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Coping mediates the association between empathy and psychological distress among Japanese workers

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ABSTRACT

Previous studies have demonstrated an association between low empathy and high psychological distress. However, few studies have explored the mediators of this association. The present study examined how coping mediates the effect of empathy on psychological distress. Participants were 1232 Japanese workers who completed a comprehensive coping scale comprising eight subscales. We conducted a cross-sectional mediation analysis. The findings showed that low empathy was associated with high psychological distress and that this association was mediated by the cognitive reappraisal of approach coping and by the abandonment and responsibility-shifting of avoidance coping. These results offer a useful model of how empathic capacity impacts perceived psychological distress by demonstrating the protective and enhancing role of specific coping.

1. Introduction

According to the Japanese Ministry of Health, Labour and Welfare (2012), over 60% of workers report severe stress in the workplace and the most frequently reported cause is interpersonal relations. Workplace interpersonal relations tend to be mandatory and less influenced by personal preference compared with other interpersonal relations. Thus, investigation of the association between stress and factors underlying successful interpersonal relations is important to maintain the mental health of workers.

One factor that supports successful interpersonal relations is empathy. Empathy is an individual's ability to understand and respond adaptively to others' emotions, succeed in emotional communication, and promote prosocial behavior (Spreng, McKinnon, Mar, & Levine, 2009). Previous studies have demonstrated that lower empathy is related to maladaptive outcomes. For example, according to one systematic review of subclinical populations and patients with major depressive disorders, low empathy individuals tend to show more depressive symptoms (Schreiter, Pijnenborg, & Aan Het Rot, 2013). Similarly, lower empathy was identified as a risk factor for "burnout" in medical students and medical doctors (Duarte, Branco, Raposo, & Rodrigues, 2015; Torres, Aresté, Mora, & Soler-González, 2015). Bourgault et al. (2015) also found an association between lower empathy and lower well-being in nurses. These results indicate that individuals with lower empathy are likely to develop greater psychological distress. However, less is known about the psychological mechanisms underlying this association.

One factor that may mediate between empathic traits and perceived psychological stress is coping. Coping has been defined as cognitive and behavioral efforts to manage external and/or internal demands that are appraised as taxing or exceeding the resources of the person (Lazarus & Folkman, 1984, p. 141).

Several studies have investigated the relationship between coping and psychological distress. A study of a Canadian community sample demonstrated that people who used positive coping, such as problem solving or exercising, reported less distress, whereas those who used avoidance and self-distractive behaviors reported more distress (Meng & D'Arcy, 2016). A study of caregivers of patients with schizophrenia indicated that caregivers who used positive reframing experienced less psychological distress, whereas caregivers who used behavioral disengagement, venting, and self-blame experienced more psychological distress (Ong, Ibrahim, & Wahab, 2016).

Previous research indicates an association between empathy and coping. Factors that affect coping are called coping resources. Previous studies have identified several coping resources, such as self-esteem, optimism, self-efficacy, and social support (Betoret, 2006; Fliege et al., 2016; Nes & Segerstrom, 2006). There is evidence that empathy is a coping resource. A study of a Spanish adolescent sample found that empathy was positively associated with active coping, such as support seeking and problem solving (Carlo et al., 2012). A longitudinal experimental study indicated that high empathy predicted low aggressive/antisocial coping (Buchwald, 2003). These results suggest that

individuals with higher empathy may be able to select appropriate coping strategies.

Taken together, previous research illustrates associations between empathy and psychological distress, coping and psychological distress, and empathy and coping. Thus, it is reasonable to assume that coping can mediate the association between empathy and psychological distress.

To investigate these possible associations and mediation, it is important to consider the multiplicity of the coping concept. The most popular classification of coping is based on the dichotomy of approach and avoidance coping (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Approach coping refers to efforts directed toward reducing or eliminating stressors, such as information seeking, planning, social support seeking, and proactive coping. Avoidance coping refers to efforts to move away from stressors, such as abandonment, denial, distraction, and cognitive avoidance. This distinction between approach and avoidance coping is particularly important because it overlaps with a goal-based model of behavior that attempts to explain basic human behavior in terms of the motivation to move toward goals or remain/move away. There is evidence for an association between this distinction and personality traits (Carver & Connor-Smith, 2010).

