

Empathy and utilitarian judgments in sacrificial dilemmas

A dissertation

Submitted to the graduate faculty

in partial fulfillments of the requirement for the

Degree of

Doctor of Philosophy

By

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Nagoya University

2018

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Abstract

## Empathy and utilitarian judgments in sacrificial dilemmas

Empathy is entrenched in human sociality, and so is harm aversion. With affective empathy, we vicariously experience the other's pain. Accumulating evidence suggests that lower empathy is a robust predictor of utilitarian judgments in sacrificial dilemmas, but the role needs clarifications to understand how empathy affects interpersonal harm aversion. The following series of research examine effects of empathy on utilitarian judgments in sacrificial dilemmas and show that: (a) both other-focused and self-focused affective empathy predict utilitarian judgments (Chapter 2); (b) manipulating affective empathy for the victim affects utilitarian judgments (Chapter 3), (c) difficulty identifying feelings mediate the link between primary psychopathy (selfish, lack of empathy, and interpersonal manipulation) and utilitarian judgments (Chapter 4), and (d) those who lack affective empathy justifies the utilitarian harm on the basis of low emotional activation (Chapter 5).

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## Acknowledgments

Two years and a half ago, I had the slightest thought of completing a Ph.D. degree. For one year, I worked in an office, 8 hours a day, five days a week and could have been happier than ever. But it went wrong and came to an abrupt end. At that point, someone asked me if I was planning to go back to school. Not really. One day, after an episode of a bad migraine, I came to realize what it would be like to rely on something unpredictable and uncontrollable for the rest of my life. Here, I thank my peers who encouraged me to resume my graduate study. You made me feel that I still had a place to continue my Ph.D. study. It would be a lie if I say I did not look back what I left behind. The years were not always easy, but I never regretted my choice. My appreciation goes to my supervisors, peers, and friends who helped me pave the way. Without you, the years must have been unbearable.

My supervisor, Dr. Jiro Takai, for keeping my optimism up and encouraging me to never give up after getting hurtful rejections. My fellow lab members and I used to talk about Dr. Takai that he can actually use magic that lifts up spirits. Dr. Sachiko Kiyokawa, for helping me to organize and stretch research ideas by using a logical task that trained me to build rationales for hypotheses. Also, many thanks to Dr. Hitoshi Kaneko and Dr. Ai Mizokawa to be part of the committee in your busy schedule. I appreciate your careful reading and constructive comments on the earlier versions that helped me improved the quality of the dissertation.

Thank you to my peers and friends: Ayumi Mori, for your warm friendship and fun ramen talks. Yuto Terashima, for your insightful comments on my fleeting research ideas. May Cho Min, for sharing your mindful approach to managing stress. Jin Kato, for your wise suggestions on my career when I was at the turning point. Though not mentioned, I thank my friends who shared moments of joy and sadness with me.

As an international student, living overseas made me see the ugly side of human nature, but some people always reminded me of the bright side. I cherish the memory of Christina Running, my Canadian mother, who showed me how empathy can reach others.

Lastly, but not the least, thank you to my parents who are empathic in good and bad ways. Maybe I was lucky because you never expected me to be something.

## Chapter 1

### Introduction

Morality is universal, but at the same time, culturally bound. While some social mores are indigenous (Vauclair et al., 2015), today scholars agree that at least three to five moral domains are shared across the globe (Decety & Cowell, 2018; Graham et al., 2013; Mikhail, 2007; Shweder, Mahapatra, & Miller, 1987; Turiel, 2002). One of the universal moral codes concerns interpersonal harm. Across cultures, it is deemed ethically impermissible to harm innocent others intentionally (Mikhail, 2007; Turiel, 2002). That is, without any reasonable justifications, people judge that harming others shall be morally blameworthy. Similarly, one of the five moral foundations proposed by Graham et al. (2011) is Harm/Care foundation, which concerns protecting vulnerable others. For example, one Harm/Care item is: “Compassion for those who are suffering is the most crucial virtue” (Graham et al., 2011, p. 22). Interpersonal harm aversion constitutes a basis of morality and is observed very early in development, suggesting an innate origin (Decety & Cowell, 2018). Regardless of culture, people have the same conception of morality in the harm domain as they are hardwired to abhor harm onto others (Navarrete, McDonald, Mott, & Asher, 2012). Here, one question arises: What allows people to repudiate interpersonal harm?

Empathy has been shown to explain why human beings may show aversion to interpersonal harm. Having evolved to secure social bonds, empathy works to share emotional experiences with others and to prevent people from harming others (de Waal, 2008; Decety & Cowell, 2014). Without actually going through the event, empathy allows people to vicariously experience the other’s emotional states (Davis, 1983; Davis, Conklin, Smith, & Luce, 1996). The process of empathizing with others is spontaneous, and people readily feel empathy for

unfortunate others (McAuliffe, Forster, Philippe, & McCullough, 2017). As a neural base of human sociality, empathy is a social bond that tricks people into feeling like they (Iacoboni, 2011). Human beings may be intrinsically drawn by violent drives or self-centered motives, but empathy placates the motive and build harmonious social relations by increasing the motivation to care for others (Decety & Cowell, 2014). Taken together, studies investigating the relation between empathy and interpersonal harm point out to the notion that harm aversion may be entrenched in human nature, and empathy plays a pivotal role in the perception and avoidance of harm.

### **Empathy**

Empathy comes in many flavors, and psychologists have been endeavoring to capture the construct. In early studies, empathy was not operationalized consistently: “The word empathy sometimes means one thing, sometimes means another, until now it does not mean anything” (Reik, 1948, p. 357). As the word ‘empathy’ has become colloquial, people use empathy and neighboring words, such as compassion, sympathy, and kindness, interchangeably although psychologists carefully distinguish one from the others. Empathy has been defined in various ways, and for the purpose of this study, a two-tier categorization of empathy will be employed: 1) situation-specific; and 2) dispositional. Studies in Chapter 2, 3, and 5 were based on the premise that empathy is situationally determined (Batson, Klein, Highberger, & Shaw, 1995; Cikara, Bruneau, & Saxe, 2011; Decety & Cowell, 2014; Duan & Hill, 1996; Ocejja, 2008; Rhodes & Chalik, 2013). As a situation-specific, affective-and-cognitive state (Duan and Hill, 1996), empathy fluctuates from one situation to another. Specifically, the extent to which people feel empathy depends on the target person (Cikara et al., 2011; Mathur, Harada, Lipke, & Chiao, 2010). From an evolutionary perspective, empathy has been evolved to ensure familial bonding and high in-group cohesion



(Decety & Cowell, 2014). Empathy allows people to build coherent social bonds within a group. In contrast, empathy does not work for the intergroup context because members of out-groups are not expected to play a critical role in one's survival (Balliet, Wu, & De Dreu, 2014). Rather, out-groups are usually perceived as a threat, and empathizing with them or building a close relationship does not make sense. As the results, people often underestimate or disregard sufferings of out-group members while reacting to a friend's or relative's misfortune with affective empathy (Cikara et al., 2011). The selective nature of empathy points out to the notion that empathy has evolved to ensure close social ties with friends and family members who interact daily and depend on one another for survival. Thus, empathy heavily depends on the context, particularly whom to empathize with, and people often feel less or no empathy for others who belong to a different social category.

Studies in Chapter 4 and 5 used the definition that empathy is a general tendency to empathize with others in distress (Davis, 1983). The definition builds on two assumptions that 1) there are individual differences in the extent to which people experience empathy, and 2) the inclination to empathize is a stable construct (Davis et al., 1999; Eisenberg & Lennon, 1983; Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008). Early studies have used this operationalization to explore altruistic and prosocial personalities and motivations (Batson et al., 1989; Bethlehem et al., 2017; Davis et al., 1999). While assuming some degree of malleability, scholars today agree that empathy can be treated as a personality attribute. People who score high on existent empathy measures are more likely than others to show concern for unfortunate others and engage in volunteering activities (Davis et al., 1999). To reiterate, studies reported in this dissertation used the categorization that empathy as situation-specific (Chapter 2, 3, and 4) and dispositional (Chapter 4 and 5).

There is another important distinction of empathy that must be mentioned here: Empathy as affective, cognitive, and behavioral (Davis, 1983; Decety & Moriguchi, 2007; Hoffman, 1984; Hogan, 1969; Levenson, & Ruef, 1992; Reniers, Corcoran, Drake, Shryane, & Völlm, 2011). In this dissertation, the affective component of empathy was highlighted because available evidence shows that affective empathy is most relevant for utilitarian judgments in sacrificial dilemmas (e.g., Gleichgerrcht & Young, 2013). Nonetheless, affective and cognitive empathy will be introduced in the following sections for two reasons. One reason is that affective and cognitive empathy overlap considerably. Increasing cognitive empathy by taking the perspective of others also increases affective empathy for the target (Batson & Ahmad, 2009). A neurocognitive study has supported earlier questionnaire studies by showing brain areas for affective and cognitive empathy are usually activated simultaneously (Vreeke & Van der Mark, 2003). The second reason is that the study in Chapter 3 used a perspective-taking task to increase affective empathy under the assumption that adapting the perspective of others increases affective empathy (Hepper et al., 2014). To explain why the perspective-taking task was used in the study, it will be helpful to introduce not only affective but also cognitive empathy.

Earlier studies have often used the distinction: affective and cognitive empathy. First, affective empathy, is broken down into 1) feeling affective empathy for others (Davis, 1983), and 2) feeling the same emotion of others (emotional contagion: Jolliffe & Farrington, 2006; Mehrabian, & Epstein, 1972). In the current research, the first definition was used. Further, affective empathy (according to the first definition) can be either other-focused or self-focused. Other-focused affective empathy is known as empathic concern (EC), and self-focused form is personal distress (PD; Batson, Fultz, Schoenrade, 1987; Davis, 1983). By definition, EC is an altruistic motivation to help others while PD is egoistic helping in disguise (Batson et al. 1987).

The EC-motivated helping is intended for alleviating the pain of others and is associated with an individual's commitment to the welfare of others. In contrast, when an individual is motivated solely by PD, the helping behavior is aimed at reducing his/her own distress, not the recipient's. Secondly, cognitive empathy, is to adapt the perspective of others (perspective-taking: Davis et al., 1996), and 2) understanding what other people are feeling and thinking (empathic accuracy: Ickes, Stinson, Bissonnette, & Garcia, 1990). In the perspective-taking task, participants are asked to imagine what the target person is feeling and thinking in the situation. By imagining what others are going through, people report increased affective empathy for that person (Davis et al., 1996; Hepper et al., 2014).

There have been endeavors to develop psychological measurements that capture the complexity of empathy (Wiske, 1986). One of the most widely measure for affective and cognitive empathy is Davis' Interpersonal Reactivity Index (IRI: Davis, 1983), which consists of two affective empathy (empathic concern and personal distress) and two cognitive empathy indexes (perspective-taking and fantasy). The four-factor IRI has been translated worldwide, including Japanese (Sakurai, 1988). Nonetheless, some scholars contend that the IRI does not sufficiently cover all facets of empathy. For example, the IRI does not measure one facet of affective empathy, emotional contagion, which is defined as feeling the same emotion of others (Jolliffe & Farrington, 2006). Further, recent studies using behavioral or neurocognitive instruments to assess empathy have found that self-report measures (e.g., IRI) have weak correlations with behavioral and neural measures (see Decety & Lamm, 2009 for review). Similarly, dissecting empathy results in many parts that the researcher may wish to see in a project, and empathy studies often focuses on a certain aspect of empathy that is relevant to the theme.

Today, there is a consensus that emotions, including empathy, influence moral judgment although it had been a neglected area due to the assumption that morality is about rational thinking. Considering that feeling empathy for suffering others (affective empathy) is relevant for utilitarian moral judgments in sacrificial dilemmas involving life or death (Gao & Tang, 2013; Gleichgerricht, Tomashitis, Sinay, 2015; Gleichgerricht & Young, 2013; Kahane, Everett, Earp, Farias, & Savulescu, 2015; Koenigs et al., 2012; Patil & Silani, 2014), the affective side of empathy is investigated in this dissertation. To measure individual differences in affective empathy, the IRI's subscale was used. In the following sections, past and current trends in moral psychology are briefly reviewed before introducing moral dilemma studies.

### **Emotion, Empathy, and Moral Judgment**

For decades, extensive attention had been given to the role of reasoning in moral judgment, but in recent years, the trend is to investigate how emotions shape perceived wrongness of harmful actions. Traditionally, moral psychology focused on how people make moral judgments in morally relevant situations under the assumption that emotion is irrational and irrelevant for the higher-order human cognition (Kohlberg, Levine, & Hower, 1983). The shift from reasoning to emotions came abruptly. In the last few decades, many have witnessed a resurgence of academic interest in emotions in the field of moral psychology. Today, moral psychologists acknowledge that both emotion and cognition affect moral judgment (Greene, 2007; Haidt, 2001; Hutcherson & Gross, 2011). The first line of research examined the role of (affective) intuition in moral judgment. The social intuitionist model of moral judgment (Haidt, 2001) proposed that moral judgments are entirely produced by affect-laden intuitions. When people encounter a morally-relevant issue, without going through a careful examination, they instantly gain a feeling of good or bad that is directly linked to moral (dis)approval. In line with

the social intuitionist model, Haidt, Koller, and Dias (1993) found that people make a snap judgment about moral permissibility of certain issues that elicit undesirable emotions, such as disgust. In Western and non-Western cultures, people judge that a disgust-relevant issue that violates the moral domain of purity is immoral although frequently they are not able to provide cogent justifications for their moral judgments. (Haidt et al., 1993).

To investigate the relation between emotions and moral judgment, the second line of research in this topic focused on moral judgment patterns among those who lack emotional experiences. The moral dilemma task, which will be described in the next section, has made great contribution to the development of this field because it allowed the researchers to refute the old assumption that emotion is irrational and irrelevant for moral judgments that require reflective thinking. Using the task, neuroimaging studies have found that a brain damage that causes diminished emotional experiences is linked to aberrant patterns of moral judgment (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Greene, Sommerville, Nystrom, Darley, & Cohen, 2004; Koenigs, Kruepke, Zeier, & Newman, 2012). Notably, people who lack empathy fail to pick up affective cues in a situation and endorse harm whenever asked to save a larger number of people (Cima, Tonnaer, & Hauser, 2010; Gao & Tang, 2013; Thomas, Croft, & Tranel, 2011). These studies have confirmed that personality profiles and physiological conditions that are characterized by empathetic deficits are related to diminished aversion to harm, which in turn leads to endorsing harm onto another for the greater goodness. The next section will describe the particular methodology, that of the moral dilemma task, which has been implemented in the research dealing with this topic.

## **Moral Dilemma Task**

Over a couple of decades, studies investigating the role of emotion and rational thinking have utilized a moral dilemma task. A dilemma is a situation where an individual is in the middle of two equally undesirable alternatives. In a moral dilemma, several lives are in imminent danger. There are two choices: (a) intervene to save five by sacrificing one passenger (utilitarian), or (b) do not intervene and let five passengers die (non-utilitarian). The utilitarian choice results in saving a greater number of people but harms one person in exchange. The non-utilitarian judgment results in letting five people die but does not involve any harmful action. People have two incompatible motives (Broeders, Van Den Bos, Müller, & Ham, 2011): (1) saving people (“Save lives”) and (2) avoiding harm (“Do no kill”) that beget a moral conflict. The utilitarian choice motivated by (1), whilst, the non-utilitarian choice is motivated by (2). In moral dilemmas, people usually vacillate between the two choices because the both oppose the principle of morality that prohibits harm. The moral conflict evokes strong emotions with varying degrees of intensity, depending on the method of harm (action/omission), intentionality, and the physical distance to the victim (Choe & Min, 2011; Cushman, Young, & Hauser, 2006). Using the moral dilemma task, morality researchers, observed that emotional dysfunctions affect an individual’s higher order cognitive functions, such as moral judgments. Consequently, the task has become a golden method to study the role of emotion in moral judgments.

Studies on moral judgments have used a set of dilemma scenarios developed by Thomson and Greene (Greene et al., 2001; Thompson, 1985). There are two categories of dilemmas: low-conflict and high-conflict (sacrificial). The distinction between low-conflict and sacrificial dilemmas is the type of harm required for a utilitarian purpose and the extent to which negative emotions are tied to the harmful action (Choe & Min, 2011; Greene et al., 2001; 2004). In low-

conflict dilemmas, the harm is indirect (e.g., hitting a switch that diverts the direction of the runaway trolley), and in sacrificial dilemmas, the harm is direct (e.g., pushing a stranger off the bridge). By comparing sacrificial with low-conflict dilemmas, neuroimaging studies have confirmed that sacrificial dilemmas elicit strong emotions that lead to a quick, intuitive judgment (Greene et al., 2001; 2004). In this dissertation, the focus was on role of empathy in (utilitarian judgments. Compared to sacrificial dilemmas, the role of emotions, including empathy, is less salient in low-conflict dilemmas (Greene et al., 2001; 2004). To highlight the role of affective empathy, scenarios of sacrificial dilemmas were used in reported studies. In order to fully understand the role of empathy, it will be necessary to explain the underlying psychological process behind its function.

### **The Dual Process Theory of Moral Judgment**

According to the dual process theory of moral judgment (Greene et al., 2001, 2004; Greene, 2007), two thinking processes are involved in the moral dilemma task: system 1 and system 2. System 1 is a fast, automatic, affective thinking process, whereas system 2 is a slow, elaborative, cognitive-based thinking process. The theory makes a prediction that people make a judgment by system 1 when an emotional salience is high. People have access to system 2 only by overriding the initial judgment produced through automatic cognitive processes (system 1). In the dual model, the two thinking processes work in separation, and the intuitive system 1 comes first, effortful system 2 later. Past findings have supported the theoretical assumption that system 1 is relatively effortless and affect-based, compared to system 2, which expends cognitive resources (Greene, Morelli, & Cohen, 2008). Performing a digit-span task interferes with utilitarian judgment, but not with non-utilitarian judgment, as it increases the response time (Greene et al., 2008). Similarly, 53 hours of sleep loss impaired responses to sacrificial

dilemmas, but not to low-conflict dilemmas (Killgore et al., 2007). Under a high cognitive load condition, people were less inclined to make utilitarian choices (Conway & Gawronski, 2013). That is, when people engage in a cognitively demanding activity in parallel with the moral dilemma task, they tend to make non-utilitarian judgments through system 1. Taken together, the comparison of responses to sacrificial and low-conflict dilemmas provided evidence for the dual process theory that the system 2 generates utilitarian judgments in sacrificial dilemmas that provoke strong emotional reactions.

In moral dilemmas, affective empathy is part of system 1 that induces strong (usually negative) emotions, which in turn cause utilitarian bias, and the degree of experiencing empathy may depend on the method of harm (Greene et al., 2001; 2004). Also, the degree of empathy is higher when an individual perceives that he or she is near the victim. Generally, people prefer the indirect method of harm regardless of intentionality (Royzman & Baron, 2002) as active interpersonal harm is perceived as more aversive than omission that causes an equally harmful consequence (Cushman et al., 2006). Comparing judgment patterns in sacrificial and low-conflict dilemmas have revealed that the effect of empathy on harm aversion is larger when harm was a direct result of an action. In low-conflict dilemmas, sacrificing a victim could be perceived as the side effect of a harmless action (e.g., hitting a switch), and the respondent could assume that he or she is not directly responsible for harm (Cushman & Young, 2011). In contrast, the utilitarian mean involves direct harm in sacrificial dilemmas, and respondents are asked to harm others in close proximity (e.g., pushing a large passenger off the bridge). The majority (80-90%) contends that it is morally permissible to inflict harm on the potential victim in low-conflict dilemmas, whereas disproportionately fewer respondents show utilitarian bias in sacrificial dilemmas (Greene et al., 2001; 2004). Imagining oneself as a harm-doer evokes strong emotions (Navarrete



et al., 2012), that biases against the utilitarian solution. Taken together, the higher emotional salience in sacrificial dilemmas explains why most respondents make an affect-based judgment and points out to the notion that aversive reaction to interpersonal harm originates from empathizing with others. In sacrificial dilemmas, it appears that empathy works to prevent people from harming others. With empathy, harm in sacrificial dilemmas allows people to see the direct consequence of utilitarian choices, and people experience intense emotions, including empathy for the sacrificed, that lead to rejecting the utilitarian solution. However, if an individual is not capable of feeling empathy, then the dual process model will not hold. In the interpersonal context, empathy plays a key role in perceiving harm, which in turn prompts the individual to judge that an action is ethically impermissible. Empathy is a precursor of perceiving interpersonal harm that constitutes a basis of morality (Decety & Cowell, 2018). Empathy allows people to vicariously experience the emotions of others (Jolliffe & Farrington, 2006) and tries to protect their moral rights once empathized (Pizarro, Detweiler-Bedell, & Bloom, 2006). Without empathy, the individual does not perceive others as capable of experiencing pain (Gray, Jenkins, Heberlein, & Wegner, 2010) and harmful actions toward them are justifiable (Gray, Gray, & Wegner, 2007). In the interpersonal context where two actors (a perpetrator and a victim) are present, people, as observers, focus their empathy on the target person of harm, which in turn actuates them to prevent the perpetrator from harming the other.

In line with the dual process theory, reduced emotional experiences, specifically affective empathy, have been found to predict utilitarian judgments in sacrificial dilemmas. Compared to the comparison group, those with diminished empathy were disproportionately likely to make utilitarian judgments in sacrificial dilemmas (Gao & Tang, 2013; Gleichgerrcht et al., 2015; Gleichgerrcht & Young, 2013; Kahane et al., 2015; Koenigs et al., 2012; Patil & Silani, 2014).

Although neural networks for affective and cognitive empathy show some overlaps (Lamm, Decety, & Singer, 2011), in sacrificial dilemmas, affective empathy, but not cognitive empathy, predicts utilitarian bias (Gleichgerrcht & Young, 2013). People with empathic deficits in the affective domain show utilitarian bias consistently while the results for those with low cognitive empathy are mixed (Vyas, Jameel, Bellesi, Crawford, & Channon, 2017). The relation between diminished empathy and utilitarian bias suggests that system 1 may require emotional experiences, specifically affective empathy, to perceive harm in sacrificial dilemmas. Without affective empathy, the individual would not experience strong emotions in response to the emergency scenario, and the distinction between low-conflict and sacrificial dilemmas is obscure or insignificant. In the next section, psychopathy is introduced to further explain the relationship between diminished affective empathy and utilitarian bias in sacrificial dilemmas.

### **Psychopathy, Amoral, Lacking in Empathy, and Utilitarian Bias in Sacrificial Dilemmas**

Psychopathy is manifold with respect to personality profiles, social functioning, and behavioral repertoires (Feilhauer, Cima, Kerebits, & Kunert, 2012), and found in subclinical and normal as well as clinical and criminal populations (Cleckley, 1941). Traditionally, psychopathy was conceptualized as a personality disorder, but today most scholars view it as an umbrella term that encompasses diverse attributes. Unlike the old stereotype that psychopathy is observed only in incarcerated populations, some non-criminals with high psychopathy may acquire adaptive social skills while successfully managing their antisocial desires. Early accounts of psychopathy reveal that those with high psychopathy in the non-clinical population may include a successful businessman, surgeon, scientist, and even a psychiatrist (Cleckley, 1941). They exhibit cognitive and behavioral patterns that are comparable to full-blown psychopaths but have developed

strategies to satisfy their selfish needs without getting into trouble (Gao & Raine, 2010; Hall & Benning, 2006).

