



Full length article

# Would situational stress be harmful for anyone? The influence of situational factors and trait empathy on women's response to infant crying



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## ABSTRACT

Individual differences in responsiveness toward infant crying are well understood. Little research, however, has examined the effects of situational risk factors (e.g., social stress, cognitive load) and possible interactions between situational and dispositional factors on response toward infant crying. This study examined if trait empathy (conceptualized as empathic concern; EC, and personal distress; PD) moderate situational factors' relationship with people's intentions in response to infant crying. Social stress was manipulated using the Trier Social Stress Test. Cognitive load was manipulated by requiring participants to keep syllable-strings of either two or eight syllables in mind while listening to an infant crying. Participants responded to question items examining their caregiving and neglect intentions in response to the crying stimulus. Multilevel regression analyses demonstrated that trait empathy (empathic concern in particular) was strongly associated with neglect intention under cognitive load. Participants with high EC showed strong neglect intention with increasing cognitive load. Furthermore, results also showed that social stress increased neglect intentions and reduced care intentions; these effects were more remarkable among participants with both low EC and low PD. These results suggest that dispositional factors moderate situational factors' effect on response to infant crying.

## 1. Introduction

Crying is infants' primary means of communication and typically motivates infants' caregivers to provide care (Zeifman, 2001); however, crying is an aversive sound and a factor leading caregivers to abuse infants (Frodi & Lamb, 1980; Reijneveld, Wal, Brugman, Sing, & Verloove-Vanhorick, 2004). Hearing infant crying elicits physiological, subjective, and neural responses (see, e.g., Out, Pieper, Bakermans-Kranenburg, & Van Ijzendoorn, 2010; Strathearn, Li, Fonagy, & Montague, 2008; Zeifman, 2001). Caregivers' physiological and emotional responses partly predict their behavior; therefore, research should examine factors affecting responses to infant crying (Del Vecchio, Walter, & O'Leary, 2009; Lin & McFatter, 2012; Out, Bakermans-Kranenburg, van Pelt, & Van Ijzendoorn, 2012).

Helping others costs mental resources (DeWall, Baumeister, Gailliot, & Maner, 2008). Increased helping cost and depleted mental resources predict reduced helping behavior (DeWall et al., 2008; Graziano, Habashi, Sheese, & Tobin, 2007; Meiring, Subramoney, Thomas, Decety, & Fourie, 2014). Recent studies have suggested that acute load also decreases intention to help in response to infant crying (Hiraoka & Nomura, 2016; Probst et al., 2017). Although the effects of situational factors on response to infant crying have recently received considerable attention, the moderating effects of individual differences on the effects of situational factors has not

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been investigated.

