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We are at risk, and so what? Place attachment, environmental risk perceptions and preventive coping behaviours☆

Stefano De Dominicis [a, b, *], Ferdinando Fornara [b, c], Uberta Ganucci Cancellieri [d], Clare Twigger-Ross [e], Marino Bonaiuto [a, b]

[a] Dipartimento di Psicologia dei Processi di Sviluppo e Socializzazione, Sapienza Università di Roma, Rome, Italy
[b] CIRPA – Centro Interuniversitario di Ricerca in Psicologia Ambientale, Rome, Italy
[c] Dipartimento di Pedagogia, Psicologia, Filosofia, Università degli Studi di Cagliari, Cagliari, Italy
[d] Università per Stranieri "Dante Alighieri" di Reggio Calabria, Reggio Calabria, Italy
[e] Collingwood Environmental Planning, London, UK

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ABSTRACT

Place attachment regulates people-environment transactions across various relevant environmental –psychological processes. However, there is no consensus about its role in the relationship between environmental risk perception and coping behaviours. Since place attachment is strongly related to place-specific dimensions of one's own identity and may be linked to spatial-biases, it is hypothesized that place attachment negatively moderates the relation between environmental risk perception and prevention behaviours enacted to cope with environmental risks. Two studies were conducted in two Italian cities exposed to low and high flood risk. Results show that, even though higher levels of risk perception may exert a positive effect in improving people's willingness to cope with an environmental risk, this effect is weaker when it is associated with strong place attachment. Findings suggest that affect-based cues, such as place attachment, diminish environmental risk coping intentions and actions when associated with high risk perception. Theoretical and practical implications are discussed.

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1. Introduction

According to the European Environment Agency, climate change has already begun in Europe (EEA, 2012). The atypical climate events related to climate change exacerbate the European urbanization process (Antrop, 2004; Kabisch & Haase, 2011; Kowarik, 2011): Local communities have already started to face issues related to climate change, such as increased precipitation patterns, frequent flood events, sea level rise, and many other extreme weather conditions (IPCC, 2014). Within such scenarios, citizens' proactive adaptation to climate change is an imperative and challenging goal (EEA, 2010, 2012). Thus, with climate change increasing the likelihood of extreme weather events, from a social-psychological perspective it is important to understand which processes enhance or mitigate preventive behaviours carried out to cope with the increasing environmental risk. Indeed, the present research aims to understand the role played by a crucial social-psychological variable regulating people-environment transactions – place attachment (e.g., Giuliani, 2003; Manzo & Devine-Wright, 2014) – in moderating the basic relation between environmental risk perception and related coping behaviours.

Among other environmental risks, floods are those highly linked to climate changes (Environment Agency, 2009; Kay, Davies, Bell, & Jones, 2009; Nirupama & Simonovic, 2007); they account for about one third of all natural disasters and for the related one third of the whole economic loss from all natural catastrophes (White, 2000). Unfortunately, floods are also responsible for more than half of all disaster related fatalities in the world (White, 2000). Recent evidence also states that floods have increased in frequency and severity (UNISDR, 2012). However, structural interventions aimed

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* Corresponding author. Dipartimento di Psicologia dei Processi di Sviluppo e Socializzazione, Sapienza University of Rome, Via dei Marsi 78, 00185, Roma, Italy.
E-mail address: stefano.dedominicis@uniroma1.it (S. De Dominicis).

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to mitigate the effect of floods (such as rebuilding river banks or relocating entire neighbourhoods) are often unsustainable and will not eliminate extreme floods (Bradford et al. 2012; Kundzewicz, 1999; Tobin, 1995). For example, recent findings estimate that changes in extreme weather conditions that cause floods may translate into changes in economic losses (Dumas, Hallegatte, Quintana-Seguì, & Martin, 2013). Therefore, it becomes fundamental to guide attitudes and to effectively inform at-risk citizens with proper and effective communication strategies, in order to prepare them to face the increasing risk. However, O'Sullivan et al. (2012) found that people show a reluctance to prepare or respond appropriately to flood risk information. Indeed, recent findings show that several social-psychological variables may influence individuals' perceptions toward environmental risks. These variables can improve or mitigate individuals' willingness to cope with impending environmental risks, such as flood risk (De Dominicis et al., 2014). Although some research has been conducted to understand variables enhancing citizens' resilience (e.g., Bradford et al., 2012; De Dominicis et al., 2014; Johnson, Siegel, & Crano, 2012; Miller, Adame, & Moore, 2013; Raaijmakers, Krywkow, & van der Veen, 2008), there is still a lack of research aiming at studying how person-environment transactions mitigate individuals' willingness to cope with impending disasters. Thus, according to recent developments in the field (Devine-Wright, 2013), we aim to understand whether, and how, place attachment affects environmental risk coping behaviours, investigating its moderating role in the risk perception–behaviour relationship. In fact, among other variables, risk perception itself is one of the basic predictors for the execution of preventive and coping behaviours (Slovic, 1987).