Today, many scholars use the two-dimensional model of psychopathy, which postulates that psychopathy consists of primary and secondary traits (Hare, 1999; Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012; Lee & Salekin, 2010; Levenson, Kiehl, & Fitzpatrick, 1995). Primary psychopathy is the core of psychopathy and includes unemotional-callous attributes, such as selfish, empathic deficits, and interpersonal manipulation. Secondary psychopathy relates to its behavioral patterns and antisocial lifestyle. Primary and secondary psychopathic traits are differentially related to social outcomes among clinical and non-clinical psychopathic individuals (Levenson et al., 1995; Malterer, Glass, & Newman, 2008; Skeem, Johansson, Andershed, Kerr, & Loudon, 2007). Because psychopathic traits, particularly primary psychopathy, is related to aberrant patterns of moral judgments, past studies focused on the role of affective experiences (e.g., feeling empathy for others) in shaping an individual's morality.

A neurocognitive model of psychopathy, the integrated emotion system model (IES: Blair, 2007), posits that reduced responsiveness to distress cues is caused by a hypo-activated amygdala, which is a direct cause of psychopathy's failure to act morally. The amygdala is an emotion module of stimulus reinforcement learning, both for negative (aversive) and positive learning (LeDoux, 1998). In accordance with the IES model, psychopathy is related to a variety of emotional deficits, including: experiencing, recognizing, and identifying emotions of the self and others, and is often called an emotional disorder (Patrick, 1994; Van Honk & Schutter, 2006). People with high psychopathy show impaired aversive reinforcement, meaning the inability to learn from mistakes and stolidity to aversive stimuli (Patrick, 1994). While some aspects of morality are innate, people learn a great deal of morally (in)appropriate behaviors in

the process of socialization through stimulus reinforcement learning (Dahl & Freda, 2017). A child may learn that taking a toy away from a peer without consent is not appropriate by his/her mother scolding. The scolding is perceived as aversive and works as to discourage the child to behave in the way. In the process of learning, the child associates the negative stimulus (scolding) with the behavior (snatching a toy from a friend), and over time, he/she recognizes the behavior as socially undesirable.

Particularly, psychopathic traits are associated with low affective empathy, and distress cues (e.g., suffering of others, negative facial expressions) do not elicit negative emotions (Matthews, 2014). Non-psychopathic individuals rely on emotions, such as empathy, sadness, and personal distress, that are censored by the amygdala when asked to judge moral violations (Fultz, Schaller, & Cialdini, 1988; Harenski, Harenski, Shane, & Kiehl, 2010). Without a functional amygdala, the individual shows little or no distress in response to the suffering of others. Because affective empathy is feeling sympathetic, concerned, and tender for others in distress, the lack of other-focused emotions may lead to low motivation to feel responsible for the well-being of others. To recapitulate, the IES from the neurological approach, explains why psychopathy exhibits diminished sensitivity to moral violations, including interpersonal harm.

Psychopathy is characterized as devoid of moral sense and empathy (Jonason, Strosser, Kroll, Duineveld, & Baruffi, 2015; Matthews, 2014), and some scholars use “amoral” to explain psychopathic immorality: “Psychopaths do not merely behave contrary to moral standards, or advocate alternative moral standards to those generally accepted, but seem in some sense not even to understand the notion of a moral standard in any “serious” sense (Matthews, 2014 p. 78).” In moral dilemmas, psychopathy is the most robust predictor of utilitarian bias in sacrificial dilemmas that involve harming an identifiable victim (Koenigs et al. 2012; Reynolds & Conway,

2018). Studies investigating the link between psychopathy and morality have shown that feeling empathy for unfortunate others may be important for understanding and respecting moral rules that concern interpersonal harm (Cima et al., 2010; McDonald & Defever, & Navarrete, 2017; Sigman, Kasari, Kwon, & Yirmiya, 1992). The suffering of others does not evoke distress in psychopathic individuals, thus allowing them to disregard the moral right of others (Blair, Jones, Clark, & Smith, 1997). Compared to personality profiles with low affective empathy, psychopathy is most compromised in the moral domain, particularly moral values that relate to the well-being of others (Jonason et al., 2015). Further, diminished empathy leads to indifference to moral values. Psychopathic individuals may show good understanding of basic moral rules but are simply not concerned of being morally appropriate (Cima et al., 2010). They follow rules that may help them get ahead in life while disregarding others that seem to be irrelevant to their selfish goals (Glenn, Iyer, Graham, Koleva, & Haidt, 2009). Thus, psychopathic individuals with low affective empathy may grasp the concept of moral rules, but without affective empathy, they feel no responsibility in acting for others because of the self-centered approach to morality.

Psychopathic traits, particularly primary psychopathy that entails empathic deficits, consistently predict a bias toward utilitarian options that permit harm onto an identifiable victim. In the moral dilemma task, people with high psychopathy exhibit utilitarian bias both in low-conflict and sacrificial dilemmas while the majority repudiates the utilitarian solution in the latter (Gao & Tang, 2010; Koenigs et al. 2012; Patil, 2015; Reynolds & Conway, 2018). Generally, people wish to increase the overall benefits for others, but in sacrificial dilemmas, the utilitarian mean evokes aversive emotions that may stem from the inclination to evade interpersonal harm. However, people with high psychopathy makes utilitarian judgments for non-moral reasons, such as diminished emotional experiences, including affective empathy (Koenigs, et al., 2012),

detachment from the high-impact situation (Cima et al., 2010), and action aversion (Patil, 2015). Without affective empathy, the individual does not experience the dilemma that involves dual desires: to save many people and to avoid interpersonal harm. Consequently, making a utilitarian judgment is as easy as choosing a greater number from a pair of numbers by a simple comparison.

### **Building onto the Body of Knowledge**

There are several ways to build on the existing literature on empathy and utilitarian judgments in sacrificial dilemmas. First, studies using the moral dilemma task have revealed that a variety of emotions, including empathy, influences moral judgments (Choe & Min, 2011), and how emotions sensitize the individual to interpersonal harm needs to be studied. Although empathy has been a focal theme in studies of morality, most earlier studies have treated empathy as a motivation for altruistic behaviors (e.g., Batson et al., 1995). That is, empathy was used to explain how people are motivated to help others in need, under the assumption that empathy is an instigator of other-regarding behaviors. However, morality is about do's and don'ts (Janoff-Bulman, Sheikh, & Hepp, 2009). Some moral rules are prescriptive, meaning that the ultimate aim is to bring about positive outcomes by promoting desirable behaviors (e.g., be kind to your neighbor). In comparison, proscriptive rules convince people to avoid certain behaviors by focusing on the negative outcome (e.g., do not hurt others' feelings). Despite the two faces of morality, very few studies have examined the proscriptive role of affective empathy in discouraging people from harming others.

Secondly, considering the malleability of empathy, past studies have not fully elucidated the role of empathy. In studies using the moral dilemma task, empathy has been operationalized as a fixed, dispositional construct to uncover how individuals with low empathy respond to

moral dilemmas. However, affective empathy is malleable and discriminative. After going through adverse life events, people begin to feel responsible for the well-being of vulnerable others through increased empathy (Staub & Vollhardt, 2008). The experience of feeling empathy for others also depends on interpersonal cues in a given context (Batson et al., 1995). People reserve affective empathy for familiar or likable others, and the plight of distant others does not cause anguish (Cikara et al., 2011; Decety & Cowell, 2014; Oceja, 2008; Rhodes & Chalik, 2013). The neural circuit of empathy for in-group members (e.g., people of the same ethnicity) is distinct from that for out-group members (e.g., people of the different ethnicity: Mathur et al., 2010). Thus, people fail to empathize with all others in a situation when more than two parties are present when empathizing with one side is incongruence with empathizing with others. Taken together, a number of personal and situational determinants influence affective empathy in a situation, suggesting dispositional affective empathy could be a poor predictor of an outcome in interest.

Considering that empathy is discriminative, to empathize with all people in moral dilemmas, people need to consider both sides (the potential victim and several others who are saved by the utilitarian action). It is unlikely that people empathize with both sides in sacrificial dilemmas because two moral rules collide (“Do not kill” versus “Save lives”: Broeders et al., 2011). The utilitarian judgment is easy to make if the respondent puts an empathic focus on the saved. By empathizing only with the saved, he/she can only focus on the positive consequence (saving lives). In contrast, if the respondent empathizes only with the victim, the utilitarian action may be perceived as unbearable or unjustifiable, thereby rejecting the harm. When the respondent empathizes with both the victim and the saved, he/she pays more attention to the negative consequence (harming one person). As a result, he/she must find a compromising point

by empathizing with either of them. Considering this, people should empathize with the victim more or less with the saved in the moral dilemma task. To test this prediction, empathy for the victim and the saved in the dilemma scenario should be measured as well as dispositional affective empathy.

Similarly, the type of affective empathy that predicts utilitarian bias in sacrificial dilemmas should be explored further. Is empathy affecting the judgment other-focused or self-focused? By definition, empathic concern (EC: other-focused empathy) is other-oriented feelings of sympathy and genuine concern for unfortunate others, and personal distress (PD: self-focused empathy) is self-oriented feelings of discomfort in intense social situations (Davis, 1983). Some have found that EC is a motivational force for not endorsing harm (Gleichgerrcht & Young, 2013), while others have reported that PD predicts non-utilitarian judgments (Sarlo, Lotto, Rumiati, & Palomba, 2014). Moreover, the effect of affective empathy was not consistent (Baron, Gürçay, & Luce, 2017). To explain the mixed findings, it is essential to consider the situation in interest, considering that each dilemma scenario is unique in content and empathy depends on the context. Initially, dilemma scenarios are grouped into either low-conflict or high-conflict (sacrificial). However, recent studies have proposed that scenarios can be further broken down into other-beneficial or self-beneficial (Moore, Clark, & Kane, 2008). In the other-beneficial dilemma, the respondent is depicted as a mere passenger who is not involved in the emergency situation and asked to intervene to save anonymous five passengers. In the self-beneficial dilemma, the respondent, as one of those whose life is in danger, is asked to perform a harmful action for saving own and others' lives. To date, few studies have made this distinction although effects of empathy depends on whether the self is implicated in the dilemma. Participants were more likely to endorse harm in self-beneficial dilemmas than in other-beneficial dilemmas



(Christensen, Flexas, Calabrese, Gut, & Gomila, 2014). Since the previous studies (Gleichgerricht & Young, 2013; Sarlo et al., 2014) did not take the distinction (other-beneficial and self-beneficial) into account, analyzing the judgment patterns separately may explain the mixed results.

Moreover, low affective empathy (sometimes) predicts utilitarian judgment. Empathic deficits pertain to various personality traits, but only psychopathy is a robust predictor of utilitarian bias in the moral dilemma task (Pletti, Lotto, Buodo, & Sarlo, 2017; Vyas et al., 2017). However, the associations between psychopathic traits of selfish, uncaring, manipulative (primary psychopathy), low affective empathy, and utilitarian bias in sacrificial dilemmas have not been well-studied. One study (Vyas et al., 2017) found that a high psychopathy group was more likely than the comparison group to show low affective empathy, diminished affective responses to dilemma scenarios, and utilitarian bias, but one limitation was that the psychopathy was treated as a discrete variable (e.g., categorizing participants into the high or low psychopathy group). Since psychopathic traits vary greatly (Gao & Raine, 2010; Hall & Benning, 2006), the personality trait can be better captured using a dimensional rather than a categorical approach. Further, dichotomizing a continuous variable is not generally recommended because it reduces statistical power substantially (Altman & Royston, 2006). Considering the dimensional nature of psychopathy and the cost of dichotomizing the score, studies are needed to clarify the links between psychopathy, low affective empathy, and utilitarian judgments.

In addition to treating the personality variable as continuous, it is critical to differentiate empathic deficits and its comorbid conditions when a study investigates the effects on utilitarian bias. Diminished empathy characterizes a wide variety of personality profiles and physiological conditions, but low empathy predicts utilitarian bias in psychopathy, but not always in others

(Vyas et al., 2017). Likewise, psychopathy is most compromised in moral senses (Glenn et al., 2009; Jonason et al., 2015). Considering that people with high psychopathy endorse harm in sacrificial dilemmas without moral concerns (Cima et al., 2010), it could be that low affective empathy in combination with a comorbid condition in psychopathy distorts perception of harm, which in turn leads to utilitarian judgments. One possible condition that diminishes a sensitivity to interpersonal harm along with low affective empathy is trait alexithymia, which implicates a lack of emotional awareness. Alexithymia has been also shown to predict utilitarian bias in the moral dilemma task (Patil & Silani, 2014), and frequently coincides with other affective dysfunctions (Ridings & Lutz-Zois, 2014). Psychopathic traits and some alexithymia traits are associated (Demers & Koven, 2015; Lander, Lutz-Zois, Rye, & Goodnight, 2012), and it could be that low affective empathy and not perceiving own emotions together predict utilitarian judgments.

As shown in the previous section, early studies on empathy have suffered from generalizability of one study to another due to the variability in operationalizations of empathy under investigation. To avoid confusion, the present study uses terms, affective empathy and utilitarian judgments, to convey the following meanings in this dissertation.

**Empathy.** The affective facet of empathy is highlighted because past studies have found that affective empathy, particularly empathic concern (other-focused affective empathy), predicts utilitarian bias in moral dilemmas (Gleichgerrecht & Young, 2013). Although affective empathy may be operationalized by having more than three categories (Jolliffe & Farrington, 2006; Vaish, Carpenter, & Tomasello, 2009), previous studies on the moral dilemma task have used the altruistic-egoistic (empathic concern and personal distress) framework of affective empathy by

Davis (1983). To build on the past findings, the two-dimensional model of affective empathy was used: empathic concern (other-focused) and personal distress (self-focused).

**Utilitarian judgments/choices.** The term “utilitarian” was not used to indicate that “utilitarian” judgments reflect the conservative definition of utilitarianism, but an individual’s willingness to harm another for a utilitarian end regardless of his/her concern for maximizing the overall benefits. Originally, moral dilemma studies aimed to contrast deontology with utilitarianism, but having scrutinized the content of dilemma scenarios, scholars have casted a doubt on an argument that utilitarian judgments in moral dilemmas reflect utilitarian ethics for two reasons. First, making utilitarian judgments should not take time or efforts if it is purely based on the utilitarian principle of impartial concern (Kahane, 2012; Kahane et al., 2015; Singer, 1979). The dual process theory predicts that longer response time is associated with system 2 processing, which leads to utilitarian judgments (Greene et al., 2008). The individual examines the costs and benefits in moral dilemmas and arrives at utilitarian judgments after gathering evidence for the justifiability of endorsing harm. However, reaching the utilitarian conclusion should not take time from the perspective of numerical utilitarianism. If the individual is only concerned about maximizing the benefits for others, making utilitarian judgments in moral dilemmas are easily done by counting the number of people saved by an action (Kahane et al., 2015). Thus, according to the utilitarian conception of impartiality (Singer, 1979), people should not take time or efforts to arrive at utilitarian judgments in moral dilemmas because it only involves choosing an option that saves more people than the other.

Secondly, utilitarian judgments in moral dilemmas indicate reduced aversion to interpersonal harm rather than an individual’s moral orientation (Bartels & Pizarro, 2011; Conway, Goldstein-Greenwood, Polacek, & Greene, 2018; Crockett, Clark, Hauser, & Robbins,

2010; Duke & Bègue, 2015; McDonald et al., 2017; Perkins et al., 2013; Reynolds & Conway, 2018). In utilitarian ethics, utilitarian judgments should indicate impartial concern for others, but antisocial personality traits with indifference to ethics predict utilitarian bias (Bartels & Pizarro, 2011; Patil, 2015). Specifically, people with high psychopathy make a spontaneous utilitarian judgment because they are low in action aversion (i.e., not motivated to avoid interpersonal harm; Patil, 2015) or are immune to moral condemnations (Cima et al., 2010). These suggest that some respondents with amoral personal attributes make utilitarian judgments in sacrificial dilemmas not for a utilitarian cause, but for irrelevant reasons. Taken these together, utilitarian judgments in moral dilemmas are not reliable indices of an individual's preference for the utilitarian ethics. Since the term, 'utilitarian judgment,' has established itself in the literature, the term was used in this dissertation, to indicate an individual's endorsement of a harmful action to another for saving a larger number of people.

### **Overview of the Current Research**

The studies presented in this dissertation examine how affective empathy affects utilitarian judgments in sacrificial dilemmas. Studies in Chapter 2 and 3 focus on the role of state affective empathy with the aim of better understanding how it influences judgments on the permissibility of interpersonal harm. Chapter 2 (Takamatsu, 2018a, Study 1) distinguishes between other-focused (EC: empathic concern) and self-focused empathy (PD: personal distress) and investigated each contribution to predicting utilitarian bias in other-beneficial and self-beneficial dilemmas. Results provide evidence that both other-focused and self-focused empathy (EC and PD) affect judgment in sacrificial dilemmas, and effects of empathy depended on whether the decision was personally relevant to the participant, such as affecting his/her life. However, it could be that PD in this study was other-focused due to the empathy item (i.e.,

asking participants how much they felt PD for the victim). Next, to provide experimental evidence for the link between diminished affective empathy for the victim and utilitarian bias, Chapter 3 (Takamatsu, 2018b) manipulated affective empathy for the victim in two dilemmas (*footbridge, raftboat*) and compared judgment patterns among participants in the high empathy, low empathy, and control conditions. Results corroborate Chapter 2 and others by showing that empathy increased the likelihood of non-utilitarian judgment by showing that manipulation of empathy for the victim affects judgment in the non-utilitarian direction. Mainly, trying to see the situation from the victim's perspective increased empathy for him/her, which in turn led to non-utilitarian judgment.

The latter two chapters (Chapter 4 and 5) investigated the associations between primary psychopathy (egoistic, unemphatic, and parasitical), low dispositional affective empathy, and utilitarian judgments in the moral dilemma task. Chapter 4 (Takamatsu & Takai, 2017) examined the relationships in conjunction with trait alexithymia to better understand how the psychopathic traits of reduced affective empathy, together with the emotional blindness, lead to endorsing harm in moral dilemmas. Chapter 5 (Takamatsu, 2018a, Study 2) examined roles of affective empathy (empathy for the victim and for the saved) and reasoning (justifications for utilitarian judgment) in endorsing harm. Further, dispositional empathy was also assessed to test a prediction that state affective empathy (empathy for the victim and the saved), but not dispositional empathy, predicts utilitarian bias. Results showed that lower empathy for the victim and higher empathy for the victim mediated the relationship between psychopathy and utilitarian judgments. Moreover, psychopathy was associated with using a justification of low emotional responsiveness, which in turn led to utilitarian judgments. In line with the prediction, compared to dispositional empathy did not predict utilitarian judgment.

Overall, the body of research demonstrates that whether situationally bound or dispositional, affective empathy guides judgments in sacrificial dilemmas by making an individual see the consequence of a harmful act and vicariously feel the pain of others. In the proscriptive moral domain, empathy regulates behavior in the context where interpersonal harm is relevant. As empathy is entrenched in human nature, human beings may be hardwired to feel aversion to harming others. Despite a skeptical view of the moral dilemma task as a yardstick for a utilitarian preference, it does reveal one important aspect of morality: interpersonal harm aversion.

## **Studies Reported in Chapter 2-5**

### **Chapter 2**

Takamatsu, R. (2018 Study 1). Turning off the empathy switch: Lower empathic concern for the victim leads to utilitarian choices of action. *Plos ONE* 3(9), e0203826.

### **Chapter 3**

Takamatsu, R. (2018). The partial nature of empathy in dilemma judgment task: Empathy with the victim predicts (non-)utilitarian judgment (in Japanese). *Japanese Journal of Interpersonal Psychology*, 18, 53-59.

### **Chapter 4**

Takamatsu, R., & Takai, J. (2017). With or without empathy: Primary psychopathy and difficulty in identifying feelings predict utilitarian judgment in sacrificial dilemmas. *Ethics and Behavior*. doi: 10.1080/10508422.2017.1367684

### **Chapter 5**

Takamatsu, R. (2018 Study 2). Turning off the empathy switch: Lower empathic concern for the victim leads to utilitarian choices of action. *Plos ONE* 3(9), e0203826.

## Chapter 2

### Lower empathy and utilitarian judgments in other-beneficial and self-beneficial dilemmas

This study examined how empathy affects judgment in two kinds of sacrificial dilemmas: self-beneficial and other-beneficial. Affective empathy was operationalized as other-focused (empathic concern: EC) and self-focused (personal distress: PD). The results showed that both EC and PD were associated with utilitarian judgments in sacrificial dilemmas, but the association varied as a function of dilemma type. In the other-beneficial dilemma (footbridge), higher levels of empathy were associated with non-utilitarian judgments. In the self-beneficial dilemma (raftboat), lower levels of empathy were associated with utilitarian judgments. Thus, whether other-focused or self-focused, high empathy predicted the decreased likelihood of endorsing harm when the respondent was not involved in the situation. In contrast, low empathy predicted the increased likelihood of endorsing harm when the respondent was also benefitted from the utilitarian solution. These suggest that utilitarian bias is affected by the dilemma type, not by the empathy type.



## Introduction

Empathy is multifaceted, and depending on the motivation, it could be altruistic or selfish (Batson et al., 1987). Affective empathy consists of two components: empathic concern (EC) and personal distress (PD: Batson et al., 1987; Davis, 1983). EC is other-focused empathy, and PD is self-focused empathy. EC reflects genuine concerns for others (e.g., “I often have tender, concerned feelings for people less fortunate than me”), and PD is a physiological arousal or discomfort that is elicited by the suffering of others (e.g., “Being in a tense emotional situation scares me”; Davis, 1983). In line with the conceptualization, studies have shown that EC predicts altruistic helping while PD predicts self-centered distress and hypocrisy (i.e., fleeing from an emergency situation instead of helping if given an option to leave; Batson et al., 1987; 1989). Here, one question arises: Which type of empathy predicts utilitarian bias in sacrificial dilemmas?

To ascertain whether the effects of affective empathy on utilitarian judgments in the moral dilemma task are self- or other-serving, it is important to look at the dilemma context. In moral dilemmas, respondents feel more empathy for the victim if they feel close to that person. Although the choice contradicts utilitarianism, people give priority to saving one family member over letting several strangers die (Thomas et al., 2011). Therefore, the social attribute of the victim affects affective empathy, and people usually feel more empathy in a situation where they easily relate themselves to others. Generally, it is easier to empathize with others if he or she has a high involvement in the situation. In the moral dilemma task, respondents are more likely to endorse harm when he or she is implicated in the situation. Particularly, utilitarian bias is prominent in self-beneficial dilemmas where the respondent is one of several passengers who are benefitted from the utilitarian solution (Moore et al., 2008). In the self-beneficial dilemma,

utilitarian judgments are considered selfish because it harms one innocent individual to save lives of several people, including the person who is in charge of making a judgment.

