn about uncovered relationships and leaves open the possibility of alternative explanations. For example, rather than nature exposure leading to greater body appreciation, it is possible that individuals with higher body appreciation are more likely to seek out and spend time in natural environments. As noted by Tylka (2012), individuals with positive body image may engage in activities that further enhance their positive body image. As such, it is not possible to conclude, on the basis of existing data, that nature exposure promotes positive body image. The most straightforward way of investigating this issue is through experimental studies that carefully unpick the impact of nature exposure on indices of positive body image.

1.3. The present studies

The present studies were designed to test the causal impact that nature exposure has on positive body image using experimental techniques that help to establish the direction of causation. First, a series of laboratory studies were conducted to examine whether exposure to photographic images of nature, as opposed to images of urban environments, promote more positive body image (Studies 1–3). Second, Study 4 was designed to compare the effects on positive body image of spending time in a natural environment versus an urban environment. Finally, using a more naturalistic design, Study 5 examined the effects on positive body image of spending time in a natural environment in a sample of individuals who had opted to do so on their own volition.

Throughout these studies, our focus was on indices of state, rather than trait, body image. A large body of work supports the conclusion that body image is a cross-situational and stable trait (e.g., Tiggemann, 2001). However, levels of body image also fluctuate across time and situational contexts, suggesting that it may have a dynamic, "state" component (e.g., Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). Given our interest on the degree to which exposure to natural environments affect fluctuations in body image (i.e., the degree to which experimental factors affect body image), our focus on state body image is warranted. Across all five studies, we hypothesised that nature exposure would be lead to elevated state positive body image. Taken together, these studies offer the most direct tests to date of the hypothesis that nature exposure leads to more positive body image.

2. Study 1

To begin the present exploration, Study 1 examined the impact of exposure to photographic images of nature and urban environments on state body image. Photographic stimuli have been widely used in previous studies, particularly as images of natural environments were rated as more restorative than images of built environments (e.g., Hartig, Korpela, Evans, & Gärling, 1997; Herzog, Maguire, & Nebel, 2003). In these studies, it is assumed that exposure to a natural environment simulated in photographs is isomorphic in nature (de Kort, Meijnders, Sponselee, & IJsselsteijn, 2006); that is, exposure to simulated natural environments should