This paper discusses the moderating role of trait empathy on the effect of situational factors. Trait empathy's association with sensitive responding to infant crying is well researched (e.g. Fairbrother, Barr, Pauwels, Brant, & Green, 2014; Wiesenfeld, Whitman, & Malatesta, 1984; Zeifman, 2003). Empathy is the ability to understand or make inferences based on others' experience and consists of cognitive factors (which allow people to take another person's perspective) and affective factors (which enable people to experience another person's emotions vicariously; Davis, 1983a, 1983b). Empathy appears to motivate prosocial behavior and parental caregiving behavior (Decety & Cowell, 2014). Trait sympathy or empathic concern (EC; the affective tendency to experience feelings of compassion for others in difficulty) predicts caregiving intentions toward infant crying (Lin & McFatter, 2012; Wiesenfeld et al., 1984; Zeifman, 2003); in contrast, trait personal distress (PD; the individual's affective tendency to feel distress in response to another's emotional distress) predicts unwanted harmful thoughts towards crying infants (Fairbrother et al., 2014). EC and PD are importantly different but both motivate helping behavior (Batson, Fultz, & Schoenrade, 1987). EC is more other-focused than PD: EC focuses on another's experience, whereas PD focuses on the individuals' own emotions. EC-based helping motivation may therefore be more altruistic than PD-based helping motivation, particularly as high PD also predicts increased avoidance intention if escape from the helping situation is relatively easy (Batson et al., 1987). In this context, EC and PD's effect on helping behavior may depend on situational factors; however, this possibility remains relatively unexamined. PD has been suggested to reflect a self-focused motivation to reduce one's own suffering by helping the other person or escaping the situation—whichever is less costly (Batson et al., 1987). This suggests that depleting mental resources (i.e., increasing the salience of mental costs) would shift high-PD individuals' intentions from helping towards avoidance. In contrast, helping motivation of individuals with high EC may be less affected by depletion of mental resources due to its more other-focused origins. No research has examined if EC and PD interact with mental resource depletion to affect response intentions to infant crying. This study tested if trait empathy moderated the effect of situational factors on responses to the auditory stimulus of a crying infant. Participants rated their intention to provide care or neglect the infant after hearing infant crying. We manipulated cognitive load with/without social stress; high cognitive load decreases intention to care for infants (Hiraoka & Nomura, 2016). Social stress is known to decrease self-regulation, which is needed for adaptive caregiving, in addition to cognitive load (Hofmann, Schmeichel, & Baddeley, 2012). Although previous studies investigating the effects of acute stress on response toward infant crying manipulated stress alone (Hiraoka & Nomura, 2016; Probst et al., 2017), aversive caregiving events do not occur in a vacuum. Indeed, ecological and transactional models of child maltreatment emphasize the need to consider how various types of risk factors combine to influence parenting behavior (e.g. Belsky, 1980; Cicchetti & Rizley, 1981; Hiraoka et al., 2014). Therefore, we manipulated social stress and cognitive load simultaneously. Cognitive load was manipulated (within-subjects) by varying the number of syllables in a syllable-string that participants kept in mind while listening to the stimulus. Social stress was manipulated (between-subjects) using the Trier Social Stress Task (TSST; Kirschbaum, Pirke, & Hellhammer, 1993). Participants completing the TSST give a speech and perform mental calculations. The TSST's robustness is well-supported (Allen, Kennedy, Cryan, Dinan, & Clarke, 2014). Men were not recruited due to gender differences in responses to infant crying (Cohen-Bendahan, van Doornen, & de Weerth, 2014) and stress resistance in parenting situations (Probst et al., 2017). Additionally, children's development is more negatively affected by violence from mothers than from fathers (see, e.g., Peltonen, Ellonen, Pösö, & Lucas, 2014). Accordingly, we targeted only women.

We hypothesized that cognitive load and social stress would reduce care intention in response to infant crying (Hypothesis 1), and that trait empathy would moderate that relationship (Hypothesis 2). Specifically, we hypothesized that cognitive load and social stress would more strongly reduce care intention among participants with both low EC and high PD than among participants with high EC and low PD because the former would perceive a larger increase in care's mental cost following increased cognitive load or social stress.

## 2. Methods

### 2.1. Participants

Twenty-three female college students participated. No participants had experience in raising their own children. Participants' mean age was  $21.8 \pm 1.8$  years. Participants in the experimental group completed the TSST ( $n = 13$ ; mean age:  $21.3 \pm 1.7$ ). Participants in the control group did not complete the TSST ( $n = 10$ ; mean age:  $22.4 \pm 1.8$ ). This study was approved by the ethical review board of Kyoto University and carried out in accordance with the relevant guidelines. Participation was voluntary. All participants provided a written indication of their consent to participate.

### 2.2. Procedure

First, participants waited in room A for a thirty-minute rest period. We instructed participants to relax and to avoid doing anything during a 30-min rest period before the TSST. Participants then moved to room B and completed the TSST or a control task. Participants then completed the cognitive load and crying task. Participants then completed the questionnaires, namely, the Social Desirability Scale and the Interpersonal Reactivity Index (see Section 2.4). Finally, the experimenter debriefed the participants regarding the TSST's nature and purpose. In order to check the TSST's effectiveness, Participants rated their subjective stress on a 7-point scale (1 = *not stressed at all*, 7 = *maximally stressed*) immediately before completing the TSST (t1), during the TSST (t2), immediately after completing the TSST (t3), immediately before completing the cognitive load and crying task (t4), immediately after completing the cognitive load and crying task (t5), and 10 min after completing the cognitive load and crying task (t6). Previous

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