People should be likely to endorse harm in moral dilemmas if they feel that the choice affects not only the strangers but also themselves. In low-conflict dilemmas where indirect harm is required for saving five strangers, people usually endorse harm in accordance with the utilitarian ethics. However, they no longer show utilitarian biases in a dilemma where they find a contextual cue that is personally relevant. For example, if a victim in a hypothetical dilemma is a relative, respondents choose to remain as a bystander and to let five people die (Thomas et al., 2011). Further, types of empathy may depend on how people relate themselves to the situation (Batson et al., 1989). If they are genuinely concerned of the well-being of others, they would be motivated to help others in distress by paying more costs than benefits. In contrast, they would try not to get involved if they are only concerned of themselves. Therefore, the self-involvement may affect decisions to harm others for a utilitarian end.

Past studies on types of empathy and utilitarian judgments in sacrificial dilemmas have produced mixed results (Gleichgerricht & Young, 2013; Sarlo et al., 2014), and it remains unknown which type of empathy predicts utilitarian judgments. To discern altruistic from egoistic motives in moral dilemmas, it is important to focus on the motivation behind utilitarian bias (Kahane et al., 2015). Utilitarian judgments can be either other-regarding or self-serving, depending on the degree of self-involvement. In the following section, two categories of sacrificial dilemma scenarios that differ in the extent to which the individual is intricately involved in the high-stake situation are introduced.

### **Other- Versus Self-Beneficial Dilemmas**

Moral psychologists categorized dilemmas scenarios into other-beneficial and self-beneficial, depending on the involvement of the respondent (Christensen et al., 2014; Kahane et al., 2015; Moore et al., 2008). One example of other-beneficial dilemmas is the footbridge dilemma. In the scenario, the respondent is described as a passenger who happens to be a witness of the event and not involved in the emergency situation. The utilitarian choice does not involve his/her life, and he/she is asked to perform a harmful act onto a large stranger to save five strangers. Therefore, the respondent has no moral responsibility in saving the unfamiliar others, and the utilitarian action can be considered extremely altruistic. In comparison, the raftboat dilemma is categorized into self-beneficial because the respondent is intricated in the high-stake situation as one of those who are saved by the utilitarian option.

Using the categorization, past studies have found that people showed more personal distress in self-beneficial dilemmas than in other-beneficial dilemmas (Christensen et al., 2014). When the respondent is one of the five passengers, it is easier to immerse him/herself in the context. The respondent may empathize with several people who are saved by the harmful action because he/she is one of them. As the results, people are more willing to perform a harmful action for saving five people, including their life, compared to saving five unknown pedestrians because putting oneself in a life-threatening dilemma elevates personal distress that leads to utilitarian bias (Christensen et al., 2014; Moore et al., 2008; Suessenbach & Moore, 2015). It could be that participants are less responsive to interpersonal harm in self-beneficial dilemmas because the thought of getting killed directs their attention inward. Consequently, they feel PD more than EC and tend to disregard the suffering of the victim. Taken together, utilitarian

judgments in self-beneficial dilemmas have shown to reflect a selfish concern for escaping from the dilemma, rather than a utilitarian concern for maximizing the overall benefits.

## **Purpose**

The aim of the current research was to investigate the role of EC and PD in utilitarian judgments in sacrificial dilemmas. Considering that empathy depends on the context, two distinct sacrificial dilemma scenarios were used: other-beneficial and self-beneficial (*footbridge*, *raftboat*; Kahane et al., 2015; Moore et al., 2008; Patil, 2015). Based on past findings, it was predicted that EC in the other-beneficial dilemma leads to non-utilitarian judgments while PD in the self-beneficial dilemma to utilitarian judgments. Specifically, other-focused affective empathy would be associated with utilitarian judgments in hypothetical dilemmas where endorsing harm is to helping lives of strangers. In contrast, self-focused affective empathy would be associated with utilitarian judgments in the other type of dilemmas where the respondent is also in danger with the group of strangers.

## **Methods**

### **Participants**

A sample of 477 Amazon's Mechanical Turk workers participated. On average, it takes at least 32 seconds to read a scenario and make a judgment (Suter & Hertwig, 2011). Based on the total number of items and the manipulation task, participants were excluded if they took less than five minutes to complete the survey. Additionally, there was a control question to check inattention ("Choose 'Extremely' for this question"). Using the exclusion criteria, 275 responses were retained for analysis (43% female;  $M_{age} = 37.70$ ,  $SD = 11.95$ ). Participants were varied in ethnicity (53% White, 19% Asian, 14% Hispanic/Latino, 5% Black, and 7% other or 153 mixed ethnic heritage).

## Measures

**Dilemma task.** Participants read two dilemma scenarios (*footbridge*, *raftboat*; see Appendix, p. 129) in a counterbalanced order. The footbridge dilemma is other-beneficial as the respondent is a mere passenger and not involved in the life-or-death situation. In contrast, the raftboat dilemma is self-beneficial because the respondent is involved in the situation as one of the five who would be saved by sacrificing one person. After each scenario, they responded to a question: “Would you [harm the person] to save five passengers?” on a 4-point scale from 0 (*definitely no*) to 3 (*definitely yes*). Higher scores indicated a utilitarian preference.

**Affective empathy (EC and PD).** Participants were asked to report the extent to which they were experiencing ten emotions. Five emotions were sympathetic, compassionate, concerned, empathic, and tender, forming an empathetic concern (EC) index. The remaining five adjectives were: low-spirited, heavy-hearted, sad, sorrowful, and melancholy, forming a personal distress (PD) index (see Appendix, p. 130). The ten adjectives of other-focused and self-focused empathic emotions were used and validated as a measure for state EC and PD (Batson, Early, & Salvarani, 1997; McAuliffe et al., 2017). Participants rated each affective adjective on a 7-point scale from 1 (*not at all*) to 7 (*extremely*). Cronbach alphas for EC and PD were .82 and .85 for the footbridge and .85 and .81 for the raftboat.

## Results

### Preliminary Analysis

The assumption of data normality was violated for the dependable variables (judgment scores in the footbridge and raftboat). Therefore, non-parametric tests were conducted to ascertain the contribution of EC and PD to predicting utilitarian judgment in the two dilemmas.

Table 2-1.

*Means, Standard Deviations, Medians, Minimum-Maximum Range, Cronbach Alphas, and Gender Differences for Key Variables*

Key variables	Mean (SD)	Min, Max	Cronbach alpha	Gender differences (t, Z)
Footbridge dilemma				
EC	23.43 (6.70)	5, 35	.82	-2.58**
PD	21.12 (7.50)	5, 35	.85	-1.46
Utilitarian judgment	1.09 (.93)	0, 3	—	-3.99***
Raftboat dilemma				
EC	24.75 (6.86)	5, 35	.85	-5.19***
PD	23.81 (6.82)	5, 35	.81	-3.63***
Utilitarian judgment	1.61 (.93)	0, 3	—	-2.86**
EC	48.18 (12.22)	6, 30	.84	-4.32***
PD	44.93 (12.88)	6, 30	.83	-3.27***
Utilitarian judgment	2.70 (1.63)	0, 6	—	3.95***

*Note.*  $N = 272$ .  $p^* < .05$ ,  $p^{**} < .01$ ,  $p^{***} < .001$ .  $t$  = two sample independent t-test.  $Z$  = two sample independent Mann-Whitney's test.

EC = other-focused affective empathy (empathic concern), PD = self-focused affective empathy (personal distress)

Gender has been dummy coded as 0 = male, 1 = female.

Table 2-1 shows means, standard deviations, medians, range, Cronbach alphas, and gender differences for observed variables. There were gender differences in several variables, including utilitarian judgment in the raftboat dilemma,  $Z = -2.86$ ,  $p = .004$ ; therefore, gender was entered as a covariate for later analysis. To examine whether a significant difference exists in utilitarian judgments in the footbridge and raftboat dilemmas, the Wilcoxon signed-rank test was conducted. The result showed that people were more likely to sacrifice one person in the raftboat dilemma than in the footbridge dilemma,  $Z = -8.29$ ,  $p < .001$ .

## Main Analysis

A logistic regression analysis was conducted to test associations between the ordinal outcome variable (utilitarian judgment) and affective empathy variables (other-focused and self-focused: EC and PD).

Table 2-2.

*Logistic Regression Results for Study 1: Other-focused and self-focused Empathy as Predictors of Utilitarian Choices of Action in Two Sacrificial Dilemmas*

Predictor variable	Dilemma type	<i>b</i> [95% CI]	Wald	<i>p</i>
EC	Other-beneficial	−.073 [−.114, −.031]	11.96	.001
	Self-beneficial	.081 [.043, .118]	17.97	<.001
PD	Other-beneficial	−.095 [−.136, −.053]	20.02	<.001
	Self-beneficial	.068 [.027, .109]	10.68	.001

*Note.* *N* = 272. *b* = Logit coefficient, CI = Confidence Interval.

EC = other-focused affective empathy (empathic concern), PD = self-focused affective empathy (personal distress)

In the other-beneficial dilemma (*footbridge*), EC and PD negatively predicted utilitarian judgments (other-focused empathy:  $b = -.073$ , Wald = 11.96,  $p = .001$ ; self-focused empathy:  $b = -.095$ , Wald = 20.02,  $p < .001$ ). In the self-beneficial dilemma (*raftboat*), EC and PD positively predicted utilitarian judgments (other-focused:  $b = .081$ , Wald = 17.97,  $p < .001$ ; self-focused:  $b = .068$ , Wald = 10.68,  $p = .001$ ). Table 2-2 depicts the results.

## Discussion

The aim of this study was to investigate the role of empathy for the victim in utilitarian judgments by focusing on differential roles of other-focused and self-focused affective empathy (empathic concern: EC and personal distress: PD) in two types of sacrificial dilemmas (other-

beneficial and self-beneficial). The results partially supported the hypothesis, such that both EC and PD were associated with utilitarian judgments in sacrificial dilemmas. Whether other or self-focused, affective empathy predicted judgment patterns. The results provide insights into the inconsistency in the literature by showing that effects of empathy depend on the dilemma context. Past studies have produced inconsistent results as to which type of empathy predicts utilitarian judgments without distinguishing dilemma scenarios consistently (Baron et al., 2017; Gleichgerrcht & Young, 2013; Sarlo et al., 2014). In this study, the effect of affective empathy (EC and PD) on utilitarian judgments depended on the dilemma type rather than the type of empathy. In the self-beneficial dilemma, higher EC and PD were associated with utilitarian bias while lower EC and PD were associated with utilitarian bias in the other-beneficial dilemma.

Also, the results point out to the notion that dilemma scenarios are diverse in content, and two or more dilemmas in the sacrificial category may differ greatly. Considering that scenarios categorized into sacrificial might have distinct elements that affect an individual's perception of harm independently (Nakamura, 2013), the inconsistent results previously reported might be attributable to the heterogeneity of dilemma scenarios (Baron, Gürçay, Moore, & Starcke, 2012). In one interpretation, sacrificial dilemmas can be split into other-beneficial and self-beneficial (Christensen et al., 2014; Kahane et al., 2015; Moore et al., 2008), but the distinction has not been made consistently. Moreover, the categorization by self-beneficial and other-beneficial may not be valid (discussed in the following paragraphs). Considering this, caution must be also taken in generalizing the results for dilemma scenarios that were not used in this study.

Some questions remain to be discussed regarding motivations behind utilitarian judgments in other-beneficial and self-beneficial dilemmas. Are utilitarian judgments in self-beneficial dilemmas selfish? Likewise, utilitarian judgments in other-beneficial dilemmas are



ethical? In line with past findings that self-focused concerns predict utilitarian judgments (Christensen et al., 2014; Moore et al., 2008), participants in this study were more likely to make utilitarian judgments in the raftboat dilemma, compared to the footbridge dilemma. One assumption contends that utilitarian bias in self-beneficial dilemmas is egoistic because it endorses harm onto one person with the aim of saving one's life (Moore et al., 2008; Sarlo et al., 2014). According to the assumption, not trying to survive (not doing anything and choosing to die with four others) is a non-selfish choice because sacrificing the victim is selfish. In another interpretation, the non-utilitarian choice is selfish. People tend to judge that harm caused by omission (inaction) is more permissible than harm caused by action (Cushman et al., 2006). Also, they avoid taking an action even if the inaction is expected to cause worse outcomes (Ritov & Baron, 1990). The strong preference for inaction may reflect interpersonal harm aversion that accompanies strong negative emotions (Navarrete et al., 2012). Not taking an action in self-beneficial dilemmas may also indicate that the individual chose not to save four people because he/she is only concerned about escaping from the sense of self-blame or moral condemnation. To decide whether utilitarian judgments in self-beneficial dilemma reflect egoistic concerns, several interpretations must be taken into account.

Similarly, utilitarian judgments in other-beneficial dilemmas may not be motivated by an altruistic motivation for producing greater benefits for others because they can be motivated by extraordinary altruism or non-moral reasons (Cima et al., 2010; Kahane et al., 2015; Patil, 2015). First, take an example of the footbridge dilemma. The participant is described as a pedestrian who comes across the situation by chance and has no moral responsibility in saving the lives of strangers. That is, the non-utilitarian option is to remain as a bystander and not to get involved. Considering people intuitively show aversion to interpersonal harm, making the utilitarian choice

of action can be an act of a Good Samaritan, hence extraordinary altruism. Secondly, the relationship between antisocial personalities and utilitarian preference in moral dilemmas indicates that for some people, utilitarian judgments are driven by non-moral factors, such as low action aversion (Patil, 2015). Taken together, it may be erroneous to conclude that utilitarian judgments in self-beneficial and other-beneficial dilemmas reflect egoistic or altruistic motives.

### **Limitations and future directions**

There are two limitations that should be noted. First, although the empathy (EC and PD) items used for this study had been validated in past studies, the way it was asked could have not been in line with the assumption that empathy was directed at the victim/the self. In this study, participants were asked to rate the extent to which they had experienced in response to the dilemma scenarios by filling out the bracket, using five EC and five PD adjectives. The statement read: “I feel \_\_\_\_\_ for [the victim] in the situation”. In this study, PD was conceptualized as self-focused affective empathy. The phrase “for the victim” implies that the emotion was directed toward the victim, not the self. Considering this, the statement of PD should have been the one that reflects the self-directedness, such as “I feel \_\_\_\_\_ in the situation. This may explain why the effects of EC and PD were not distinguishable and why utilitarian judgments were influenced only by the dilemma type. To precisely measure EC and PD, future studies should take into account the self- and other-direction in measuring the distinct types of empathy.

Secondly, only empathy for the victim was measured in this study, but empathy for the saved (i.e., five people who are saved by the utilitarian action) may also influence the judgment. When people pay attention only to the victim, they may not consider the possible outcome for the saved. Likewise, when people focus on the utilitarian consequence for the saved, they may be likely to endorse harm by disregarding the damaging effects of utilitarianism on the victim. If

people are only concerned about their life, they should show more empathy for the saved than for the victim in the self-beneficial dilemma. Thus, comparing empathy for the victim and for the a\saved may reveal that a utilitarian judgment in a hypothetical dilemma is egoistic or altruistic.

Finally, the current research shows that EC and PD affect judgments in sacrificial dilemmas, but the evidence is based on the correlational design. The experimental method of eliciting empathy for a target has been validated by previous studies that showed perspective-taking can increase affective empathy (Hepper, Hart, & Sedikides, 2014). In this study, participants were asked to report affective empathy, but the self-report measure may be unreliable, considering social desirability and other variables unrelated to empathy. Experimental evidence is critical to confirm that affective empathy predicts utilitarian judgments.

## Chapter 3

### Manipulating empathy for the victim affects utilitarian judgments

Does manipulation of empathy affect judgments in sacrificial dilemmas? This study sought to show experimental evidence that manipulation of empathy for the victim affects utilitarian judgments. Participants read three versions of sacrificial dilemmas (footbridge and raftboat) in a randomized order. In the high empathy condition, participants were asked to adapt the victim's perspective, while in the low empathy condition, read a description of the victim as someone who deserves no moral consideration. In the control condition, they received no instruction in the dilemma task. In the footbridge dilemma, people showed the lowest empathy for the victim and were more likely to endorse harm. The results provide experimental evidence that reducing empathy for the victim increases the likelihood of making utilitarian judgments when the manipulation is successfully implemented. When participants were instructed to pay attention to the suffering of a potential victim, they reported more empathy, which in turn led to a non-utilitarian judgment. The results also provide some insights into the effect of social attributes on affective empathy. In the raftboat dilemma, the empathy manipulation was not effective possibly because participants tended to feel empathy for the potential victim who was described as injured. As empathy is contextually determined, the effectiveness of empathy manipulation may also depend on the target.

## Introduction

Empathy depends on its attentional focus because human beings have a limited capacity for attention. In daily lives, people filter out unnecessary information and pick up only a few (Duncan, 1984), and as to empathy, people automatically put an empathic attention to particular others. Consistent with the evolutionary view that empathy has evolved as a mechanism for strengthening social relationships within the ilk (Decety & Cowell, 2014), empathy is discriminative in nature. Without consciously controlling, they empathize with familiar or likable others while distant or dislikable others receive no empathic attention (Cikara et al., 2011, Ocejja, 2008). The empathic focus is attuned to in-group members, and out-group members often fall out of the focus (Cikara et al., 2011, Ocejja, 2008). People tend to empathize with others with a large perceived oneness, which is defined as a perceived overlap between self and other (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). On the other hand, empathizing with all people in a situation may create a dilemma because empathizing with one side might not be compatible with empathizing with the other. In such a case, the individual may be pressured to take a side in order to claim his/her group membership. Further, under some circumstances, people actively avoid empathizing with others (Shaw, Batson, & Todd, 1994) because empathizing with all others create a great tension (Bloom, 2016). In line with the evolutionary account that empathy has been evolved to ensure that people empathize with friends and families (Decety & Cowell, 2014), prior work has indicated that empathy is usually reserved for friends and relative, not for strangers and enemies because empathy is limited in attentional scope.

In sacrificial dilemmas, there are two parties: a potential victim who would be sacrificed for the utilitarian end and several people who would be benefitted from the utilitarian means, and empathy for the victim should predict non-utilitarian judgments for two reasons. The first reason

is that people tend to empathize with others who are clearly in distress (Batson et al., 1997; McAuliffe et al., 2017). If respondents pay attention to the foreseen suffering of the victim, making a utilitarian judgment will become associated with high affective empathy. Considering that human beings are intrinsically attuned to the pain of others (McAuliffe et al., 2017), they should empathize with the victim more readily, compared with the saved as long as perceived familiarity is the same. Another reason is that the aversion to harm originates from foreseeing the negative consequence for the victim through affective empathy (outcome aversion: Gleichgerrecht & Young, 2013) or the harmful action itself (action aversion: e.g., Miller & Cushman, 2013; Patil, 2015). Nonetheless, whether the aversion is to the action itself or the outcome, it is linked to the potential victim. Therefore, putting an empathic focus on the victim would increase an aversion to harm, which in turn leads to turning down the utilitarian solution.

Accumulating evidence suggests that low empathy for the victim and insensitivity to the pain of others are related, and diminished aversion to interpersonal harm reflects utilitarian judgments in sacrificial dilemmas. Individuals with a propensity to feel low or no empathy for others endorse harm in sacrificial dilemmas (Gao & Tang, 2013; Gleichgerrecht et al., 2015; Gleichgerrecht & Young, 2013; Kahane et al., 2015; Koenigs et al., 2012; Patil, 2015; Patil & Silani, 2014). Even people with no brain damage show utilitarian bias when they are temporarily intoxicated by alcohol and have no capacity to empathize (Duke & Bègue, 2015). Similarly, increasing sensitivity to the pain of others by serotonin-enhancers leads to heightened affective empathy and interpersonal harm aversion (Crockett et al., 2010). These suggest that manipulating affective empathy influences responsiveness to the harmful action onto the victim, and in sacrificial dilemmas, individuals with average empathy may endorse harm upon receiving a low empathy manipulation.

## **Dehumanized Perception and Low Empathy**

Past studies on social cognition have found that people tend to dehumanize others whom they have difficulty in empathizing and perceive that the dehumanized deserves no moral consideration, thereby endorsing any harm onto them. Particularly, members of social groups with perceived low warmth and low competence are categorized into extreme out-groups (e.g., a homeless, convict, and drug-addict), and people show low empathy for them. Consequently, members of extreme out-groups are perceived as not capable of experiencing pain and easily dehumanized (Harris & Fiske, 2006). Dehumanization is a perception that a target does not possess uniquely human qualities (Haslam, 2006). Once dehumanized, the target is treated with inhumanity because without feeling empathy for that person, people feel no moral responsibility in protecting his/her human rights (Opatow, 1990). In addition to members of extreme out-groups, people show little or no affective empathy for human and non-human entities that are perceived as having less or no human qualities. Particularly, patients in the vegetative state are often targeted for cruel treatments (Gray et al., 2010; Gray, Knickman, & Wegner, 2011; Rudski, Herbsman, Quitter, & Bilgram, 2016). Empathy and dehumanization are at the opposite ends of the same continuum (Pizarro et al., 2010), and feeling less empathy may be one consequence of ascribing few human qualities in others. Taken these together, people feel low empathy for others with less or no human qualities and justify inhuman acts onto the dehumanized.

## **Purpose**

The purpose of the current study was to investigate the role of empathy for the victim in utilitarian judgments by experimentally manipulating empathy for the victim. Available evidence shows that an experimental manipulation of empathy is effective (Davis et al., 1996; McAuliffe et al., 2017) even for those who are generally self-serving (Hepper et al., 2014). One of the most

applied techniques for eliciting empathy is to instruct the participant to imagine how the other feels and thinks in the context (Hepper, et al., 2014). This perspective-taking task increases cognitive and affective empathy simultaneously (Vreeke & Van der Mark, 2003).

No study has developed a manipulation method for reducing empathy. Because the default mode is empathizing (McAuliffe et al., 2017), instructing not to show empathy might backfire. Considering that people instantaneously empathize others, the no instruction condition also elicits some empathy by illustrating a misfortune of other(s). Given that some social attributes are associated with dehumanized perception, the target's identity was manipulated instead of giving an instruction to feel no empathy. In doing so, affective empathy for the victim was reduced by assigning him a social attribute as to perceive him as less worthy of moral concern (e.g., ex-convict).

### **Methods**

To investigate effects of manipulating empathy without the initial knowledge of the scenario content and avoid practice effects, participants were recruited if they had not performed a moral dilemma task. The dilemma scenarios were same as those in the second chapter: footbridge and raftboat. Participants read three versions of dilemmas (high empathy, low empathy, or control). There were six scenarios in the moral dilemma task. The order of presenting dilemma scenarios was counterbalanced.