Previous studies have shown that approach coping is generally adaptive, whereas avoidance coping is maladaptive. For example, a greater use of approach coping is associated with lower depression and anxiety (Roesch et al., 2005) and higher psychological well-being (Dukes Holland & Holahan, 2003), whereas greater use of avoidance coping is associated with higher depression (Dyson & Renk, 2006; Gutiérrez-Zotes et al., 2015) and cortisol dysregulation (Hoyt et al., 2013). However, a review article by Taylor and Stanton (2007) indicated that the evidence for the effects of approach coping are less consistent than evidence for the effects of avoidance coping. These mixed results may be because a one-dimensional classification such as approach/avoidance is too simple and broad to detect complicated underlying mechanisms.

Another well-established coping classification differentiates between problem-focused and emotion-focused coping (Lazarus & Folkman, 1984). Problem-focused coping is defined as handling problems and changing the situation. This coping strategy involves developing a better understanding of the problem and finding solutions or obtaining advice from the right person. In contrast, emotion-focused coping is defined as the regulation of emotional reactions derived from stressful situations. This type of coping involves self-distraction by doing something else or trying to find a positive angle to the problem.

Tobin, Holroyd, Reynolds, and Wigal (1989) integrated these two-dimensional approaches. They demonstrated that coping factors could be organized into two general categories (i.e., approach and avoidance) at a tertiary factor level, and that four subfactors could be extracted in a hierarchical model, with two orthogonal and subgeneral strategies for each tertiary factor (i.e., [1] approach and problem-focused, [2] approach and emotion-focused, [3] avoidance and problem-focused, and [4] avoidance and emotion-focused strategies). Similarly, Holahan and Moos (1987) introduced another dimension of coping, the cognitive and behavioral dimension, and classified coping into three categories: active-cognitive, active-behavioral, and avoidance-oriented strategies. Kamimura, Ebihara, and Sato (1995) integrated these three classification approaches and developed a tri-axial coping scale that has eight facets based on the following three axes: approach–avoidance, problem-focused–emotion-focused, and cognitive–behavioral dimensions. This scale permits the examination of the effect of approach/avoidance coping as well as specific coping strategy, which is identified by the combination of three dimensions.

Considering the multidimensional nature of coping indicated in previous research, we comprehensively investigated the mediational effects of multiple coping strategies and examined the difference between mediational effects. We hypothesized that individuals with higher empathy may have more successful interpersonal relationships

and may receive support from others to cope with difficult situations. Thus, they may be more likely to use approach coping. In contrast, individuals with lower empathy may have poorer interpersonal relationships and may receive less support from others. Thus, they may be more likely to use avoidance coping.

2. Methods

2.1. Participants and procedure

Participants were 1760 workers from five organizations (four private companies and one local government department) in Kinki district, Japan. There were 1352 surveys submitted (collection ratio: 76.8%). Informed consent was obtained from participants, who were informed that study participation was voluntary and that there was no disadvantage for non-participation. Data were collected on age, gender, working position (supervisory/non-supervisory) and measurement scales were used to assess empathy, coping, and psychological distress. The survey took approximately 15 min to complete. In four organizations, we distributed surveys to the office workers via the person in charge of personnel. Each office worker personally sealed their completed survey in an envelope and submitted it to the personnel department. In one organization, we distributed a Microsoft Excel file containing the survey via a member of the personnel staff. Each office worker emailed back the completed file directly to the authors.

2.2. Instruments

2.2.1. Empathy (Empathy Quotient-short)

To assess empathy, we used the short version of the Empathy Quotient (EQ: Wakabayashi et al., 2006). The EQ was developed to measure global empathy (Baron-Cohen & Wheelwright, 2004). The short version of the EQ comprises 22 items rated on a four-point Likert scale ranging from "strongly agree" to "strongly disagree."

2.2.2. Coping (Tri-Axial Coping scale-24)

To assess coping, we used the Tri-Axial Coping scale (TAC-24: Kamimura et al., 1995). The TAC-24 consists of three coping dimensions: approach/avoidance, problem-focused/emotion-focused, and cognitive/behavioral. The scale comprises eight subscales that are combinations of the three dimensions: 1. Planning (approach-problem-cognitive; e.g., think what to do next based on lessons learned from previous behavior); 2. Information seeking (approach-problem-behavioral; e.g., obtain information from someone who is knowledgeable about the situation); 3. Cognitive reappraisal (approach-emotion-cognitive; e.g., try to find a positive aspect to the situation rather than focusing only on the negative aspect); 4. Catharsis (approach-emotion-behavioral; e.g., distract myself by complaining); 5. Abandonment (avoidance-problem-cognitive; e.g., think there is nothing I can do and postpone it); 6. Responsibility shifting (avoidance-problem-behavioral; e.g., put the responsibility onto other people); 7. Cognitive distancing (avoidance-emotion-cognitive; e.g., try not to think about it); 8. Distraction (avoidance-emotion-behavioral; e.g., enjoy sports or traveling). Each subscale was extracted as an independent factor and demonstrated sufficient internal consistency (α = 0.86 to 0.65) (Kamimura et al., 1995). Previous studies (Suzuki, 2004) have shown good model fitness for the scale (GFI = 0.90, AGFI = 0.86, RMSEA = 0.07) and its reliability and validity have been verified. The scale consists of 24 items rated on a five-point Likert scale ranging from "never" to "always."