1.1. Risk perception

Risk perception is defined by Slovic (1987) as an intuitive judgement of risks, made by individuals and groups, in the context of limited and uncertain information. Given a specific understanding of a particular threat, risk perception is an individual's interpretation or impression of the risk related to the object perceived as a threat. Risk perception is not constant across individuals: for example, men and women hold different risk perceptions of the same risk, and the risk itself may have different meanings according to gender specificity (Gustafson, 1998). Yet risk is always perceived situationally. For example, Raaijmakers and colleagues (Raaijmakers et al., 2008) define risk perception through the relationship of a set of situation-specific risk characteristics: awareness, worry and preparedness. Accordingly, when one of these characteristics increases in the perceiver, the general risk perception may rise, and thus his/her resilience might be enhanced. Therefore, environmental risks are defined both individually and situationally. In fact, there are a multitude of factors that affect risk perception, such as frequency, seriousness and direct/indirect experience of risk events (Fazio & Zanna, 1981; Uzzell, 2000). However, all these factors may in turn lead to biased perceptions of that risk. Indeed, Liechtenstein and colleagues (Liechtenstein, Slovic, Fischhoff, Layman, & Combs, 1978) defined the "primary bias" as the tendency to underestimate the frequency of common causes of death, and to overestimate rare causes of death frequency. They also found the "secondary bias" (Liechtenstein et al., 1978), according to which sensational causes of death lead to overestimates of the risk, while ordinary causes of death lead to underestimates of the risk. Accordingly, people tend to ignore low probability events even when these events may have a catastrophic potential effect (Keller, Siegrist, & Gutscher, 2006; Slovic, Finucane, Peters, & MacGregor, 2004; Slovic, Fischhoff, & Lichtenstein, 1978): unfortunately, environmental risks, and specifically floods, fit perfectly into this category.

Floods, as a form of environmental hydro-geological risk, represent one of the most hazardous environmental risks of our time (Miceli, Sotgiu, & Settanni, 2008; Mysiak et al., 2014): however, given its intrinsic unpredictable nature, its occurrence is mostly underestimated (Baan & Klijn, 2004; Terpstra, Gutteling, Geldof, & Kappe, 2006). Moreover, studies in environmental crisis management show that disaster awareness peaks during, and immediately after, the occurrence of an environmental threat, but it rapidly decreases between disasters (Stefanovic, 2003). People appear to have short memories and, in fact, immediately after a flood they tend to overestimate flood risk (Baan & Klijn, 2004). However, Penning-Rowsell (2003) showed that worry decreases fast and, after a few years, flood risk returns to being underestimated. Furthermore, even if in high risk perception conditions people are more willing to, and tend to carry out, proactive behaviours (Covello, 2003), there is still not a consensus about what exactly encourages people to carry out preventive behaviours to cope with the environmental risk. More generally, it is also clear that simply informing people is not enough to motivate them to change their usual behaviour (Schultz, 2011). These considerations raise important questions: to what extent people living in at-risk zones are willing to adopt the necessary behaviours to cope with the environmental risk? Which are the social-psychological variables linking individuals' characteristics and places' features that could mitigate people's willingness to cope with an environmental risk?

1.2. Place attachment

Place attachment is one of the most crucial social-psychological aspects for people-environment transactions (Bonnes, Lee, & Bonaiuto, 2003). The preliminary theoretical and empirical conceptualizations of place attachment came from studies on people forcibly removed from their places of residence, and its psychological correlates (Fried, 1963). Place attachment was derived from Bowlby's (1988) attachment theory, and refers to affect and emotions that connect people to places. Shumaker and Taylor (1983) define place attachment as 'a positive affective bond or association between individuals and their residential environment' (p. 233). Hummon (1992) defines it as the 'emotional involvement with places' (p. 256), while Low (1992) considers it 'an individual's cognitive or emotional connection to a particular setting or milieu' (p. 165). However, a more specific definition based on Bowlby's (1988) concept of attachment is provided by Brown and Perkins (1992), who define place attachment as the overall feelings, bonds, thoughts, and behavioural intentions that people develop over time in relation to their social-physical environment. Specifically, these emotions and affective responses toward the places we live in, and which we form during the course of our lives, give us a stable sense of self and sense of continuity (Twigger-Ross & Uzzell, 1996). Place attachment also gives meaning to our life and defines our identities (Giuliani, 2003). In order to define a general conceptual framework for defining place attachment, Scannell and Gifford (2010) recently proposed the three–dimensional "person-process-place" framework for place attachment, which proposes that place attachment is a multidimensional concept that encompasses the person (the actor), his/her psychological process (affect, cognition, behaviour), and the related physical place dimensions (place characteristics and features). A relevant linked construct is place identity (Proshansky, Fabian, & Kaminoff, 1983; Twigger-Ross, Bonaiuto, & Breakwell, 2003; Twigger-Ross & Uzzell, 1996; Uzzell, 2000), namely an aspect of identity comparable to social identity (Tajfel & Turner, 1979), but describing an individual's socialization with the physical world (Uzzell, Pol, & Badenas, 2002). However,

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