### **Participants**

A sample of 135 Amazon's Mechanical Turk workers participated. Using the exclusion criteria used in Chapter 2 study (taking less than five minutes to complete the survey and/or failing to respond to a control item as instructed), 111 responses were retained (Female = 63%,



$M_{age} = 40.68$ ,  $SD = 13.05$ ). Participants were varied in ethnicity (75% White, 9% Hispanic, 7% Black, 5% Asian, 7% other or mixed ethnic heritage).

### **Manipulation of Empathy**

Before reading a dilemma scenario, participants were presented the following instructions in high and low empathy versions (see Appendix, p. 131).

**High empathy.** Using the procedure validated by past studies (Davis et al., 1996; Habashi, Graziano, & Hoover, 2016; Hepper et al., 2014; McAuliffe et al., 2017), participants were instructed to “imagine how [the potential victim] feels and thinks in this situation. When you have imagined, please write down at least three sentences” (for example responses, see supplement 1 in Appendix, pp. 132-133). The purpose of the writing task was to aid the effect of perspective-taking by giving participants time to reflect. By definition, cognitive empathy is a precursor of affective empathy (Coke et al., 1978), and the perspective-task has been successful for inducing affective empathy for a target (Davis et al., 1996; Hepper et al., 2014).

**Low empathy.** Participants read modified versions of scenario in which the potential victim in the footbridge was a pedophile who had served a sentence for murdering children. In the raftboat, the victim was described as in the state of coma after given a strong sedative. Past studies have shown that most people tend to disregard moral consideration for criminals and patients in the vegetative state (Haslam, 2006; Rudski et al., 2016).

**Control.** Participants in the control group received no extra instructions.

### **Measures**

**Utilitarian judgments.** After reading a scenario, participants were asked: “Is it morally appropriate to [perform a harmful action] to save a greater number of people?” (1 = *Definitely no*; 6 = *Definitely yes*).

**Empathy for the victim and the saved.** After making a judgment, participants rated the extent to which they had felt empathy for the victim and the saved (1 = *Not at all*; 6 = *Very much*). For example, in the footbridge dilemma, the victim was a large passenger and the saved was five passengers who would be saved by the utilitarian solution. Participants reported the extent to which they felt empathy for the large passenger and the five passengers separately.

## Results

### Analysis Strategy

The results of data normality test showed that judgment scores were not normally distributed (Shapiro-Wilk test was significant); therefore, non-parametric tests were selected for the subsequent analysis by treating judgment scores as a dependable variable.

### Manipulation Check

The Wilcoxon signed-rank test was run to ascertain whether the manipulation had been successful. For the footbridge dilemma, the manipulation had been successful. In the high empathy condition, participants reported more empathy for the large man, compared to the low empathy and control conditions (High empathy/Control:  $Z = 3.69, p < .001$ , effect size:  $r = .35$ ; High empathy/Low empathy:  $Z = 7.92, p < .001$ , effect size:  $r = .75$ ). In the low empathy condition, participants reported significantly lower empathy, compared to the control condition (Control/Low empathy:  $Z = 7.67, p < .001$ , effect size:  $r = .73$ ).

However, the manipulation had not been successful for the raftboat dilemma. In the high empathy condition, participants reported higher empathy for the injured person, compared to the low empathy condition (High empathy/Low empathy:  $Z = 2.20, p = .03$ , effect size:  $r = .21$ ). There were no significant differences between the high empathy and control conditions (High empathy/Control:  $Z = .89, p = .38$ ). The difference between the low empathy and control

conditions also failed to reach the significance (Control/Low empathy:  $Z = 1.69$ ,  $p = .09$ ). Given that the empathy manipulation had not worked for the raftboat dilemma, caution should be taken in interpreting results for the raftboat dilemma.

### Effects of Empathy Manipulations on Utilitarian Judgments

Table 3-1 shows the proportions of utilitarian and non-utilitarian judgments in the two dilemmas. The results of the Mann-Whitney U test showed significant differences in the three conditions. To ascertain where significant difference(s) emerged, a post-hoc analysis was run.

Table 3-1.

*Distributions of Utilitarian Judgments in the Footbridge and Raftboat Dilemmas.*

Dilemma Type and Condition		Utilitarian judgment					
		Definitely No	No	Rather no	Rather yes	Yes	Definitely yes
Footbridge	High	63(56.8%)	16(14.4%)	10(9.0%)	8 (7.2%)	7(6.3%)	7(6.3%)
	Control	62(55.9%)	13(11.7%)	11(9.9%)	9 (8.1%)	6(5.4%)	10(9.0%)
	Low	35(31.5%)	10(9.0 %)	7(6.3%)	15(13.5%)	15(13.5%)	29(26.1%)
Raftboat	High	44(39.6%)	17(15.3%)	8 (7.2%)	18(16.2%)	12(10.8%)	12(10.8%)
	Control	41(36.9%)	14(12.6%)	11(9.9%)	16(14.4%)	16(14.4%)	13(11.7%)
	Low	34(30.6 %)	11 (9.9 %)	10(9.0%)	18(16.2%)	16(14.4%)	22(19.8%)

*Note.*  $N = 111$ . Utilitarian judgment = Definitely yes (higher scores) indicates a utilitarian preference.

**Footbridge dilemma.** There were significant differences between the low empathy and control conditions and the high and low empathy conditions (low/control:  $Z = 6.26$ ,  $p < .001$ ,  $r = .59$ ; high/low:  $Z = 6.68$ ,  $p < .001$ ,  $r = .63$ ). The difference between the high empathy and control conditions was marginally significant ( $Z = 1.74$ ,  $p = .082$ ).

**Raftboat dilemma.** As in the footbridge dilemma, there were significant differences between the low and control conditions and the high empathy conditions (low/control:  $Z = 4.36$ ,  $p < .001$ ,  $r = .41$ ; high/low:  $Z = 5.29$ ,  $p < .001$ ,  $r = .50$ ). Also, participants in the high empathy condition were less likely to make utilitarian judgments than those in the control condition,  $Z = 1.97$ ,  $p < .05$ ,  $r = .19$ .

### Effects of Manipulations on Affective Empathy for the Victim and the Saved

The Wilcoxon signed-rank test (matched pairs) was run to test the effects of empathy manipulations on affective empathy for the victim and the saved in the two dilemmas.

**Footbridge Dilemma.** In the low empathy and control conditions, participants showed more empathy for the saved than for the victim (low empathy:  $Z = 8.32$ ,  $p < .001$ ,  $r = .79$ ; control:  $Z = 3.52$ ,  $p < .001$ ,  $r = .33$ ). In the high empathy condition, participants showed empathy for the saved and the victim equally,  $Z = .72$ ,  $p = .47$ . Unless instructed to empathize with the victim, participants tended to feel more empathy for the saved than for the victim. Figure 3-1 depicts the results.

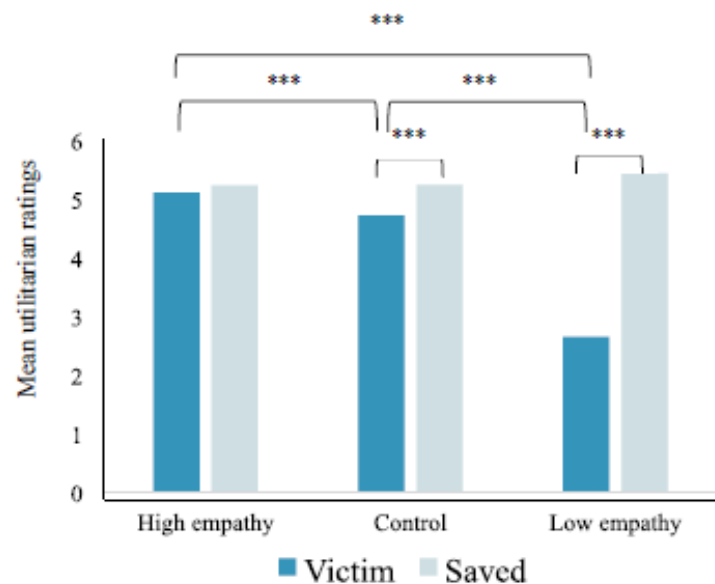


Figure 3-1. Within-subject comparisons of affective empathy measures in the footbridge dilemma.  $p^{***} < .001$

**Raftboat Dilemma.** In the control condition, there was a marginally significant difference in empathy for the victim and for the saved,  $Z = 1.69, p = .09$ . In the high empathy condition, participants showed more empathy for the victim than for the saved,  $Z = 2.49, p < .05, r = .24$ . No significant differences emerged in the low empathy condition,  $Z = .048, p = .96$ . The results suggest that participants tended to empathize with the victim even if they were not explicitly told. In the low empathy condition, participants showed empathy for the victim although he was described as not capable of feeling pain. Figure 3-2 depicts the results.

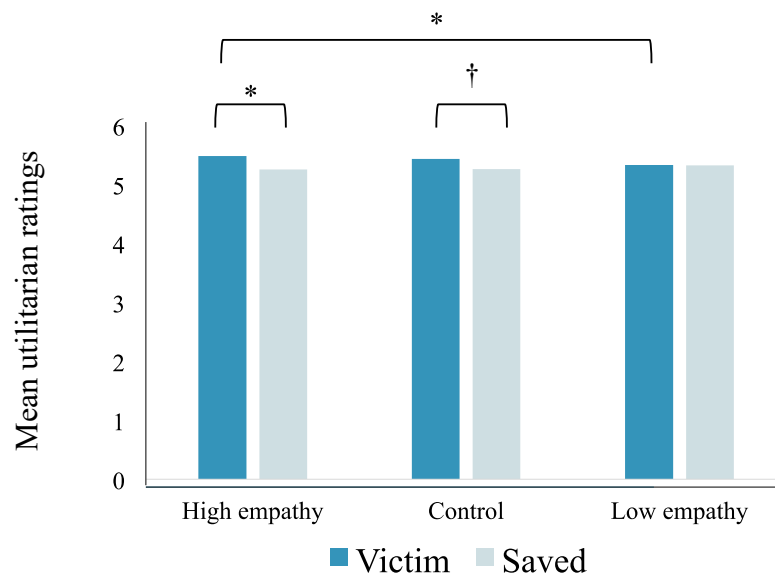


Figure 3-2. Within-subject comparisons of affective empathy measures in the raftboat dilemma.

$p^{\dagger} < .1, p^* < .05$ .

### Additional analyses

To ascertain whether judgment patterns were different in the footbridge and raftboat, utilitarian and non-utilitarian judgments in the low empathy conditions were compared. A chi-squared test was performed to examine the relationship between dilemma scenario type (*footbridge, raftboat*) and utilitarian preference in the low empathy conditions (yes, no). The

results showed that the relationship was not significant,  $\chi^2 = (1, N = 111) = .44, p = .51$ . Although participants showed empathy for the injured person and saved similarly in the low empathy condition of the raftboat dilemma, they were equally likely to make (non)utilitarian judgments, compared to the footbridge dilemma.

### Discussion

In the current study, empathy for the victim was manipulated in sacrificial dilemmas to test its effects on utilitarian judgments. The results provide preliminary evidence that manipulating empathy for the victim affects judgments in sacrificial dilemmas. As predicted, the extent to which participants felt empathy for the victim and the saved differed, depending on the manipulation. In the footbridge dilemma, participants in the low empathy condition showed less empathy for the victim who was described as an ex-convict. When the victim was given a social attribute that is associated with dehumanization (low empathy condition), participants were more likely to endorse harm for the utilitarian end, compared to their comparison groups (high empathy and control conditions).

The manipulation was successful for the footbridge dilemma, but not for the raftboat dilemma, suggesting that the social attribute of the target significantly influences how empathic participants felt. The failure to lower empathy for the injured passenger in the raftboat dilemma also suggests that an empathic reaction to the suffering of others entails an automatic process. In line with past findings (Hepper et al., 2014; McAuliffe et al., 2017), it appears that empathizing with unfortunate others occurs spontaneously. When people perceive others in pain, the neural circuit of pain perception is activated (Decety & Lamm, 2009). Considering that people instantly respond to the pain of others, the description of the injured could have induced empathy, and those in the control condition were equally likely to show empathy for that person.

In line with past findings that empathy is selective (Batson et al., 1995) and members of certain groups are empathized less than the other (Gray et al., 2010; 2011), empathy for the victim and for the saved were significantly different in the two dilemmas. In the footbridge dilemma, participants tended to empathize more with the saved than with the victim unless they received an instruction to feel empathy for the large stranger. In comparison, participants tended to empathize more with the victim than with the saved in the raftboat dilemma unless they received a manipulation that aimed to feel low empathy for the injured person. The degree to which people feel empathy for another depends on the social attribute of that person. Although past studies have shown that both prison inmates and unconscious patients are excluded from empathic consideration (Gray et al., 2010; Harris & Fiske, 2006; Rudski et al. 2016), it could be easier for participants to feel empathy for the injured person than for the large stranger. In the following section, limitations and future directions are discussed.

To date, no study has examined the link between empathy and dehumanization although some evidence supports that the two constructs fall on the opposite ends of the same continuum (Gray et al., 2007; Pizarro et al., 2006). Low empathy and disgust cause dehumanization of others, which in turn instigate inhumane treatments of the dehumanized (Mekawi, Bresin, & Hunter, 2016). The ability to feel the emotions of others (one facet of affective empathy) and perceiving others as unique human beings may be related (Haslam & Loughnan, 2014). In this study, participants wrote their feelings and thoughts in response to the high empathy, but not to the low empathy version of dilemma scenarios. In the footbridge dilemma, participants were more likely to endorse harm in response to the low empathy version, compared to the comparison versions of the scenario. The low empathy manipulation had been successful to lower empathy for the potential victim, but the effects of low affective empathy on perception of

harm remains unclear. Because empathy and ascribing uniquely human qualities in others may be related (Haslam & Loughnan, 2014), one possibility is that low affective empathy changes perception of harm by causing dehumanization of the victim. Given that the reverse of dehumanization is increasing empathy for the target (Costello & Hodson, 2009), once the individual empathizes, harming others intentional becomes impossible because empathy appeals to him/her that the act is to kill fellow human beings.

### **Limitations and Future Directions**

There are some limitations that should be noted. One limitation was that the manipulation techniques for low and high conditions were not equivalent. To reduce empathy for the victim, we assigned the victim to a social identity that is linked to dehumanized perception. For the high empathy condition, we used the standard procedure for increasing empathy for a target. Hepper et al. (2014) suggested that a message to remain objective might reduce empathy prior to learning about an unfortunate other by blocking the tendency to empathize with others. However, no empirical study has tested this procedure. Future studies should explore the possibility that the remain-objective instruction might be a valid method of manipulating low empathy and use the instruction in the mora dilemma task to investigate the effects of low empathy on utilitarian bias.

Another limitation was that the victims in two dilemmas were not equivalent with respect to the easiness to empathize. One possibility is that participants found that the large stranger in the footbridge dilemma was less deserving of affective empathy, compared to the injured person in the raftboat dilemma. In North American cultures, obese people are often the target of prejudice and discrimination (Park, Schaller, & Crandall, 2007). One respondent wrote when asked to take the perspective of the large man: “The fat man probably feels disappointed that he's



fat”. Although later she concluded that “Even though he's fat he's still a person,” it could be difficult for some people with negative attitudes toward obesity to feel empathy in the footbridge dilemma. Another possibility for the unmatched pair of dilemma scenarios is that some participants made utilitarian judgments in the raftboat dilemma because they wished to stop the pain of the injured person in the form of mercy killing. This may explain why participants tended to feel more empathy for the victim than for the saved in the raftboat dilemma, compared to their empathy scores in the footbridge dilemma. Moral dilemma scenarios vary in content, and small details might affect the respondent’s choice. When a researcher uses more than two dilemma scenarios, the main finding could be attributable to the idiosyncrasy of scenarios (Baron et al., 2012; Suter & Hertwig, 2011). Considering this, some caution should be taken when comparing utilitarian judgments in two or more dilemma scenarios.

To better understand when and how low empathy leads to utilitarian bias, it might be fruitful to investigate a process through which people fail to empathize with suffering others and make utilitarian judgments in the moral dilemma task. Past studies have shown that people with average empathy endorse harm in sacrificial dilemmas when they are drunk or immune to negative emotions (Duke & Bègue, 2015; Valdesolo & DeSteno, 2006). There are some conditions under which people may be less responsive to others’ pain, such as dark personalities (Machiavellianism and narcissism) and habitual playing of video games (Anderson et al., 2010; Jonason & Krause, 2013). As a multifaceted construct, empathic deficits are specific, depending on which type of empathy is impaired. By comparing different types of empathic deficits, future studies should clarify the role of affective empathy in perception of harm in the moral dilemma task.

Likewise, future studies should investigate the interplay between affective and cognitive empathy in moral dilemmas involving interpersonal harm. Although brain areas for the two empathy types are clearly distinguishable, a considerable proportion of areas overlap (Vreeke & Van der Mark, 2003). Cognitive empathy, particularly perspective taking, has been shown to increase affective empathy (Batson & Ahmad, 2009; Hepper et al., 2014). The results showed that when successful, the perspective-taking manipulation can increase affective empathy for the victim, which in turn led to making non-utilitarian judgments. This suggests that individuals with low affective empathy might be benefitted from receiving an empathy training that bases on the assumption that enhancing cognitive empathy can increase affective empathy. Some individuals with low affective empathy might lack interest in sharing emotions with others or understanding the affective state of others in distress. However, through an empathy training, they might be able to suppress selfish motives and refrain from physically or emotionally hurting others by learning how much pain other people go through. Considering that psychopathic males are likely to engage in criminal activities at a young age (Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009), it will produce benefits at a societal level to incorporate an empathy training for taking the perspective of others in moral education.

## Chapter 4

### Primary psychopathy and difficulty identifying feelings predict utilitarian judgments

This study investigated effects of low affective empathy on utilitarian judgments in the moral dilemma task by focusing on primary psychopathy (low affective empathy) and two emotional dysfunctions (low affective empathy and trait alexithymia). Reduced affective empathy is observed in several personality profiles, but only primary psychopathy consistently predicts utilitarian judgments in the moral dilemma task. To date, no study has explored the associations between primary psychopathy, low affective empathy, and utilitarian bias in the moral dilemma task. The effects of low affective empathy among those with high psychopathy on perception of harm are little unknown. The current study was carried out to better understand the associations between psychopathy, low affective empathy, and utilitarian bias in sacrificial dilemmas. Based on the neurocognitive model of psychopathy, unemphatic traits of primary psychopathy (i.e., low affective empathy) was expected to cause utilitarian bias together with trait alexithymia. Alexithymia traits include shallow insights into their emotional states, which in turn may dampen reactivity to the harmful act in sacrificial dilemmas. To test this prediction, alexithymia was included in the mediation model with primary psychopathy as a predictor. Among the three alexithymia traits, difficulty in identifying feelings partially mediated the link between psychopathy and utilitarian judgments. The results suggest that people with high psychopathy endorse harm in moral dilemmas because they lack affective empathy and fail to recognize emotions they may experience.

## **Introduction**

Psychopathic individuals are unemphatic and amoral (Matthews, 2014). In moral dilemma studies, primary psychopathy is a robust predictor of utilitarian judgments (Bartels & Pizarro, 2011; Gao & Tang, 2013; Patil, 2015; Pletti et al., 2017). Although many assume that the psychopathic trait of empathic deficits is the direct cause of utilitarian bias, no study has investigated how low affective empathy influence endorsement of harm. Further, low affective empathy may not be the sole determinant of reducing sensitivity to interpersonal harm. Several personality and physiological conditions accompany the lack of empathy but are not always associated with utilitarian bias (Vyas et al., 2017). It may be that low affective empathy and other factors that make psychopathic individuals callous to interpersonal harm cause utilitarian bias. Considering this possibility, trait alexithymia was added to the hypothetical model that seeks to explain the link between psychopathy and utilitarian judgments in sacrificial dilemmas.

## **Psychopathy**

Although psychopathy is a complex personality trait, contemporary scholars agree that it consists of primary and secondary components (Hare, 1999; Levenson et al., 1995). Primary psychopathy includes emotional callousness, including lack of empathy, ruthlessness, and dispassionate motives for an intimate relationship. Secondary psychopathy includes behavioral problems and antisocial lifestyle, including lack of persistence, proneness to boredom, and failure to learn from mistakes. Primary psychopathy is the core of psychopathy and may explain why psychopathy is present in both criminal and non-criminal populations, including “successful psychopaths,” who show antisocial cognitive and behavioral patterns but successfully acquired adaptive social skills (Gao & Raine, 2010; Hall & Benning, 2006). Those with high primary and low secondary psychopathic traits can control their impulsivity that often causes a trouble

although they somehow manage to satisfy their selfish needs (Gao & Raine, 2010). In moral dilemmas, compared to criminal psychopaths, ordinary citizens with high psychopathy show similar utilitarian judgment patterns (Gao and Tang, 2013; Koenigs et al., 2012). Specifically, higher score of primary psychopathy predict utilitarian bias (Patil, 2015).

Low affective empathy and reduced sensitivity to harm among psychopathic individuals have been shown to predict utilitarian judgments in sacrificial dilemmas (Kahane et al., 2015; Patil, 2015; Pletti et al., 2017). However, it may be that an empathic deficit does not predict utilitarian bias by itself. The inability to empathize characterizes a number of personality traits and physiological conditions, including psychopathy, autistic spectrum disorders, narcissistic personality, and multiple sclerosis; however, psychopathy is the robust predictor (Vyas et al., 2017). To clarify the relationship between psychopathic traits, low affective empathy, and utilitarian judgments, the type of empathic deficits and a comorbid condition should be further investigated.

### **Psychopathy and Empathic Deficit(s)**

The integrated emotion system model (IES: Blair, 2007) proposes that callous-unemotional traits of psychopathy (i.e., primary psychopathy) are direct consequences of diminished physiological responses to distress cues (e.g., a crying child) that are caused by a hypo-activated amygdala. Individuals with high psychopathy show a decreased activation of the amygdala (White et al., 2012). Specifically, primary, but not secondary psychopathic traits are associated with diminished emotional experiences, including empathic deficits (Kimonis et al., 2012). Because the amygdala plays a critical role in picking up affective cues in a situation and making inferences accordingly, without the module, the individual fails to see an emotional significance (White et al., 2012). In many situations, emotion influences moral judgments and

behaviors, such that positive emotions (e.g., affective empathy, compassion, awe) promote prosocial behaviors and negative emotions (e.g., guilt, shame, and regret) discourages the individual to commit an immoral act. Psychopathic individuals disregard the welfare of others because they lack moral emotions (Hare, 1999). Taken together, the IES argues that low amygdala activity causes emotional dysfunctions in primary psychopathy, and without empathy and other moral emotions, may drive socially deviant behaviors, including harming others for a selfish purpose (Blair, 2007; Patrick, 2014).