2.2.3. Psychological distress (Brief Survey of Occupational Stress)

To assess psychological distress, we used the Brief Survey of Occupational Stress (Shimomitsu & Haratani, 1997). This scale was developed in a study commissioned by the Japanese Department of Labour (currently the Ministry of Health, Labour and Welfare) and its reliability and validity have been verified. This comprehensive measure

comprises four subscales measuring occupational stressors, psychological distress, physical distress, and social support. In this study, we used the psychological distress subscale, which consists of 18 items measuring symptoms including anxiety, anger, depression, sense of fatigue, and vigorousness. Responses are rated on a four-point Likert scale ranging from "always" to "never."

2.3. Statistical analyses

We excluded responses with three or more missing items, which resulted in the inclusion of 1232 surveys (inclusion rate: 91.1%). We first estimated correlation coefficients among empathy, psychological distress, and each of the eight coping subscales. Subsequently, we conducted multiple mediation analyses after confirming Baron and Kenny's (1986) preconditions; statistically significant correlations between the dependent variable and both the independent and possible mediator variables are a necessary precondition for testing mediational links. For multiple mediation analyses, we used bootstrapping with 2000 bootstrap resamples to examine indirect effects in the multiple mediator models (Hayes, 2013). Bootstrapping is a valid and powerful method to test specific indirect effects; it offers high statistical power while allowing reasonable control over the type I error rate (Williams & MacKinnon, 2008). We standardized all the measures and used the SPSS macro for bootstrapping with multiple mediators developed by Preacher and Hayes (2008). Results were expressed as 99% confidence intervals (if these did not include zero values, we considered the effect significant). We used IBM Statistical Package for Social Sciences (SPSS) version 23 for all analyses.

3. Results

3.1. Correlational analyses

Table 1 shows the range, mean, standard deviation, and Cronbach's alpha. All subscales showed sufficient internal consistency. Table 1 also shows the partial correlations after controlling for age, gender, and working position. Empathy and psychological distress were negatively correlated. All coping subscales except cognitive distancing showed statistically significant correlations with empathy. Additionally, two approach coping subscales (planning and cognitive reappraisal) and two avoidance coping subscales (abandonment and responsibility shifting) were significantly correlated with psychological distress. This indicated that our data fulfilled the preconditions to test mediational links between the three psychological constructs.

3.2. Mediation analyses

After establishing variable correlations, we examined how the

Table 2
The direct and indirect effects of empathy on psychological distress.

	Point estimate	Effect of empathy on M	Effect of M on Psy-D	Percentile 99% CI	
				Lower	Upper
Direct effect					
Empathy	− 0.01			− 0.07	0.08
Indirect effects					
Approach coping					
Planning	0.01	0.33	0.04	− 0.01	0.04
Cognitive reappraisal	− 0.06	0.20	− 0.31	− 0.09	− 0.03
Avoidance coping					
Abandonment	− 0.07	− 0.29	0.22	− 0.10	− 0.04
Responsibility shifting	− 0.03	− 0.27	0.11	− 0.06	− 0.01
Total	− 0.14			− 0.19	− 0.10

Note: M = mediating variables, Psy-D = psychological distress, CI = confidence interval.

associations between empathy and psychological distress were mediated by the coping variables (planning, cognitive reappraisal, abandonment, and responsibility shifting), after controlling for age, gender, and work position. We tested the initial model without mediator variables to reconfirm the basic association between empathy and psychological distress. This basic model revealed a negative direct effect of empathy on psychological distress ($\beta = -0.14$, $p < 0.01$). Table 2 shows the coefficient values for the direct and indirect effects and the 99% confidence intervals for the indirect effects. The overall model was significant, $F_{(4, 1203)} = 7.12$, $p < 0.01$, $R^2 = 0.19$. For approach coping, the indirect effect for cognitive reappraisal was significant ($Z = -5.82$, $p < 0.01$), but that for planning was not significant ($Z = 1.25$, $p = 0.21$). For avoidance coping, both indirect effects were significant: abandonment ($Z = -5.63$, $p < 0.01$) and responsibility shifting ($Z = -3.14$, $p < 0.01$). The direct effect was not significant, indicating that approach and avoidance coping fully mediated the associations between empathy and psychological distress (for a summary of the mediation analysis, see Fig. 1).