Past findings on psychopathy and empathic deficits are mixed. In line with Blair's model (2007), diminished affective empathy is most prominent in individuals with high psychopathy (Lishner, Hong, Jiang, Vitacco, & Neumann, 2015; Wai & Tiliopoulos, 2012) while cognitive empathy seems intact as is evidenced by their ability to take the perspective of others (Englebert, 2015). They exhibit no difficulty in reading others' intentions and feelings but feel no compassion for others (Englebert, 2015). However, the link between psychopathy and low affective empathy has not been consistently found in the literature. Others have found that both affective and cognitive empathic deficits are associated with psychopathy (Jonason & Krause, 2013), or cognitive empathy (i.e., empathic accuracy) is impaired (Brook & Kosson, 2013). Low affective empathy is found in men with high psychopathy, but not in women (Dadds et al., 2009). To interpret the mixed results, one needs to consider that psychopathic traits are diverse, concerning etiology, personality profiles, and social outcomes. Among several subtypes, individuals with reduced emotional experiences exhibit a hypo-activated amygdala in response to aversive stimuli (Patrick, 1994). Thus, the inconsistency in the literature may reflect the complex nature of psychopathy and the variability in the definition of affective and cognitive empathy.

### **Alexithymia: “No Words for Feelings”**

Patients with alexithymia are devoid of emotional experiences, and low affective empathy also characterizes trait alexithymia (Jonason & Krause, 2013; Ridings & Lutz-Zois, 2014). Alexithymia is marked by three features: (a) difficulty in distinguishing between affect and somatic sensations (difficulties identifying feelings: DIF); (b) difficulty in verbalizing feelings (difficulties describing feelings: DDF); and (c) having a thinking style in which the individual relies on external stimuli rather than internal experiences, such as poverty of imagination and poor introspection skill (externally oriented thinking: EOT; Taylor, Bagby, & Parker, 1992). In moral dilemmas, trait alexithymia predicts utilitarian judgments (Gleichgerrecht et al., 2015; Patil & Silani, 2014).

Psychopathy and some alexithymia traits are associated (Demers & Koven, 2015; Lander et al., 2012). Specifically, individuals with high psychopathy have difficulty in identifying feelings and using their imagination (DIF and EOT) but have no problem in explaining their emotional state with words. The association between DIF and psychopathy is in line with the Blair’s model (1995; 2007). Because the amygdala, the brain’s integrative center for emotions, is not properly activated in response to emotional stimuli, identifying emotions may be difficult for individuals with high psychopathy. This suggests that psychopathic traits and DIF are related because the signal for emotions is weak. Emotional dysfunctions may stem from a wide array of conditions, and for psychopathy, diminished affective empathy is closely tied to DIF and EOT.

### **Purpose**

The current study examined the interplay between psychopathy and alexithymia in the moral dilemma task. To date, the two conditions have been treated individually, and it remains unknown that which component better predicts, or they interact to predict utilitarian bias in the

moral dilemma task. Based on past studies, it was predicted that primary, but not secondary psychopathy, should predict utilitarian judgments. According to the dual process theory (Greene et al., 2001), a diminished affective response to the dilemma scenario leads to endorsing harm through the system 2 processing. Psychopathy is associated with because of a hypo-activated amygdala (Blair, 1995; 2007), the inability to identify own emotions, and lack of imaginative thinking (Demers & Koven, 2015; Lander et al., 2012). Based on models and relevant findings, it was hypothesized that primary psychopathy is associated with low affective empathy and shallow emotional experiences that are evidenced by higher scores of two alexithymia traits. The diminished emotional experiences (low affective empathy, DIF, and EOT) were expected to predict utilitarian judgments in sacrificial dilemmas individually. Further, low affective empathy, DIF, and EOT were hypothesized to mediate the relationship between primary psychopathy and utilitarian judgments. Thus, the two mediation models were tested because low empathy and alexithymia have been shown to cause reduced emotional experiences independently (Lockwood, Bird, Bridge, & Viding, 2013).

## Methods

### Participants

A sample of 325 Japanese university students participated in exchange of extra credit. After giving consent, they completed a 10-page questionnaire in a paper-and-pen format. Responses that clearly showed a response pattern (e.g., yea-saying) were excluded, leaving 282 responses for later analysis (79% Female,  $M = 19.38$ ,  $SD = .94$ ).

### Measures

**Moral dilemma task.** Four sacrificial dilemmas (*Footbridge*, *Crying Baby*, *Modified Lifeboat*, *Sophie's Choice*) were presented in a counterbalanced order. After reading each



scenario, participants were asked to indicate the extent to which performing [a harmful action] in order to save more people is morally appropriate, using 5-point scale from 1 (*definitely yes*) to 5 (*definitely no*).

**Primary and secondary psychopathy.** The Levenson Self-report Psychopathy Scale (LSRP: Levenson et al., 1995) was used to assess primary and secondary psychopathic traits. Originally developed to measure psychopathic traits in non-clinical populations, the LSRP consists of two subscales that correspond to the factorial structure of the Psychopathy Checklist (Hare, 1999), which is a diagnostic tool used to assess the presence of psychopathic traits primarily in incarcerated populations. The Japanese version has been validated by Osumi, Kanayama, Sugiura, and Ohira (2007). The subscale of primary psychopathy, unlike the original version, consists of 15 items in Japanese. The Cronbach alphas were .81 (primary psychopathy) and .67 (secondary psychopathy).

**Alexithymia.** The Toronto Alexithymia Scale-20 (TAS-20; Taylor et al., 1992) was used to assess alexithymia in three domains: difficulty in identifying feelings (DIF), difficulty in describing feelings (DDF), and externally oriented thinking (EOT). The Japanese version has been validated by Komaki et al. (2013). The Cronbach alphas were .86 (DIF), .65 (DDF), and .37 (EOT). For EOT items, we conducted a confirmatory factor analysis to determine low-loading items. Based on the results, four of the eight items were excluded, and it increased the alpha to .51.

**Affective empathy.** One subscale of the Interpersonal Reactivity Index (IRI), Empathic Concern, was used to assess the general tendency to feel empathy for unfortunate others. Past studies using this scale have shown that the affective component of empathy best predicts the tendency to avoid direct harm onto the other in the dilemma situation (Gleichgerricht & Young,

2013; Patil & Silani, 2014). Responses were recorded on a 5-point scale from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). The Japanese version has been translated by Sakurai (1988). Because the Cronbach alpha was lower than the acceptable level, factor analysis was carried out to identify an item with low correlations with others. After the deletion of one item (“I would describe myself as a pretty soft-hearted person”), the alpha increased to .65.

**Anxious mood.** After the dilemma task, participants were asked to indicate their anxious mood. The two items were used from the Multiple Mood Scale (Terasaki, Kishimoto, & Koga, 1992). Responses were recorded on a 4-point scale from 1 (*not at all*) to 4 (*extremely*). The Pearson correlation of the two items was  $r = .71$ , indicating that the aggregated score reliably indicates the participant’s anxiety after completing the judgment task.

The appendix section in pp. 134-138 shows moral dilemma scenarios, items and personality measures included in the questionnaire.

## Results

Table 4-1 shows correlations among observed variables. In line with the prediction, primary and secondary psychopathic traits were associated with reduced empathy (primary:  $r = -.43, p < .001$ ; secondary:  $r = -.15, p < .001$ ). In line with the distinction between primary and secondary psychopathy (Lee & Salekin, 2010), the anxiety ratings after the moral dilemma task were significantly associated with secondary psychopathy ( $r = .21, p < .001$ ), but not with primary psychopathy ( $r = .00, n.s.$ ). Low affective empathy was associated with endorsing utilitarian options in sacrificial dilemmas ( $r = -.29, p < .001$ ). In line with past findings (Koenigs et al., 2012), primary psychopathy was associated with utilitarian judgment ( $r = .30, p < .001$ ), but secondary psychopathy was not ( $r = .08, n.s.$ ).

Table 4-1.

*Intercorrelations, Means, and Standard Deviations for Key Variables*

Variables	1	2	3	4	5	6	7	8	9
1. Primary psychopathy	—	.31**	.26**	.01	.30**	.26**	-.43**	.30**	.00
2. Secondary psychopathy	—	—	.35**	.17*	.20*	.36**	-.15*	.08	.21**
3. Difficulty identifying feelings	—	—	—	.37**	.16*	.87**	-.08	.20**	.31**
4. Difficulty describing feelings	—	—	—	—	.09	.69**	.06	.07	.22**
5. Externally oriented thinking	—	—	—	—	—	.44**	-.02	.02	.05
6. TAS	—	—	—	—	—	—	-.07	.17*	.31**
7. Affective empathy	—	—	—	—	—	—	—	-.29**	.08
8. Utilitarian judgments	—	—	—	—	—	—	—	—	.03
9. Anxiety	—	—	—	—	—	—	—	—	—
<i>M</i>	32.73	14.60	17.67	15.93	11.73	45.34	22.09	10.68	5.06
<i>SD</i>	5.82	2.93	5.85	3.65	2.61	8.76	3.24	2.91	1.51

Note.  $N = 282$ . TAS = total alexithymia scores.  $p^* < .05$ ,  $p^{**} < .01$

In Figure 4-1 and 4-2, scatter plots illustrate the relationship between trait alexithymia (total scores).

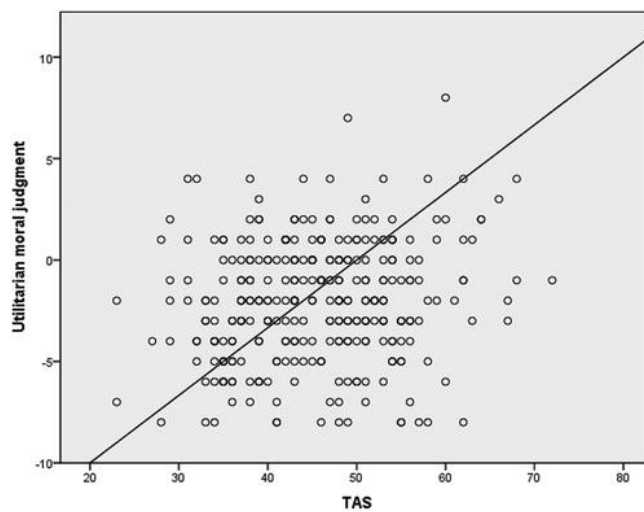
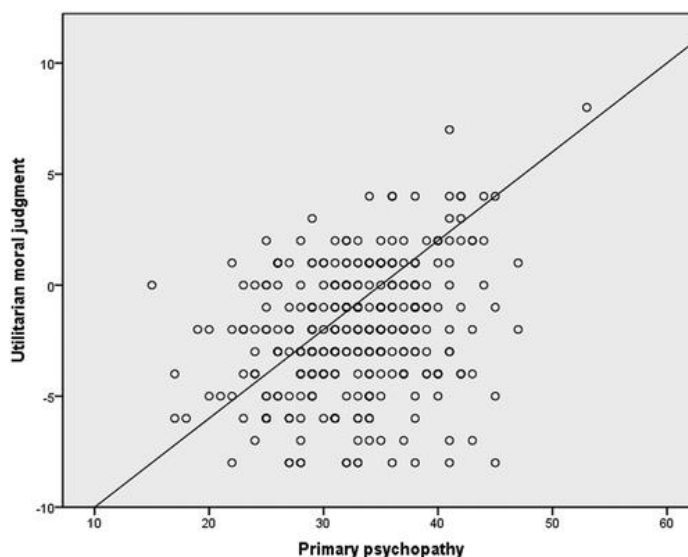


Figure 4-1. Scatter plot of TAS scores by utilitarian judgments.



*Figure 4-2.* Scatter plot of primary psychopathy scores by utilitarian judgments.

## Mediation

To test the mediating role of empathy and alexithymia, the bias-corrected bootstrapped mediation test was conducted, using the INDIRECT macro for SPSS with 5,000 re-samplings (Preacher & Hayes, 2004). Given that all variables in the mediation model should be correlated (Baron & Kenny, 1986), secondary psychopathy was dropped from the model because it was not significantly related to utilitarian judgment. Similarly, two alexithymia traits (DDF and EOT) were not entered as mediating variables because they were not correlated with the outcome variable. To interpret results of mediation analysis, not including the zero in the 95% confidence interval indicates that the mediating (indirect) effect is significant. The results showed that DIF and low affective empathy mediated the relationship between primary psychopathy and utilitarian judgment (DIF: bootstrap = .0162, SE = .009, 95% CI [.002, .039]; affective empathy: bootstrap = .0465, SE = .016, 95% CI [.018, .081]). Figures 4-3 and 4-4 depict the results.

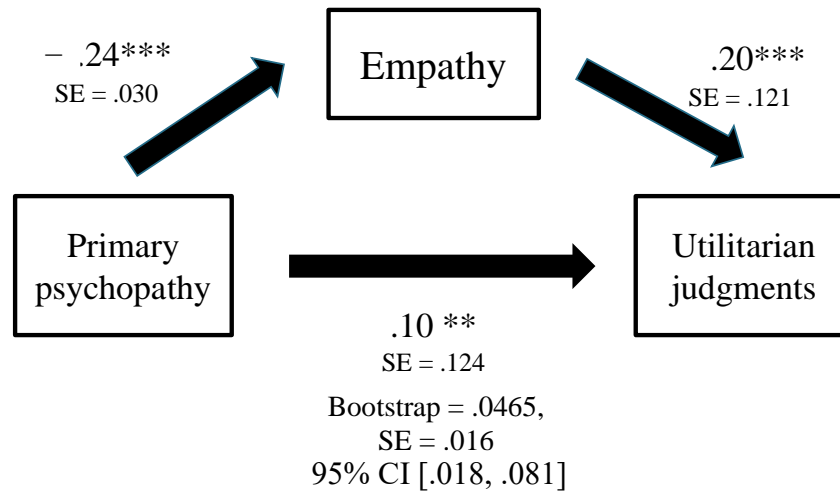


Figure 4-3. Direct and indirect effects predicting utilitarian judgments in sacrificial dilemmas, affective empathy as a mediator.

CI = confidence interval.  $p^{**} < .01$ ,  $p^{***} < .001$ .

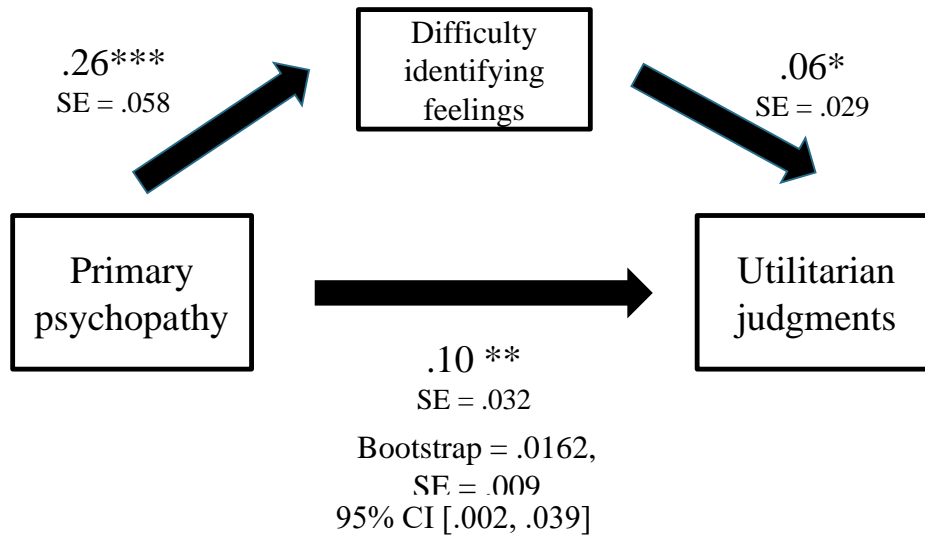


Figure 4-4. Direct and indirect effects predicting utilitarian judgments in sacrificial dilemmas, difficulty identifying feelings as a mediator.

CI = confidence interval.  $p^* < .05$ ,  $p^{**} < .01$ ,  $p^{***} < .001$ .

## Hierarchical Regression

Because DIF and low empathy were entered to separate mediation models, hierarchical regression analysis was run to ascertain the relative contributions to predicting utilitarian judgment.

Table 4-2

### *Hierarchical Regression Predicting Utilitarian Judgments*

Predictors	Step 1		Step 2		Step 3	
	$\beta$ 95%	CI	$\beta$ 95%	CI	$\beta$ 95%	CI
$R^2_{adjusted}$	.02		.09		.12	
$\Delta R^2$	—		.089***		.030**	
Age	-.02	[-.431 .322]	-.01	[-.384, .335]	-.03	[-.448, .279]
Gender	-.12	[-1.753, -.005]	-.05	[-1.226, .527]	-.04	[-1.141, .572]
Primary psychopathy	—	—	.30***	[.088, .219]	.21**	[.043, .174]
Secondary psychopathy	—	—	-.06	[-.191, .062]	-.07	[-.195, .066]
Difficulty identifying feelings	—	—	.14*	[.004, .133]	.14*	[.006, .137]
Difficulty describing feelings	—	—	.05	[-.064, .145]	.06	[-.058, .149]
Externally oriented thinking	—	—	-.08	[-.236, .047]	-.09	[-.231, .032]
Affective empathy	—	—	—	—	-.20**	[-.303, -.074]

Note.  $p^* < .05$ ,  $p^{**} < .01$ ,  $p^{***} < .001$ . CI = confidence interval.

In the first step, covariates (age and gender) were entered to control its effect. In the second step, personality attributes (primary/secondary psychopathy, three alexithymia traits: DIF, DDF, and EOT) were added, improving the prediction of utilitarian judgment ( $\Delta R^2 = .089$ ,  $F = 5.21$ ,  $p < .001$ ). In the final step, affective empathy was added to the model. When all

variables were entered, primary psychopathy, DIF, and affective empathy emerged as significant predictors (primary psychopathy:  $\beta = .21, p < .01$ ; DIF:  $\beta = .14, p < .05$ ; affective empathy:  $\beta = -.20, p < .001$ ). The contribution of EC to the model was the largest. The final linear model explained 12.1% of the variation in the dependable variable. Table 4-2 depicts the results.

## **Discussion**

The current study added to the existent literature by showing that primary psychopathy, difficulty in identifying feelings (DIF), and low affective empathy predicted utilitarian judgments in sacrificial dilemmas. In line with the IES model (Blair, 1995), primary psychopathy was associated with low affective empathy and alexithymia traits. Supporting the dual process theory (Greene et al., 2001), diminished emotional experiences were associated with endorsement of harm and mediated the link between primary psychopathy and utilitarian judgments. Theoretically consistent, secondary psychopathy was associated with anxiety, and the link between utilitarian judgments and the psychopathic traits of impulsivity, emotional instability, and antisocial lifestyle were non-significant. These results also showed that affective empathy, but not a constellation of negative emotions, influence perception of harm in sacrificial dilemmas, supporting the central tenet of the current research.

While previous studies have combined the three subscales of alexithymia, they were analyzed separately, given that each subscale is uniquely associated with psychopathy and possibly utilitarian judgments in sacrificial dilemmas. The results showed that three alexithymia traits differentially affected utilitarian judgments as only DIF was associated with utilitarian judgments. In this study, the link between primary psychopathy and utilitarian judgments was partially mediated by DIF while DDF and EOT were not associated with utilitarian judgments. This offers new insights into utilitarian bias among those with high psychopathy. In line with the

low activation of amygdala hypothesis, people with high psychopathy would not feel emotions, including affective empathy, as evidenced by their inability to identify own emotional states. As a result, they picked up no emotional cues in sacrificial dilemmas and without feeling empathy or discomfort, chose an option that saves a larger number of people. The results of this study showed that the non-affective process that involves the inability to identify emotions led to utilitarian judgments, suggesting that the subscales of alexithymia entail differential effects for those with high psychopathy.

Psychopathic traits are diverse and have been shown to include some alexithymia traits. However, few studies have investigated the relationship between psychopathy and diminished emotional experiences in the moral dilemma task. This study focused on the interplay between low affective empathy and other conditions that cause insensitivity to the suffering of others. In line with past findings (Demers & Koven, 2015; Lander et al., 2012), primary psychopathy was associated with DIF and EOT, and secondary psychopathy was associated with all the three alexithymia traits. The results should be discussed further by focusing on two possible explanations. The first explanation is that people with high primary psychopathy have no insights into their inner experiences and have no awareness of empathic deficits as well as lack of emotional experiences. They might be able to describe their current mood fluently without knowing exactly how they feel. Despite empathic deficits, primary psychopathy is associated with good social skills (Malterer et al., 2008), and one possibility is that the DDF subscale might be confounded with the individual's verbal fluency and emotional intelligence. Therefore, the first explanation for the link between primary psychopathy, DIF, and utilitarian judgments in sacrificial dilemmas focuses on the type of deficit in alexithymia and argues that psychopathic



individual has no insights into their empathic deficits because of their high verbal skills that facilitates reporting current moods.

The alternative explanation for the relationships between primary/secondary psychopathy and three alexithymia traits focuses on emotional dysfunctions of secondary psychopathy. Unlike primary psychopathy, secondary psychopathy is associated with emotional instability, high anxiety, and lower emotional intelligence (Lee & Salekin, 2010; Malterer et al., 2008). Speaking to the moral dilemma task, the dual process theory contends that utilitarian bias is caused by diminished affective experiences that drive the system 2 processing. The results of the associations between secondary psychopathy, low affective empathy, and alexithymia are not in line with the model because the behavioral component of psychopathy was not significantly associated with utilitarian judgments in this study and others (Koenigs et al., 2012). One possibility is that specific aspects of emotional dysfunctions predict a diminished aversion to interpersonal harm. The results of this study suggest that low affective empathy and DIF together predict utilitarian bias among those with high primary psychopathy. Compared to primary psychopathy, secondary psychopathy showed a weak correlation to low affective empathy in this study and was more likely to experience negative emotions. Anxious psychopaths (those with low primary and high secondary psychopathic traits) showed similar judgments patterns, compared to the normal control (Koenigs et al., 2012). Because negative emotions and empathy together influence judgments in moral dilemmas (Choe & Min, 2011), the experience of anxious feelings may negate the effect of low affective empathy.

### **Limitations and Future Directions**

There are two limitations that should be noted. The first limitation concerns the low alpha of EOT. Despite the effort to increase the internal consistency, it was still lower than acceptable ( $\alpha$

= .51). If the alexithymia traits could be measured reliably, the results could have revealed the mediating role of EOT in the model. Therefore, the link between psychopathy, alexithymia, and utilitarian bias needs to be examined further for a complete picture.

The second limitation concerns of low empathy and psychopathic traits. Empathic deficits tend to be selective, and the type of deficit is directly related to differential social cognition and decision-making styles. Past studies have produced inconsistent results as to which type of empathy is lacking among those with high psychopathy. Some studies reported that deficit in affective, but not in cognitive empathy, characterizes psychopathy (Wai & Tiliopoulos, 2012), whereas others reported that both types of empathy are lacking (Jonason & Krause, 2013). Moreover, empathic deficit varies as a function of gender, such that deficit in affective empathy is observed among males with high psychopathy but not among females (Dadds et al., 2009). Considering the type of empathic deficit is important because the deficit can be selective and produces specific distorted social cognition and outcomes (Gray et al., 2010; Vyas et al., 2017). Given the complexity of empathic deficit, future studies should further investigate how different types of reduced affective, as well as cognitive empathy, influence perception of harm and utilitarian bias in morally relevant situations.

## Chapter 5

### Primary psychopathy, low affective empathy, and reasoning behind utilitarian judgment

This study investigated associations between low affective empathy for the victim and the saved and reasoning in sacrificial dilemmas. While moral dilemma studies have pointed out to the importance of emotion in moral judgments, this time the role of reasoning received little attention. Even if two respondents make utilitarian judgments, but their reasonings behind the judgment may differ. In this study, participants reported the extent to which they felt empathy for the victim and the saved. Also, they provided reasons for utilitarian judgments (justifications for harm) on the basis of five justifications (Deontology, Moral relativity, Emotional reactivity, Egoistic concern, and Confidence). The results showed that psychopathic traits were associated with low empathy for the victim and the saved. Low empathy for the victim, but not empathy for the saved, was associated with utilitarian judgments. Further, the relationship between high psychopathic traits and utilitarian judgments was mediated by the reasoning based on low emotional reactivity that indicated their diminished susceptibility to distress cues. The results provide insights into the intersection between empathy and reasoning in the moral dilemma task, such that empathic deficits among those with high psychopathy were evident in their reduced empathy for the victim/saved and justifications of harm by low emotional arousal.

## Introduction

The aim of this study was to investigate associations between affective empathy for the victim and the saved and five justifications that support utilitarian judgments in sacrificial dilemmas. Studies presented in this dissertation have reported that diminished affective empathy for the victim (Chapter 2 and 3) and low affective empathy in parallel with lack of emotional awareness (Chapter 4) lead to utilitarian judgments. However, there are two limitations to be addressed. Studies in Chapter 2 and 3 only measured empathy for the victim, but empathy for the saved would also affect the judgment. In a situation where more than two parties are present, people choose whom to empathize (Cikara et al., 2011). When people empathize with a specific group of people, the suffering of other groups will be unnoticed or underestimated (Oceja, 2008). In moral dilemmas, there are a potential victim and several others who are saved by a utilitarian action. Considering the selective nature of empathy, people should feel more or less empathy for the victim, compared to feeling empathy for the saved when deciding whether or not to sacrifice the victim. When people empathize more with the victim, they should pay attention to the harmful consequence of their utilitarian judgment. Consequently, they should make non-utilitarian judgments without considering that the judgment would produce greater benefits by saving five. In contrast, when they empathize more with the saved, they should focus more on the positive outcome of the utilitarian judgment. Taken together, it could be that respondents who show utilitarian bias empathize only with the saved, and their empathic focus is not attuned to the victim. Thus, to ascertain that lower empathy for the victim leads to utilitarian judgment, empathy for the saved should be also considered.

## **Role of Reasoning**

Another limitation was that the previous studies using the moral dilemma task have placed a heavy emphasis on the affective process in moral judgment, and lesser is known about the role of reasoning. The two prominent theories of emotion and moral judgment underestimate the contribution of reasoning. First, the dual process theory (Greene et al., 2001; 2004) assumes that automatic, intuitive thinking (system1) always precedes effortful, systematic thinking (system 2). One assumption based on the theory is that longer response time (RT) leads to utilitarian judgments that are considered superior to non-utilitarian judgments (Suter & Hertwig, 2011). Rather than looking into the process through which people move from the system 1 to the system 2 thinking, it was assumed that people eventually arrive at utilitarian judgments by taking sufficient time. Second, the social intuitionist model (Haidt, 2001) assumes that moral reasoning is a post hoc justification of the initial judgment that has been produced by affect-laden intuitions. According to the model, reasoning takes place only after the individual makes a judgment, guided by emotion, but the moral reasoning is merely provided for making sense of the initial intuition-based judgment. Unless the individual has sufficient time, cognitive resources, and motivation to be accurate, conscious reasoning may be obsolete (Forgas, 1995). Taken together, the two dominant frameworks of moral judgment argue that the reasoning process is very limited while stressing the effects of affect/intuition.

However, the assumptions that a utilitarian judgment is a product of longer RT and moral reasoning is only used to justify an intuition-based judgment simplify the system 2 processing. Available evidence shows that reasoning may guide moral judgments in sacrificial dilemmas involving strong emotions. The temporal impairment of the executive functioning by alcohol or sleep deprivation (53 hours) alters response latencies and the individual's preference for

utilitarian solutions in sacrificial dilemmas but not in low-conflict dilemmas (Duke & Bègue, 2015; Killgore et al., 2007). Individuals who tend to think based on utilitarianism are committed to making utilitarian choices (Baron, Scott, Fincher, & Metz, 2014) and seem to engage in systematic thinking from the onset. People who reject the harmful action weight the cost and benefit of sacrificing one person, rather than jumping to the non-utilitarian solution (Białek & De Neys, 2016). These suggest that not consistent with the assumption of the dual process and social intuitionist theory/model, people integrate emotion and cognition to generate a moral judgment. Thus, not only emotion (and affective empathy), but also rational thinking contributes to utilitarian judgments in the moral dilemma task.

Similarly, only looking at the effect of impaired affective empathy does not reveal how the emotion dysfunction affects the individual's moral thinking. Because the effect of an impaired affective empathy seemed more prominent in judgment patterns in the moral dilemma task (Koenigs et al., 2012), less attention was paid to the effect of conscious reasoning. However, those who lack empathy also show impaired moral reasoning styles. Psychopathic traits are not only associated with low affective empathy, but also with a lack of moral concerns for the well-being of others (Kahane et al., 2015; Pletti et al., 2017). Psychopathic individuals may have conceptions of virtue and vice but are not impelled to use the knowledge without moral emotions (e.g., affective empathy, guilt, shame) that navigate (un)desirable behaviors (Glenn et al., 2009; Jonason et al., 2015). Psychopathic individuals, known as no-empathizers, would make utilitarian judgments because they simply lack a motivation to make a "right" judgment for others (Cima et al., 2010). These suggest that people with low affective empathy use distinct reasoning in moral dilemmas. Investigating how people justify harm would reveal the effects of affective empathy on cognition.

Further, people make (non)utilitarian judgments for various reasons. Some people are intuitive thinkers and may make non-utilitarian judgments more readily than others (Baron et al., 2014). Individuals with antisocial personality traits are drawn by utilitarian choices although they are indifferent to the ethical principle (Bartels & Pizarro, 2011). The results of Chapter 3 showed that when people feel less empathy for the victim, they may conclude that he/she does not deserve moral concerns, thereby endorsing harm. The malleability of affective empathy and its relation to utilitarian judgments suggest that people may endorse harm because they are less motivated to protect the target person of harm. Thus, how people make sense of a situation may determine the degree and direction of affective empathy and judgments. To better understand the motivation behind utilitarian judgments, studies investigating the link between affective empathy and utilitarian bias should also look at the role of reasoning.

## **Purpose**

The purpose of Chapter 5 was two folded: first to examine how affective empathy for specific individual(s) affects utilitarian judgments, and second to examine the intersection between primary psychopathy, reduced affective empathy for the victim, and justifications for utilitarian judgments in sacrificial dilemmas. How are affective empathy and utilitarian bias are related? Because utilitarian judgments involve harming one person (victim), it was hypothesized that reduced empathy for the victim, but not for the saved, predict utilitarian bias. To test this hypothesis, affective empathy for the victim and the saved were measured.

The second hypothesis concerned the role of reasoning in the moral dilemma task. When asked, how do people make justifications for utilitarian judgments that permit harm onto one identifiable victim? Because the current research focused on endorsement of harm in sacrificial dilemmas, only justifications for utilitarian judgments were asked to provide. Specifically, how

do psychopathic people justify a harmful action? No study has explored the types of reasoning and utilitarian judgments in the moral dilemma task. However, justifications for endorsement of harm may differ among those who make utilitarian judgments. Because several personal factors, including but not limited to ideological beliefs, socioeconomic status, and thinking styles, are associated with a utilitarian preference (Côté, Piff, & Willer, 2013; Piazza, & Sousa, 2014; Van Pachterbeke, Freyer, & Saroglou, 2011), there should be as many as reasons that justify the harm. That is, people should be differentially motivated to permit the harmful action for saving a larger number of people. Based on past findings on psychopathic traits and utilitarian bias, five justification variables (Deontology, Moral relativity, Emotional reactivity, Egoistic concern, and Confidence) were hypothesized to mediate the relationship between primary psychopathy and utilitarian judgments.

## Methods

### Participants

A sample of 280 Amazon's Mechanical Turk workers participated in exchange of 40 cents. After the exclusion criteria (Chapter 2, p. 36), there were 170 responses (45% female;  $M_{age} = 37.70$ ,  $SD = 11.95$ ). They were varied in ethnicity (75% White, 12% Asian, 5% Hispanic/Latino, 4% Black, and 3% other or mixed ethnic heritage) and political orientation (29% Liberal, 21% Slightly conservative, 19% Conservative, 19% Slightly liberal, 7% Extremely liberal, 5% Extremely conservative). For attention checks, an item asked the respondent to read a paragraph and then answer the following question: "Please select all the emotions you are currently feeling". In fact, the last sentence in the paragraph instructs the respondent "not to report any emotion and to choose 'none of the above' option". Those who



could not respond to the control question properly (i.e., choosing one or more of emotions on the list instead of choosing “none of the above”) were excluded from data analysis.

## Measures

**Moral dilemma task.** Six sacrificial dilemma scenarios were used (*Footbridge*, *Crying Baby*, *Modified Lifeboat*, *Modified Safari*, *Vaccine*, and *Sophie’s Choice*). After reading a scenario, participants were asked to whether they would carry out the action in question to save more people (e.g., In this situation, would you push the stranger on to the tracks in order to save the five passengers?).

After providing a judgment, participants rated the extent to which they felt empathy for each target in the dilemma: the saved and the victim (e.g., The five working men, The stranger in the Footbridge dilemma) on a 5-point scale from 1 (*not at all*) to 5 (*to a great extent*). Lastly, participants were asked to imagine that they have just made a utilitarian choice of action in the dilemma although their initial judgment could be non-utilitarian. The instruction was: “Now, imagine that you push the stranger on to the tracks in order to save the five workmen. As the consequence, the stranger is killed by the runaway trolley. Please indicate the extent to which you use the following five types of reasoning to agree or disagree with the decision.”

Participants rated the extent to which they use the following five types of reasoning for justifying a utilitarian judgment: 1) deontology, 2) moral relativity, 3) emotional reactivity, 4) egoistic concern, and 5) confidence. These justification variables were based on past studies (Gleichgerricht et al., 2015; Tanner, Medin, & Iliev, 2008; Van Pachterbeke et al., 2011). Table 5-1 shows samples questions. The wording of justification questions was adjusted for each dilemma.

**Primary psychopathy.** Participants completed a subscale of Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995). The study reported in the previous chapter and others (Koenigs et al., 2012) have shown that utilitarian judgment in sacrificial dilemmas are associated with primary psychopathy but not with secondary psychopathy. For this reason, only the subscale of primary psychopathy was used. Responses were recorded on a 4-point scale from 0 (*disagree strongly*) to 3 (*agree strongly*)

**Affective empathy.** Participants completed a subscale of the IRI Index (Davis, 1983). Responses were recorded on a 5-point scale from 1 (not at all characteristic of me) to 5 (extremely characteristic of me). The appendix in pp. 139-141 shows dilemma scenarios and personality items. Table 5-1.

*Sample Questions and Responses for Justification Variables (Footbridge Dilemma)*

Types of justification	Questions
Deontology	Pushing the stranger on to the tracks is immoral because this act contradicts principles one has to follow.
Moral relativity	The majority would sacrifice the stranger to save the five workmen.
Emotional reactivity	The thought of me pushing the stranger on to the tracks is overwhelming.
Egoistic concern	I do not care much about the stranger and five workmen only if I am safe and sound.
Confidence	I trust my judgment in the situation; reverse-coded.

*Note.* The instruction was “Now, imagine that you pushed the stranger on to the tracks in order to save the five workmen. As the consequence, the stranger was killed by the runaway trolley. Please indicate your feeling and attitudes toward the situation.”

## Results

Table 5-2 shows means, standard deviations, medians, range, Cronbach alphas, and gender differences for observed variables. Gender differences emerged in several variables, including utilitarian judgment.

Table 5-2.

*Means, Standard Deviations, Medians, Minimum-Maximum Range, Cronbach alphas, and Gender Differences for Key Variables*

Key variables	Mean (SD)	Min, max	Cronbach alpha	Gender differences ( <i>t</i> )
Primary psychopathy	15.99 (8.45)	1, 42	.89	5.40***
Dispositional affective empathy	26.29 (6.46)	7, 35	.89	-5.17***
Empathy for the saved	25.87 (4.77)	6, 30	.89	-2.52*
Empathy for the victim	25.19 (5.02)	6, 30	.89	-3.78***
Deontology	21.92 (5.79)	6, 30	.88	-2.34*
Moral relativity	20.17 (4.69)	6, 30	.81	0.26
Emotional reactivity	24.66 (5.69)	6, 30	.92	-3.88***
Egoistic concern	10.48 (4.87)	6, 26	.90	2.13*
Confidence	21.25 (5.31)	6, 30	.89	2.08*
Utilitarian judgment	14.89 (4.04)	6, 24	.84	2.30*

*Note.*  $N = 170$ .  $p^* < .05$ ,  $p^{**} < .01$ ,  $p^{***} < .001$ .  $t$  = two sample independent t-test. Gender has been dummy coded as 0 = male, 1 = female.

Table 5-3 shows correlations among observed variables. In line with the prediction, reduced empathy for the victim was significantly associated with utilitarian judgments ( $r = -.22$ ,  $p < .001$ ), but reduced empathy for the saved was not ( $r = -.083$ ,  $p = .29$ ). Dispositional affective empathy was not significantly associated with utilitarian judgments ( $r = -.14$ ,  $p = .07$ ). In line with the prediction, primary psychopathy was associated with lower empathy for the victim and

the saved (empathy for the victim:  $r = -.54, p < .001$ ; empathy for the saved:  $r = -.51, p < .001$ ).

Theoretically consistent, primary psychopathy was significantly associated with lower dispositional affective empathy ( $r = -.64, p < .001$ ).

Table 5-3.

*Intercorrelations Among Observed Variables in Study*

Variables	1	2	3	4	5	6	7	8	9	10
1. LSRP-1	—	-.64***	-.51***	-.54***	-.14 <sup>†</sup>	-.01	-.52***	.53***	.23**	.18*
2. EC	—	—	.49***	.52***	.18*	-.02	.40***	-.51***	-.10	-.14 <sup>†</sup>
Empathy for:										
3. The saved	—	—	—	.86***	.35***	.16*	.58***	-.52***	.05	-.08
4. The victim	—	—	—	—	.41***	.09	.63***	-.60***	.02	-.22**
Justifications:										
5. Deontology	—	—	—	—	—	-.19*	.47***	-.17*	.02	-.57***
6. Relativity	—	—	—	—	—	—	.03	-.06	.16*	.47***
7. Reactivity	—	—	—	—	—	—	—	-.39***	-.11	-.26**
8. Egoistic	—	—	—	—	—	—	—	—	.93	.11
9. Confidence	—	—	—	—	—	—	—	—	—	-.01
10. U. judge	—	—	—	—	—	—	—	—	—	—

*Note.*  $N = 170$ .  $p^{\dagger} < .1$ ,  $p^* < .05$ ,  $p^{**} < .01$ ,  $p^{***} < .001$

LSRP-1 = primary psychopathy, EC = dispositional affective empathy, Relativity = moral relativity, Reactivity = emotional reactivity, Egoistic = egoistic concern, U. judge = utilitarian judgments.

### Multiple Regression Predicting Utilitarian Judgments

To test associations between utilitarian judgments and sacrificial dilemmas, we ran multiple regressions. In the first step, gender was entered as a covariate. In the second step, personality variables (primary psychopathy, dispositional affective empathy) were entered, but both variables did not contribute to improving the model. In the third step, affective empathy

variables (empathy for the victim/the saved) were entered, and the addition of the variable improved the predictive power of the model ( $\Delta R^2 = .106$ ,  $F = 5.49$ ,  $p = .005$ ).

### Multiple Regression Predicting Empathy by Justification Variables

For additional analysis, the associations between justification for harm and reduced affective empathy were explored to ascertain which justification variables (reasoning) predict low empathy for the saved/the victim.

Table 5-4

*Regression Results for Justification Variables as Predictors of Empathy for the Victim and Empathy for the Saved*

	Outcome variables					
	Empathy for the victim			Empathy for the saved		
Predictors	<i>b</i>	<i>SE</i>	95% CI	<i>b</i>	<i>SE</i>	95% CI
Deontology	.14*	.052	[.042, .247]	.12*	.055	[.007, .222]
Moral relativity	.08	.057	[-.031, .195]	.15**	.060	[.031, .268]
Emotional reactivity	.33***	.056	[.219, .441]	.32***	.059	[.205, .439]
Egoistic concern	-.42***	.057	[-.529, -.303]	-.33***	.060	[-.451, -.213]
Confidence	.06	.050	[-.037, .160]	.06	.053	[-.042, .166]
<i>R</i> <sup>2</sup>	.48			.76		

*Note.*  $N = 170$ .  $p^* < .05$ ,  $p^{**} < .01$ ,  $p^{***} < .001$ .

*b* = unstandardized coefficient, CI = Confidence Interval.

Deontology and emotional reactivity were positively associated with empathy (deontology:  $b_{\text{victim}} = .14$ ,  $p = .01$ ,  $b_{\text{saved}} = .12$ ,  $p = .04$ ; emotional reactivity:  $b_{\text{victim}} = .33$ ,  $p < .001$ ,  $b_{\text{saved}} = .32$ ,  $p < .001$ ). In contrast, egoistic concern was negatively associated with empathy ( $b_{\text{victim}} = -.42$ ,  $p < .001$ ;  $b_{\text{saved}} = -.33$ ,  $p < .001$ ). An interesting finding was that moral relativity was positively associated with empathy for the saved ( $b = .15$ ,  $p = .014$ ), but not with empathy

for the victim ( $b = .082, p = .15$ ). Confidence was not associated with both types of empathy ( $b_{\text{victim}} = .06, p = .22, b_{\text{saved}} = .06, p = .24$ ). Table 5-4 depicts the results.

### **Primary Psychopathy, Justification for Harm, and Utilitarian judgments**

As in Table 5-3, the results of Pearson correlation showed that primary psychopathy was significantly correlated with three justification variables: emotional reactivity, egoistic concern, and confidence (emotional reactivity:  $r = -.52, p < .001$ ; egoistic concern:  $r = -.53, p < .001$ ; confidence =  $r = -.23, p < .01$ ). To test whether justification variables mediate the link between primary psychopathy and utilitarian judgments, mediation analysis was run. Only emotional reactivity showed significant correlations with the predictor and outcome variables. Given that all variables in the mediation model shall be correlated (Baron & Kenny, 1986), we tested a mediation model with emotional reactivity as a mediator. The results showed that the relationship between primary psychopathy and utilitarian judgments was fully mediated by emotional reactivity (standardized effect size = .0484, 95% CI [.010, .097]). The direct effect of primary psychopathy on utilitarian judgments became non-significant after entering the mediating variable ( $p = .72$ ).

### **Psychopathy, Affective Empathy, and Utilitarian Judgments**

To ascertain, affective empathy (empathy for the victim/the saved) mediates the link between primary psychopathy and utilitarian judgments, mediation analysis was run, using the same SPSS program in Chapter 4. Reduced empathy for the victim mediated the link between psychopathy and utilitarian judgments (bootstrap = .1218, 95% CI [.061, .191]). Psychopathy predicted reduced empathy for the saved (bootstrap =  $-.0987$ , 95% CI [ $-.171, -.035$ ]), and the higher empathy scores predicted utilitarian judgments. As in the regression model, empathy for

the victim negatively predicted utilitarian judgments, whereas empathy for the saved positively predicted utilitarian judgments.

### **Discussion**

The current study investigated the intersection between affective empathy, utilitarian judgments, and justification for harm in sacrificial dilemmas. Based on previous studies (Gleichgerricht et al., 2015; Tanner et al., 2008; Van Pachterbeke et al., 2011), five justification variables were used: 1) deontology, 2) moral relativity, 3) emotional reactivity, 4) egoistic concern, and 5) confidence. Supporting the first hypothesis, reduced empathy for the victim, but not for the saved, was significantly associated with utilitarian judgments. Moreover, the relationship between primary psychopathy and utilitarian judgements was mediated by low empathy for the victim. Partially supporting the second hypothesis, the results showed that primary psychopathy predicted utilitarian judgments via low emotional reactivity. Although primary psychopathy was significantly associated with the three justification variables (Emotional reactivity, Egoistic concern, and Confidence), only low emotional reactivity was significant in the mediation model. Psychopathy traits are complex, but in the moral dilemma task, the lack of empathic experiences (affective empathy) leads to endorsement of harm. The results corroborate the study reported in Chapter 4 that individuals with high psychopathy justified harm by providing a reason that indicated their diminished sensitivity to interpersonal harm.

Some justification variables were significantly associated with affective empathy for the victim/saved while dispositional affective empathy was not associated with empathy measure in the dilemma task. Although some studies have found that the rejection of the utilitarian action (i.e., non-utilitarian judgments) does not reflect deontological ethics (Kahane, 2015), the

deontological reasoning that stated interpersonal harm is a violation of a moral principle an individual intends to follow, was associated with empathy for the victim and the saved. If the individual recognizes that utilitarian judgements contradict with his/her deontological moral values, he/she is likely to show empathy for all targets in sacrificial dilemmas. An interesting finding was that moral relativity was associated with empathy for the saved, but not for the victim. That is, higher empathy for the saved was significantly associated with the reasoning that other respondents would also make utilitarian judgments to prevent the deaths of five people. The result suggests that when people are led to believe that most respondents make utilitarian judgments in the dilemma task, they might rely on the information to support the utilitarian solution. Consequently, they feel less empathy for the victim than for the saved, which in turn may lead to endorsement of harm. Moreover, justification of harm based on the selfish reasoning (egoistic concern) was associated with reduced empathy for the victim and the saved, suggesting that people feel low or no empathy who are in danger when they feel not responsible for the well-being of others. If the scenario content includes some element of self-interest (e.g., the potential victim is financially assisting the respondent's new business), people may be inclined to endorse harm. These results provide insights into the role of reasoning in directing the individual's empathy for the victim/saved and judgments.

The detailed investigation of primary psychopathy, five justification variables for harm, and utilitarian bias revealed that people with high psychopathy endorse harm because they feel no emotional arousal that usually accompanies affective empathy (Davis, 1983). Past studies have found that psychopathic individuals endorse harm in sacrificial dilemmas for non-moral motivations (Cima et al., 2010; Kahane et al., 2015; Patil, 2015; Pletti et al., 2017). In this study, among five justification variables, only emotional reactivity mediated the link between primary



psychopathy and utilitarian judgments. This is in line with the dual process theory (Greene et al., 2001; 2004) that diminished affective experiences lead to endorsement of harm. The results also give support to Blair's model of psychopathy (Blair, 2007) that empathic deficits among psychopathic individuals are caused by a hypo-activated amygdala. There are several ways to endorse harm in sacrificial dilemmas, and for people with high psychopathy, the lack of affective empathy predicts endorsement of harm via the reasoning that illuminates their lack of some emotional experiences.

### **Limitations and Future Directions**

There are some limitations that need to be noted. One limitation was that all participants were asked to justify utilitarian judgments even if some of them initially made non-utilitarian judgments. To elucidate individual differences in utilitarian preferences, future studies should investigate reasoning for utilitarian judgments among those who actually endorsed harm and reasoning for non-utilitarian judgments among others who rejected the harmful action. Some people with the average range of empathy make utilitarian judgments because they are oriented toward utilitarianism (Baron et al, 2014). They seem to be less influenced by emotions and engage in reflective thinking that produces less biased or reliable answers. Considering the contemplative thinking style, there should be some variabilities in personal traits among those who are utilitarian oriented. Psychopathic individuals make utilitarian judgments because they lack moral concerns for others while non-psychopathic individuals with a utilitarian preference may produce the judgments with the aim of maximizing the overall benefits. Thus, some people may endorse harm not because of low affective empathy, but because of their cognitive style that is characterized as elaborative. To uncover the heterogeneity in those who make utilitarian

judgments, future studies should look at the reasonings that reflect motivations behind utilitarian judgments.

Another limitation was that only five reasonings were examined in this study although people make utilitarian judgments for a variety of reasons (Sachdeva, Iliev, Ekhtiari, & Dehghani, 2015). Affective empathy may influence perception of harm by illuminating specific moral rules (Broeders et al., 2011). In the current study, three justification variables were significantly associated with low affective empathy for the victim and utilitarian judgments (Deontology, Moral relativity, and Emotional reactivity). For future studies, it would be more informative to ask participants to generate justifications for their utilitarian judgments.

## Chapter 6

### General Discussion

The four studies presented in this dissertation investigated how affective empathy affects utilitarian judgments in sacrificial dilemmas. Overall, results suggest that low empathy for the victim in sacrificial dilemmas, predicts endorsing utilitarian choices of action. In the following sections, discussions of Chapter 2 through 5 are extended by addressing questions surrounding empathy and harm aversion that need to be elaborated.

Based on the tenet that human beings have a natural tendency to show aversion to interpersonal harm (Navarrete et al., 2012), the current research examined the role of affective empathy in endorsing interpersonal harm. Across the globe, it is immoral to harm innocent others purposefully (Turiel, 2002). When people are obliged to harm another, they stop empathizing with that person by denying a moral status (Osofsky, Bandura, & Zimbardo, 2005; Pizarro et al., 2006). People adjust an empathic focus by turning on and off like a switch (Bloom, 2016). It appears that empathy works as a signal to avoid harm when it is on. In sacrificial dilemmas, empathy for the victim seems to elicit an aversion to harm, which in turn leads to non-utilitarian judgments. However, the link between affective empathy and interpersonal harm aversion is not well-understood. Is harm aversion a constellation of negative emotions (Choe & Min, 2011)? How does affective empathy affect harm aversion? Or, is empathy a precursor of harm aversion?

#### **Is Empathy for the Victim Altruistic, Egoistic, or Both?**

As discussed earlier that inconsistency exists in the literature as to which type of affective empathy predicts utilitarian judgments, and results of the current research are mixed. The results of Chapter 2 showed that both altruistic (other-focused, empathic concern: EC) and egoistic

(self-focused, personal distress: PD) affective empathy influence the judgments. However, the items that assessed self-focused empathy (PD) was not reliable. The question asked participants to report how much they felt self-focused empathy for the victim (e.g., I feel heavy-hearted for the victim), and it could be interpreted as other-focused PD. Considering how self-focused affective empathy was measured, PD in the study could be other-focused and not consistent with the definition by Davis (1983). Therefore, the results may indicate that other-focused, altruistic empathy for the victim influences judgments in sacrificial dilemmas, and the role of self-focused, egoistic empathy remains to be examined.

The results of Chapter 4 showed that affective empathy, but not negative emotion, leads to non-utilitarian judgments, partially supporting the notion that empathy for the victim is altruistic. Anxious mood after the dilemma task was not significantly associated with utilitarian judgments. Further, secondary psychopathy, which is marked by emotional instability, fearfulness, and neuroticism (Levenson et al., 1995), although correlated to low dispositional affective empathy to a smaller degree, was unrelated to utilitarian judgments. While secondary psychopathy is also related to low empathy, they do experience negative affect under high discomfort (Ali, Amorim, & Chamorro-Premuzic, 2009; Cleckley, 1941). Personal distress, self-absorbed affective empathy, coincides with anxiety (Davis, 1983), and the results of Chapter 4 and others found that high anxious psychopaths do not show utilitarian bias in sacrificial dilemmas (Koenigs et al., 2012). Thus, low affective empathy, not the general tendency to feel negative emotions, predict endorsement of harm. Taken together, empathy for the victim that led to non-utilitarian judgments was other-focused (altruistic) when dispositional empathy was under investigation. On the other hand, as self-report measures may be unreliable to differentiate empathic concern and personal distress (Decety, J., & Lamm, C. (2009), the conclusion that

empathy for the victim measured as a situational construct is other-focused and self-focused is not definite.

### **Is Affective Empathy a Precursor of Harm Aversion? Action and Outcome Aversions**

Is affective empathy necessary for harm aversion? There are two approaches to this question: action and outcome aversions. Recent studies on outcome aversion and utilitarian judgments give support to the Emotion as a Harm-rejection Hypothesis (Conway & Gawronski, 2013; Reynolds & Conway, 2018) while others who study the mechanism of action aversion contend that empathy has little to do with harm aversion (Miller, Hannikainen, & Cushman, 2014). Below, the two approaches are introduced, starting with the standpoint of action aversion.

**Action aversion.** Some scholars contend that an aversion to harmful actions, not affective empathy, predicts moral judgments in sacrificial dilemmas (Miller et al., 2014; Pati, 2015). Empathy has little or no importance in perceiving interpersonal harm (Cushman et al., 2012). Merely thinking about harming another evokes high levels of stress (Miller & Cushman, 2013). In the process of socialization, children associate harmful actions with negative emotions by associative learning (Dahl & Freda, 2017). Once negative emotions and a harmful action are paired up, the action evokes negative physiological responses automatically. Consequently, people experience negative emotions that make them inhibit a behavior or withdraw from the situation when they perceive real or imagined harm (Miller et al., 2014). People show an aversion to harmful actions although there is no actual harm onto others, such as shooting a friend with a fake gun (Cushman, Gray, Gaffey, & Mendes, 2012). Further, action aversion does not require empathy after the association between a stimulus (perception of harm) and behavioral patterns (avoid harm/withdraw) has been established. Empathy may be important in the process of associative learning, but one needs not to empathize with another for feeling aversive to a

harmful action after the learning is complete (Miller et al., 2014). Hence, action aversion, but not affective empathy for the victim, affects endorsement of harm in sacrificial dilemmas.

There are two drawbacks of the “action aversion” argument that should be addressed. One drawback is that past studies on empathic deficits and delinquency show that associative learning requires empathy to associate negative emotions with interpersonal harm (Dadds et al., 2009; Finger et al., 2011). Because of dysfunctions in the amygdala and other brain areas, psychopathic individuals lack affective empathy and have difficulty in learning associations between a behavior and punitive response (Finger et al., 2011). That is, individual with empathic deficits may harm others without remorse or any negative emotions that inhibit “undesirable” behaviors because without empathy, he/she never learns how the action would affect others. Unless scoring high on psychopathy, most respondents are motivated to make a “good” choice for others in a situation involving several lives in danger because they associate the harmful action with aversive emotions. Thus, empathy is a prerequisite for the associative learning of interpersonal harm and negative emotions.

Another drawback is that action aversion is intertwined with outcome aversion, which is an aversive reaction to the outcome of a harmful action by feeling empathy for a victim (Miller et al., 2014). When asked to be a harmdoer, people think about the nature of an action and its consequence instantaneously (Osofsky et al., 2005). Before deciding whether or not to behave in a certain way, people foresee an undesirable outcome for others, and together the anticipated negative emotion affects subsequent behavioral choices (Krähmer & Stone, 2013). It may be that when someone is about to be victimized, people instantly envisage the consequence. Humans beings have a built-in mechanism for cultivating oneness with others (Decety & Svetlova, 2011; Iacoboni, 2011). In the interpersonal context, people resonate with others involuntarily, and the

boundary between the two disappears (Iacoboni, 2011). The effect of empathy is prominent in a high-stake situation, and an empathic focus is instantly fixed on the suffering of others (McAuliffe et al., 2017). In sacrificial dilemmas, respondents are likely to imagine the consequence of the harmful action because the situation is unfamiliar to them (Baron, 2011; Bauman, McGraw, Bartels, & Warren, 2014) and their choice of action may cause deadly harm onto others. Although the standpoint of action aversion argues that whether affective or cognitive, empathy has little or no effects on perception of harm, as social animals, people show empathic responses to others in distress. In sacrificial dilemmas, they experience a wide array of emotions, including affective empathy (Choe & Min, 2011) because they foresee how their choice would harm others before deciding whether or not to make utilitarian judgments. Thus, not supporting the proposed mechanism of action aversion, empathy is a critical part of learning the association between harmful actions and aversion to interpersonal harm.

**Outcome aversion.** The standpoint of outcome aversion assumes that before deciding on the moral dilemma task, people feel empathy for others and imagine the consequence of a harmful action in question. Feeling empathy for others and imaging the situation from the other's perspective co-occur (Coke et al., 1978). People instantly empathize with others in distress unless instructed to remain objective (de Waal, 2008), given that the default mode is “empathize” (McAuliffe et al., 2017). The results of Chapter 2-5 and others (Conway & Gawronski, 2013; Gleichgerrcht et al., 2015; Gleichgerrcht & Young, 2013; Patil & Silani, 2014; Sarlo et al., 2014) show that whether egoistic or altruistic, affective empathy influences endorsement of harm in sacrificial dilemmas. These suggest that in moral dilemmas, people are prompted to empathize with others (the victim and the saved), and at the same time, consider the consequence of harm in order to make a good judgment for others.

The selective nature of affective empathy explains why people experience discomfort in moral dilemmas. When more than two parties are present, it might become difficult or even impossible to empathize with both parties. For instance, empathizing with out-group members and taking an action accordingly (e.g., helping foreign workers by job training) might contradict with supporting in-group members (e.g., lowering the unemployment rate in the country). In sacrificial dilemmas, feeling empathy for both sides (the victim and the saved) creates a moral conflict because endorsing a (non)utilitarian choice of action affects the two parties in the opposite direction. Therefore, when making a choice, people must decide which side to empathize. Upon reading a dilemma vignette, people might feel empathy for both the victim and the saved. However, empathizing with the victim contradicts empathizing with the saved. Consequently, the dilemma induces negative emotions that must be resolved. In this sense, empathy may work as a filter that reduces cognitive burden that arises from a situation in which taking one side is incompatible with the other.

Chapter 5 reported that high psychopathy traits were associated with lower empathy for the victim and the saved and justification of harm by low empathic arousal. Individuals with low dispositional empathy feel no empathy for others in sacrificial dilemmas. As reported in Chapter 4, reduced empathy for the victim also predicted utilitarian judgments in Chapter 5. An interesting finding was that empathy for the saved mediated the relationship between primary psychopathy and utilitarian judgments. The results suggest that although psychopathic traits were associated with utilitarian bias, individuals with high psychopathy show relatively more empathy for the saved that predicts endorsement of harm onto the victim. When asked to provide justifications for utilitarian judgments, they indicated low empathic arousal. In line with Blair's neurocognitive model of psychopathy (2007), psychopathic individuals who are characterized as



having an under-aroused amygdala and low affective empathy make utilitarian judgments in sacrificial dilemmas because they are not responsive to distress cues in sacrificial dilemmas, such as direct harm onto the victim. Thus, without affective empathy, they do not fall in the empathy dilemma. In contrast, for many, making a judgment in sacrificial dilemmas is difficult because they need to solve the dilemma by suppressing their empathy for either side. Both utilitarian and non-utilitarian judgments entail harm to either side. The non-utilitarian judgment leads to letting the five people die while the utilitarian judgment leads to killing one person. Because people have a general tendency to avoid harm to others and empathize with unfortunate others (de Waal, 2008; Navarrete et al., 2012), making a utilitarian or non-utilitarian judgment is going against either of the intuitive motives. The results of Chapter 5 added to the literature by showing that psychopathic traits are related to low empathy for the victim and the saved in moral dilemmas, suggesting that for psychopathic individuals, there is no moral conflict in the dilemma task. Taken together, the current research and others suggest that affective empathy is a harbinger of interpersonal harm aversion in sacrificial dilemmas although over time, aversive reactions to harm may be elicited without empathizing with the victim once the association between the harmful action and aversive feelings is learned.

### **Alternative Model(s) for the Dual Process Framework**

The current study and others using the dual process model have shown that diminished emotional experiences, specifically low affective empathy, are related to utilitarian judgments in sacrificial dilemmas, but some key assumptions of the theory have not been supported, warranting alternative models. First, unlike the assumption of the theory that the system 1 thinking process produces non-utilitarian judgments without expending much efforts, people who make non-utilitarian judgments do not make non-utilitarian judgments automatically. People

who reject the harmful action make comparisons between utilitarian and non-utilitarian choices carefully, confronting the moral conflict (Białek & De Neys, 2016). Likewise, the assumption that system 1 entails fast and automatic processes and system 2 slow and elaborative processes is not fully supported by past findings. Initially, Suter and Hertwig (2011) asked participants to take more time to generate a final judgment and found that longer response latencies are associated with utilitarian judgments. However, a careful statistical test by Baron et al., (2012) found that the main finding was due to differences in the content of dilemma scenarios. Utilitarian judgments may require more cognitive resources than non-utilitarian judgments (Greene et al., 2008), but it does not necessarily indicate that people who show non-utilitarian bias effortlessly make the judgments. Taken together, the central tenet of dual process theory partially explains how people make judgments in the moral dilemma task because previous studies have not consistently found the relationship between automaticity, response time, and types of judgments.

Second, the theory is silent on how individuals with empathic deficits and diminished sensitivity to interpersonal harm arrive at utilitarian judgments without engaging in the system 1 and possibly system 2 processes. Studies in Chapter 4 and 5 showed that individuals with high psychopathy make utilitarian judgments because: they are low in dispositional empathy (other-focused affective empathy), unaware of their own emotional states (Chapter 4) and see no emotional significance in the dilemma situation, as evidenced by their reasoning for utilitarian judgments (Chapter 5). These suggest that the system 1 processing is not available for those who lack the ability to take emotional cues by using affective empathy. Further, individuals with average empathy may show a utilitarian preference when they are temporarily conditioned to feeling less distress in reaction to interpersonal harm. By taking an alcohol drink or an anti-anxiety drug, people with average levels of empathy become unresponsive to others in pain and

without engaging in contemplation, make utilitarian judgments at ease (Duke & Bègue, 2015; Perkins et al., 2013). In a mirthful mood, people think less carefully and opt for utilitarian choices that permit harm onto the victim (Valdesolo & DeSteno, 2006). These indicate that when people are not motivated to deliberately think about choices that involve the fate of others, they make utilitarian judgments in sacrificial dilemmas. This is not in line with the theoretical assumption because the slow, thinking process (system 2) should be linked to utilitarian judgments. It may be that reduced aversion to interpersonal harm, but not elaborative thinking in system 2, leads to endorsement of harm, hence utilitarian bias in the moral dilemma task.

Considering that the absence of negative emotional experiences causes utilitarian bias, one possibility is that for those with diminished affective experiences, there is a different pathway through which people without affective empathy arrive at utilitarian judgments in sacrificial dilemmas. One alternative model is that there is a non-affective based system 1 processing. The original model assumes the two thinking processes, but the third process non-affective system 1) should be incorporated in the model in order to explain why individuals with no affective bases make utilitarian judgments without engaging in system 2. The results of Chapter 4-5 and others have shown that those with low sensitivity to distress make a utilitarian choice in a short period because without empathy, they do not experience distress and moral conflicts. If negative emotions are absent, moral dilemmas entail no conflict. Making a utilitarian judgment is no more than counting a number of people saved. For those who lack empathy in particular, there could be a non-affective pathway through which they arrive at utilitarian judgments.

The first alternative model explains why people with emotional dysfunction make utilitarian judgments with little effort. According to the Blair's model (2007), people with high

psychopathy feel no affective empathy because of a hypoactive amygdala. The lack of empathy implies that they do not use system 1 in the moral dilemma task because empathy, along with negative emotions, influences the judgments (Chapter 1-2). As proposed by the first alternative model here, individuals with empathic deficits might have a different form of system 1, which is non-affective and relatively effortless. Without relying on intuition and utilitarian ethics, they calculate costs and benefits and choose an option that maximizes the aggregated benefits in a short period of time (Cima et al., 2010). Nonetheless, the first model fails to explain why people who generally feel empathy for others make utilitarian judgments when they receive a treatment for temporarily feeling less empathy.

The second alternative model is that because of dispositional or temporarily low empathy, those with reduced sensitivity to negative affective stimuli skip system 1 and engage in system 2 from the onset. The current dual process theory assumes that people engage in system 1 first and system 2 later, but the order might not be fixed for people who lack awareness of own feelings or have received a manipulation of low empathy. In the second alternative model, system 1 is present but not active. Unlike the first model, the second model assumes that system 1 is also available for those with low empathy. The model proposes that system 1 is functional if the individual experiences activating emotions, including affective empathy in the early stage of judgments. Therefore, the model predicts that people with diminished empathy would make utilitarian judgments if they received an empathy manipulation. When instructed to take the perspective of others, those who are self-centered show empathy for others in pain (Hepper et al., 2014). They do not use system 1 because they fail to pick up emotional cues that activate the first thinking process. Also, the second model explains why people make a snap utilitarian judgment when they receive a manipulation of low empathy. As the results of Chapter 2 showed, when

people are successfully manipulated to feel low empathy for the victim, they are inclined to endorse the utilitarian option.

The first and second alternative models suggest that judgment processes in the moral dilemma task is more varied than originally hypothesized. To detangle the complexity, recent studies using the moral dilemma task uses new approaches or methodologies, such as process dissociation and conflict detection techniques by carefully distinguishing and analyzing dilemma scenarios with different situational variables and outcomes (Bialek & De Neys, 2016; Conway et al., 2018). At the same time, scholars have been exploring how people make judgments by inventing new dilemma scenarios (Moore et al., 2008; Pletti et al., 2017; Vyas et al., 2017), as in the last decade, several scholars showed concerns over the validity of moral dilemma task as a tool to study moral judgments. In the current research, utilitarian judgments were assumed to reflect the individual's endorsement of harm for producing greater benefits, but not his/her inclination to follow the utilitarian ethics in a strict sense. Although the studies reported in this dissertation used several classical dilemma scenarios, future studies should also use new dilemma scenarios to examine when and why people endorse harm in the interpersonal context. Below, some considerations for using a new set of dilemma scenarios are proposed.

**Dilemma scenarios.** First, the original set of dilemma scenarios depicts unrealistic situations in which participants are asked to save lives by killing one person (Baron, 2011; Kahane, 2015), and it reveals little about how people make decisions in daily lives (Kahane, 2015). To date, few studies have investigated how people make decisions in everyday moral situations that involve non-physical harm onto a victim (Moore et al., 2008; Pletti et al., 2017; Vyas et al., 2017). For example, an everyday dilemma situation may involve whether or not to fire an employee who decreases a team performance in order to benefit the co-workers in the

same team. In the job-related scenario, the utilitarian judgment involves social harm onto the victim (i.e., the participants will be explained that without the job, the target will not be able to pay for rent and living necessities). Studies on successful psychopaths, those who have thus far averted legal complications, have shown that psychopathic individuals in the general population are more likely to harm others indirectly (in order to avoid criminal charges of assault; Gao & Raine, 2010). To examine the effects of low affective empathy on endorsing different types of harm in the daily setting, future studies should use dilemma scenarios that depict social interactions that ordinary people encounter.

Another issue warranting explanation is that of gender differences in utilitarian preferences. Future studies should consider that the type of harm in dilemma scenarios may be biased because all the sacrificial dilemmas involve direct, physical harm that is usually employed by men but not very often by women. The original set of dilemmas involves life-or-death situations, and the utilitarian judgment is to endorse physical harm onto an identifiable victim (e.g, pushing a stranger off a bridge). The current studies and others have shown that men are more likely than women to endorse harm in sacrificial dilemmas that involve direct physical harm (Friesdorf, Conway, Gawronski, 2015; Fumagalli et al., 2010). Studies on human aggression have shown that men and women prefer different types of aggression. Compared to men, women prefer to use indirect, relational aggression (Crick & Grotpeter, 1995). Compared to women, men are increasingly more likely to use direct aggression (Card, Stucky, Sawalani, & Little, 2008). Given this, if the utilitarian bias involves non-physical harm, women might be as likely as or more likely than men to show utilitarian bias. Or it could be that men, compared to women, are generally oriented toward utilitarianism (Fumagalli et al., 2010). Because the current dilemma scenarios may not be gender neutral, future studies should use dilemma scenarios that

involve non-physical harm to address gender differences in aggressiveness to elucidate the effects of gender on utilitarian preference.

### **How Does Empathy Affect Utilitarian judgment? The Relationship Between Affective Empathy and Harm Aversion**

The current study contributes to the growing body of knowledge that empathy is part of the mechanism of harm aversion, and in sacrificial dilemmas, empathy for the victim (affective empathy) triggers the aversive reaction to the utilitarian action that involves direct harm onto the identifiable victim. Human beings have an aversion to harming others (Navarrete et al., 2012), and the utilitarian choice of action in a sacrificial dilemma is incongruous with this natural tendency. Two moral rules for interpersonal harm are in conflict: One rule is “Do not harm” and the other is “Save lives” (Broeders et al., 2011). The moral conflict is greater in sacrificial dilemmas than in low-conflict dilemmas. In low-conflict dilemmas, the harm is indirectly done onto the victim (e.g., the respondent pushes the button, and the diverted trolley runs over one pedestrian). However, in sacrificial dilemmas, the death of one identifiable victim is a direct consequence of the harmful action (e.g., the respondent pushes the stranger off the bridge, and he gets killed by a runaway trolley). When people are obliged (by occupation, such as an executioner for instance) to harm others, they attempt to use a variety of cognitive strategies to stop empathizing with a target person. One strategy is diffusion of responsibility, which is used to obscure the relationship between the action and its harmful effect (Osofsky et al., 2005). Diffusion of responsibility may be effective in low-conflict dilemmas, but not in sacrificial dilemmas. In low-conflict dilemmas, the individual may conclude that he/she is not responsible for the death of one pedestrian by attributing the cause to the trolley. In past investigations, most respondents permitted the utilitarian harm in low-conflict dilemmas (Greene et al., 2004). In

comparison, in sacrificial dilemmas, the individual may not be able to distort the relationship between his/her action and the death of one pedestrian because the harmful action involves a close physical contact with the victim. Consequently, the individual fails to inhibit empathy for the victim, which in turn elicits strong aversive reactions to the harmful action. Therefore, the large proportion of non-utilitarian judgments in sacrificial dilemmas may indicate that most people reject the utilitarian solution when they cannot go against the natural tendency to feel empathy for others.

The current research and others (Conway & Gawronski, 2013; Gleichgerrcht et al., 2015; Gleichgerrcht & Young, 2013; Patil & Silani, 2014; Sarlo et al., 2014) underpin the argument that affective empathy plays a pivotal role in perception of harm. The strong relationship between the lack of affective empathy and endorsement of harm without following the utilitarian ethics in sacrificial dilemmas indicate that feeling empathy for the victim may be an antecedent to perception of harm. When people feel empathy for the victim, people decide not based on numerical costs and benefits, but on the basis of empathic amplitude. Together, a line of studies focused on the affective process in moral judgment and built evidence that emotion plays a robust role in directing our moral judgment in sacrificial dilemmas by signaling harm aversion.

Affective empathy works in opposite directions for signaling an aversion to harm, depending on the recipient, behavioral motivation, and goal. In one direction, empathy signals interpersonal harm aversion to promote altruistic behaviors by increasing an approach motivation to help the empathized (Batson et al., 1987). The approach motivation increases when people feel empathy for the target in distress with a goal of eradicating his/her distress. Empathy may direct altruistic behaviors for others and strengthens the emotional tie (Decety & Cowell, 2014; de Waal, 2008). On the other hand, when people fail to feel empathy, sufferings of others are left



unnoticed or trivialized (Cikara et al., 2011; Oceja, 2008; Rhodes & Chalik, 2013). Considering the selective nature of empathy, affective empathy signals a need for helping others who are the focus of concern and through altruistic helping, cultivates intimacy.

In the other direction, affective empathy signals harm to avoid harmful acts directed at others who are perceived as deserving moral rights. The role of empathy is to increase an avoidance motivation with the goal of avoiding anything that causes or seems to cause a harmful outcome. The avoidance motivation may be also acquired by associative learning in the process of socialization (Dahl & Freda, 2017) as an intentional harm onto innocent others is prohibited in every society (Turiel, 2002). In sacrificial dilemmas, people avoid the utilitarian choice because it relates to a harmful action that elicits undesirable emotions. When the avoidance motivation is high, they would only pay attention to the negative consequence of taking an active role in sacrificial dilemmas. For people who support utilitarianism, a non-utilitarian judgment is irrational. However, a utilitarian choice is irrational in a sacrificial dilemma where making a utilitarian judgment is to endorse harm onto a family member (Thomas et al., 2011). Empathy has evolved to ensure the wellbeing of relatives and friends (Decety & Svetlova, 2012). Therefore, it signals people to warn that no harm shall be inflicted upon close others. To reiterate, the role of affective empathy in harm aversion is two-fold: to help the empathized and to avoid harm onto others unless dehumanized.

While arguing that morality in the interpersonal harm domain is universal, culture may modulate empathic reactions to harmful actions, which in turn influence an individual's perception of harm and judgments in the moral dilemma task. As seen by the current study and others (Rhodes & Chalik, 2013), empathy is susceptible to interpersonal cues, and the elasticity of empathy suggests that cultural experiences and values may affect when and whom people feel

empathy for others. In cultures with great preferences for social hierarchy, people showed greater in-group empathy bias, hence expressing more empathy to in-groups than to out-groups (Cheon et al., 2011). Likewise, perception of harm may also depend on culture. A given action may be harmless or having no moral significance in one culture, but harmful in the other (Miller & Bersoff, 1992). Recently, a large-scale investigation using the moral dilemma task has revealed that culture influences the decision to save/kill others with different social attributes (Awad et al., 2018). Taken together, harm aversion may be a basis of morality in the interpersonal harm domain, but the perception and justifications for harmful actions may be shaped through cultural experiences.

The current research also addressed the discriminative nature of empathy that is often overlooked in the literature (Bloom, 2016). Empathy is like an optical illusion, such that when people try to see angels in Escher's painting, devils disappear and vice versa. When people put an empathic focus on some people, others who fall out of the focus are deemed in the blind spot. The empathized receives care and attention while the not-empathized is non-existent. Thus, people cannot empathize with more than two parties at the same time. As empathy has evolved to bind friends and family together, people adjust or restrict their empathic focus unconsciously. Empathy might not work well for making a rational decision but ensures that one's decision promotes or preserves others who are empathetically attuned (Decety & Cowell, 2014). So, the original function of empathy is not to enhance identifications with all humanity. In intergroup situations, empathy may accentuate the tension between groups because people are motivated to increase the welfare of in-group members at any cost, sometimes by violating the moral rights of out-group members (Rhodes & Chalik, 2013). As such, empathy can be self-serving and crushes humanitarian hopes that intergroup conflicts will end someday. On the shadowy side, empathy

can make people biased. Nonetheless, on the bright side, as is often expressed figuratively, empathy is a social glue that sticks people together—what makes people tick.

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## **Appendix**

### **Chapter 2**

#### **(1) Footbridge dilemma (Other-beneficial dilemma)**

The runaway trolley car is hurtling down a track where it will kill five people. You are standing on a bridge above the track and, aware of the imminent disaster, you decide to jump on the track to block the trolley car. Although you will die, the five people will be saved.

Just before your leap, you realize that you are too light to stop the trolley. Next to you, a fat man is standing on the very edge of the bridge. He would certainly block the trolley, although he would undoubtedly die from the impact. A small nudge and he would fall right onto the track below. No one would ever know.

#### **(2) Raftboat (self-beneficial dilemma)**

You are on a small ship, a fire breaks out, and the ship has to be abandoned. Because your tiny life raft is carrying more than its capacity, it is sitting dangerously low in the water. The seas get rough and the raft begins to fill with water. Unless you do something, all six of you will drown. There is an injured person onboard who may die either way. If you throw him overboard, everyone else will be saved.



## Chapter 3

### (1) Footbridge dilemma

[ ] = low empathy versions

The runaway trolley car is hurtling down a track where it will kill five people. You are standing on a bridge above the track and, aware of the imminent disaster, you decide to jump on the track to block the trolley car. Although you will die, the five people will be saved

Just before your leap, you realize that you are too light to stop the trolley. Next to you, a fat man is standing on the very edge of the bridge. He would certainly block the trolley, although he would undoubtedly die from the impact. A small nudge and he would fall right onto the track below. No one would ever know.

[You recognize this fat man from a news report that announced he had just been released from prison. Although he was convicted of sexually abusing and killing a toddler, the Court of Appeal judges overturned his manslaughter conviction and decided to release him, on account that, “The witness’s---the seven-year-old’s testimony is not reliable.” Despite this ruling, most people still believe this man is guilty.]

### (2) Raftboat dilemma

You are on a small ship, a fire breaks out, and the ship has to be abandoned. Because your tiny life raft is carrying more than its capacity, it is sitting dangerously low in the water. The seas get rough and the raft begins to fill with water. Unless you do something, all six of you will drown. There is an injured person onboard who may die either way. If you throw him overboard, everyone else will be saved.

[The ship’s doctor has given this injured person a tranquilizer that has put him into a sleep state. Given this condition, if he were thrown overboard, you can assume that he would not feel a thing. In any case, it is likely that he would die from his injury.]

### Empathy for a specific individual (*Footbridge: the large stranger, the five people*)

Please indicate the extent to which you empathize with those people in the situation.

	Not at all 1	2	3	4	To a great extent 5
a) The large stranger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The five people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Supplement 1. Example responses for high empathy versions of the footbridge and raftboat

In the perspective-taking task, after trying to imagine how the victim feels and think in the situation, participants were asked to jot down feelings and thoughts in few sentences.

Age (Gender)	Responses to footbridge and raftboat
28 (F)	<p>[The fat man] would die so he would obviously be scared, nervous, etc. I think he would hold anger towards me. He may be willing to save others though, so he may be feeling like a hero, because he would be if he saved others.</p> <p>[The injured person] would be scared. I think if he knew he would die either way, he would be willing to die to save others. He would be a hero.</p>
44 (F)	<p>In this case, the "fat man" is an innocent bystander. His life should not be sacrificed to save the lives of others. He is not less important than anyone else. If I had pushed him, he would feel scared and confused as to why he was risking his life to save other people. He would also feel that he was not free to make his own decision.</p> <p>[The injured person] would feel angry that I made the decision to risk his life to save others. He would feel that he didn't have free will. He would also be scared and confused and feel like he was thought of as less important than others.</p>
55 (M)	<p>The fat man is probably happy and just living life. If I push him, I am essentially killing a human. The fat man probably has a family and he is probably thinking about them.</p> <p>The injured person is probably suffering. The injured person is probably worried about his life. This would make me feel conflicted.</p>
35 (F)	<p>The "fat man" feels angry that he's being used as a sacrifice. He feels like his life is of no value and that the 5 people's lives mean more. He feels betrayed.</p> <p>The injured person feels he/she should be given a chance to be saved. He/she feels that his/her life is worth the same as everyone else's. He/she is angry that he/she may be killed to save others.</p>

- 21 (M) If I pushed the fat man, it would be the worst day of his life. He would feel himself being crushed under the trolley, and it would be terrifying. I cannot imagine the feeling of life slipping away, it must feel so hopeless.
- He would feel panicked at first, but then he gets sedated. He would not feel himself drowning most likely, being knocked out. When he passed, he would experience eternal peace.
- 32 (F) He is probably thinking he wishes there was something he could do to help the situation. He would have no idea of my thoughts to push him off the bridge so he would not be relieved when I decided not to do it. He may be thinking about sacrificing himself though.
- They want to survive as much as anyone else. They may be thinking it would be best to die and to help save the others, but I could understand any hesitation. It would be a hard decision to sacrifice oneself.
- 30 (M) As the fat man, I need to assess the situation. He has the probability of throwing me into the track to stop the trolley. Evaluating that situation, if he acts on it, I would probably toss him so he would take a bulk of the damage or take my place and just walk out unscathed.
- As the injured person I feel like my life is equivalent in value to everyone else. I am not an inferior person. We are all equal. For them to throw me, means they are murderers.
- 28 (F) The fat man probably feels disappointed that he's fat. My decision to push him would make him sad and maybe guilty if he didn't do it. Even though he's fat he's still a person.
- The injured person will most likely feel afraid and sad. The injured person may also feel that they won't die. The injured person most likely doesn't want to sacrifice themselves but maybe feels guilty like he should.

*Note.* (M) = (male), (F) = (female).

## Chapter 4

### Dilemma scenarios

#### 歩道橋のジレンマ

1) 暴走したトロッコが線路上を進み、このままだと線路上にいる5名の作業員に衝突します。あなたは歩道橋の上にて、目の前には見知らぬ大柄な人が立っています。この5名を助けるには、歩道橋にいる見知らぬ人を突き落とし、トロッコを食い止める必要がありますが、そうするとこの人は轢かれてしまいます。

ここで、5名の作業員を助けるために、この見知らぬ人を歩道橋から突き落としますことは適切でしょうか。

全く適切ではない				適切である
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#### 泣く赤ん坊のジレンマ

2) 敵はあなたの村を完全に包囲しました。残っている村人を皆殺しにするつもりです。あなたは、数人の村人たちと、大きな家の地下室に逃げ込みました。外から、敵が貴重品を探しにこの家に入って来るのが聞こえます。

そのとき、あなたの赤ん坊が大声で泣き始めました。あなたは赤ん坊の口を手でふさぎ、泣き声を聞こえなくします。もしあなたが、赤ん坊の口から手を離せば、赤ん坊の泣き声が敵に聞こえてしまい、あなたを含め、そこにいる全員が見つかり殺されてしまうでしょう。あなた自身と村人たちを救うためには、赤ん坊をそのままそこに残し、秘密の裏口を使って隠れ家から去らなければいけません。赤ん坊は敵に見つかってしまうでしょうが、あなたと多くの村人は助かります。

ここで、あなた自身と村人たちを救うために、赤ん坊を置き去りにすることは適切でしょうか。

全く適切ではない				適切である
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#### ソフィーのジレンマ

3) 戦時下、あなたは8歳と5歳の子供たちと共に、敵の占領下で暮らしています。敵の本部では、最後には死に至る、痛々しい人体実験する医師がいます。その医師は、あなたの子供に人体実験をしようと

していますが、どちらの子供に実験体になるのか、あなたに選択肢を託します。あなたは、24 時間以内に、どちらかの子供を彼の実験室に連れて行かなくてははいけません。もし拒否すれば、二人とも、実験に使うと言っています。

ここで、子供を二人とも死なせないために、どちらか 1 人を人体実験のために選ぶことは、適切でしょうか。

全く適切ではない				適 切 で あ る
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### 救命ボートのジレンマ

4) あなたが大型客船で旅行中、船が火事に見舞われ、船から避難することになりました。救命ボートは定員オーバーで、今にも転覆しそうです。さらに、波が高くなってボートが浸水し始め、このままではレスキュー隊が到着する前に、救命ボートに乗っている人が全員溺れ死んでしまいます。

ところが、ボートには負傷して瀕死の状態の人がいます。あなたがこの人を海へ放り出せば、他の人は皆助かります。

ここで、他の乗客たちを助けるために、この怪我を負っている人を海へ放り出すことは適切でしょうか。

全く適切ではない				適 切 で あ る
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## LSRP (Japanese version)

以下の項目について、あなたに最もあてはまるものに○をつけてください。

項目	非常にあ てはまら ない	ややあて はまらな い	やや あてはま る	非常に あてはま る
1. 他人から搾取されるような間抜けな人は、たいていそうされてちょうどよい。	1	2	3	4
2. 成功は、適者生存の原理に基づいている。負けた人間のことなど気にならない。	1	2	3	4
3. 他の人達には高尚な価値とやらについて悩ませておけば良い。私の主要な関心は、損か得かである。	1	2	3	4
4. 私の人生の主要な目的は、欲しいものをできる限り得ることだ。	1	2	3	4
5. 人は、愛というものを過大評価していると思う。	1	2	3	4
6. 他の人の気持ちを操ることは楽しい。	1	2	3	4
7. 今の世の中、とがめを受けずにすめば、成功するためにどんなことをやっても正当化できる。	1	2	3	4
8. 私の最も重要な目標は、たくさんお金をもうけることだ。	1	2	3	4
9. どんなことをやっても、とがめを受けずにすめば、私にとっては正しいことだ。	1	2	3	4
10. 本当に鮮やかな詐欺には、しばしば感心してしまう。	1	2	3	4
11. もし自分の成功が他の誰かの犠牲に成り立っているものだったら、私は困り果ててしまうだろう。*ない	1	2	3	4
12. たとえ一生懸命に何かを売ろうとするときでも、ウソをつかない。*	1	2	3	4
13. 自分の目的を追求するときに、他の人を傷つけないとうに努めている。*	1	2	3	4
14. 他の人に対して不公平なので、不正行為で利益を得ることは正当化できない。*	1	2	3	4
15. 自分のためということは、私の最優先事項である。	1	2	3	4
16. 自分が始めた作業でもすぐに関心を失ってしまう。2 次	1	2	3	4
17. 気が付くと、再三再四、同じようなトラブルになってしまう。	1	2	3	4
18. 非常に前から計画をしておくということはない。	1	2	3	4
19. しばしば退屈する。	1	2	3	4
20. 長い間ひとつの目標を追求できる。*	1	2	3	4
21. 私の問題の大部分は、単に他の人々が私を理解していないことによる。	1	2	3	4



## TAS-20 (Japanese version)

それぞれの質問が「自分にどれだけあてはまるか」を考え、1～5の数字のいずれか1つに○をつけてください。

まったくそう

思わない

とてもそう思う

1. 私は、しばしば自分がどんな気持ちなのか困惑する。	1	2	3	4	5
2. 私には、医者にも分からない身体的感覚がある。	1	2	3	4	5
3. 気持ちが動揺している時、自分が悲しいのか、怖いのか、怒っているのか分からない。	1	2	3	4	5
4. 私は、しばしば自分の身体的感覚に困惑することがある。	1	2	3	4	5
5. 自分ではうまく特定できない気持ちになることがある。	1	2	3	4	5
6. 自分の中で何が起きているのか、分からない。	1	2	3	4	5
7. よく、自分がなぜ怒っているのか分からない。	1	2	3	4	5
8. 自分の気持ちを言葉でそのまま表すのは難しい。	1	2	3	4	5
9. 他者についてどう思っているのか、説明するのは難しいと思う。	1	2	3	4	5
10. わたしは、自分の気持ちを容易に説明できる。	1	2	3	4	5
11. もっと自分の気持ちを伝えて欲しいと、周りから言われることがある。	1	2	3	4	5
12. たとえ親友であっても、自分の心の内を打ち明けるのは難しい。	1	2	3	4	5
13. 問題をただ説明するのではなく、分析する方が好きだ。	1	2	3	4	5
14. なぜ物事がこのように起きたのか理解しようとするのではなく、ただ起きてしまったと思う方が良い。	1	2	3	4	5
15. 自分の感情を常に理解することは、非常に重要である。	1	2	3	4	5
16. 心理ドラマよりも、気楽な娯楽番組を観る方が好きだ。	1	2	3	4	5
17. 他者とは彼らの気持ちよりも、日々の出来事を話す方が好きだ。	1	2	3	4	5
18. 黙っていても、他者とは親密さを感じられる。	1	2	3	4	5
19. 個人的な問題を解決するために、自分の気持ちを考察することは効果的だと思う。	1	2	3	4	5
20. 映画や劇のストーリーに隠された意味など深読みすると、楽しんで観れなくなってしまう。	1	2	3	4	5

### Empathic concern items of the IRI (Japanese version)

以下の項目について、あなたに最もあてはまるものに○をつけてください。

	全くそう思わない					とてもそう思う
1. 自分より不幸な人たちには、やさしく したいと思う。	1	2	3	4	5	

	全くそう思わない					とてもそう思う
2. 困っている人たちがいても、あまりか わいそうだという気持ちにはならない。	1	2	3	4	5	

	全くそう思わない					とてもそう思う
3. 運動などの試合では、負けている方に 応援したくなる。	1	2	3	4	5	

	全くそう思わない					とてもそう思う
4. 周りの人たちが不幸でも、自分は平気 でいられる。	1	2	3	4	5	

	全くそう思わない					とてもそう思う
5. ときどき、自分の目の前で突然起こっ たことに、感動することがある。	1	2	3	4	5	

	全くそう思わない					とてもそう思う
6. 不公平な扱いをされている人たちを見 ても、あまりかわいそうとは思わない。	1	2	3	4	5	

	全くそう思わない					とてもそう思う
7. もし自分を紹介するとしたら、やさし い人というと思う。	1	2	3	4	5	

*Note.* The item #7 was excluded for main analyses.

## Chapter 5

### Dilemma scenarios

#### Crying Baby

Enemy soldiers have taken over your village. They have orders to kill all remaining civilians. You and some of your townspeople have sought refuge in the cellar of a large house. Outside you hear the voices of soldiers who have come to search the house for valuables. Your baby begins to cry loudly. You cover his mouth to block the sound. If you remove your hand from his mouth his crying will summon the attention of the soldiers who will kill you, your child, and the others hiding out in the cellar. To save yourself and the others you must smother your child to death. Is it appropriate for you to smother your child in order to save yourself and the other townspeople?

#### Modified Lifeboat

You are on a cruise ship when there is a fire on board, and the ship has to be abandoned. The lifeboats are carrying many more people than they were designed to carry. The lifeboat you're in is sitting dangerously low in the water— a few inches lower and it will sink. The seas start to get rough, and the boat begins to fill with water. If nothing is done it will sink before the rescue boats arrive and everyone on board will die. However, there is an injured person who will not survive in any case. If you throw that person overboard the boat will stay afloat and the remaining passengers will be saved. Is it appropriate for you to throw this person overboard in order to save the lives of the remaining passengers?

#### Sophie's Choice

It is wartime and you and your two children, ages eight and five, are living in a territory that has been occupied by the enemy. At the enemy's headquarters is a doctor who performs painful experiments on humans that inevitably lead to death. He intends to perform experiments on one of your children, but he will allow you to choose which of your children will be experimented upon. You have twenty- four hours to bring one of your children to his laboratory. If you refuse to bring one of your children to his laboratory, he will find them both and experiment on both of them. Is it appropriate for you to bring one of your children to the laboratory in order to avoid having them both die?

**Footbridge**

A runaway trolley is heading down the tracks toward five workmen who will be killed if the trolley proceeds on its present course. You are on a footbridge over the tracks, in between the approaching trolley and the five workmen. Next to you on this footbridge is a stranger who happens to be very large. The only way to save the lives of the five workmen is to push this stranger off the bridge and onto the tracks below where his large body will stop the trolley. The stranger will die if you do this, but the five workmen will be saved. Is it appropriate for you to push the stranger on to the tracks in order to save the five workmen?

**Modified Safari**

You, your husband, and your four children are crossing a mountain range on your return journey to your homeland. You have inadvertently set up camp on a local clan's sacred burial ground. The leader of the clan says that according to the local laws, you and your family must be put to death. However, he will let yourself, your husband, and your three other children live if you yourself will kill your oldest son.

**Vaccine**

A viral epidemic has spread across the globe killing millions of people. You have developed two substances in your home laboratory. You know that one of them is a vaccine, but you don't know which one. You also know that the other one is deadly. Once you figure out which substance is the vaccine you can use it to save millions of lives. You have with you two people who are under your care, and the only way to identify the vaccine is to inject each of these people with one of the two substances. One person will live, the other will die, and you will be able to start saving lives with your vaccine.

**LSRP-1**

Please indicate how much you agree with each statement.

Items	Your response			
	Strongly disagree	Disagree	Agree	Strongly agree
1. Success is based on survival of the fittest; I am not concerned about the losers.	1	2	3	4
2. For me, what's right is whatever I can get away with.	1	2	3	4
3. In today's world, I feel justified in doing anything I can get away with to succeed.	1	2	3	4
4. My main purpose in life is getting as many goodies as I can.	1	2	3	4
5. Making a lot of money is my most important goal.	1	2	3	4
6. I let others worry about higher values; my main concern is with the bottom line.	1	2	3	4
7. People who are stupid enough to get ripped off usually deserve it.	1	2	3	4
8. Looking out for myself is my top priority.	1	2	3	4
9. I tell other people what they want to hear so that they will do what I want them to do.	1	2	3	4
10. I would be upset if my success came at someone else's expense. *	1	2	3	4
11. I often admire a really clever scam.	1	2	3	4
12. I make a point of trying not to hurt others in pursuit of my goals. *	1	2	3	4
13. I enjoy manipulating other people's feelings.	1	2	3	4
14. I feel bad if my words or actions cause someone else to feel emotional pain. *	1	2	3	4
15. Even if I were trying very hard to sell something, I wouldn't lie about it. *	1	2	3	4
16. Cheating is not justified because it is unfair to others. *	1	2	3	4

*Note.* \*indicates reversed items.