4. Discussion

In this study, we examined how multiple coping strategies mediate the effect of empathy on psychological distress among workers. Correlation analyses showed that empathy was negatively correlated with psychological distress, which is consistent with previous study findings (Schreiter et al., 2013). However, the mediation analyses showed that one approach coping strategy (cognitive reappraisal) and two avoidance coping strategy (abandonment and responsibility shifting) fully mediated the association between empathy and

Table 1
Descriptive statistics and partial correlations between empathy, psychological distress, and coping (controlling for age, gender, and working position).

Variables	1	2	3	4	5	6	7	8	9	10	Range		Mean	SD	α
1. Empathy	–										0	44	18.02	7.55	0.88
2. Psychological distress	− 0.13*	–									18	72	38.80	10.72	0.93
Approach coping															
3. Planning	0.32*	− 0.14*	–								2	15	10.29	2.51	0.77
4. Information seeking	0.21*	0.01	0.52*	–							3	15	9.83	2.61	0.74
5. Cognitive reappraisal	0.20*	− 0.33*	0.36*	0.30*	–						3	15	10.75	2.52	0.78
6. Catharsis	0.08*	0.06	0.20*	0.40*	0.16*	–					2	15	9.84	2.97	0.88
Avoidance coping															
7. Abandonment	− 0.29*	0.31*	− 0.24*	0.00	− 0.10*	0.09*	–				3	15	7.03	2.39	0.72
8. Responsibility shifting	− 0.29*	0.26*	− 0.16*	0.05	− 0.10*	0.14*	0.59*	–			3	15	5.56	2.09	0.71
9. Cognitive distancing	− 0.04	− 0.05	0.06	0.11*	0.38*	0.19*	0.20*	0.11*	–		3	15	8.81	2.43	0.65
10. Distraction	0.13*	− 0.06	0.24*	0.33*	0.35*	0.35*	0.09*	0.09*	0.35*	–	3	15	9.83	2.81	0.62

Note: SD = standard deviation, α = Cronbach's alpha.
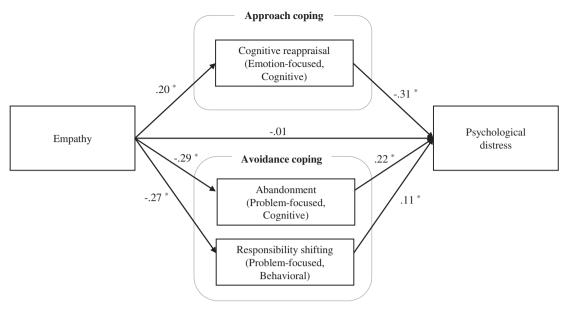* $p < 0.01$.

Fig. 1. Model of how approach/avoidance coping mediates the relationship between empathy and psychological distress.*$p < 0.01$.

psychological distress.

Regarding approach coping, the results revealed that workers with low empathy are likely to depend on their first appraisal of stressful situations and consequently experience high psychological distress. These individuals may find it difficult to put themselves in another person's place and view stressful situations from different perspectives. Cognitive reappraisal is a form of cognitive change that involves construal of a potentially emotion-eliciting situation (Lazarus & Alfert, 1964). Several studies indicate that this is an adaptive strategy to reduce negative emotional responses (e.g., Fitzgerald et al., 2017). Gross and John (2003) have demonstrated that people who habitually use cognitive reappraisal are likely to have fewer depressive symptoms; they argue that cognitive reappraisal intervenes early in the emotion-generative process and can thus successfully modify a person's feelings. Taken together, our results suggest that developing the skill to see things from multiple perspectives may help workers with low empathy to maintain their well-being.

Regarding avoidance coping strategies, our results revealed that abandonment and responsibility shifting were associated with high psychological distress in workers with low empathy. One function of empathy is that it enables us to accurately understand another's intentions and motivations (Keltner & Kring, 1998) and enhances the predictability of others' behavior. Thus, workers with low empathy may find it difficult to predict and control the behavior of a superior or coworker, which leads to their choice of abandonment or responsibility shifting. Another function of empathy is to motivate altruistic behavior (Batson, 2011) and to help individuals form and maintain social bonds (Anderson & Keltner, 2002). We assumed that workers with low empathy have poor social bonds and receive less support from others when they try to solve problems; consequently, they may tend to avoid problems. When people try to manage stressful situations proactively, the involvement of others is critical. Thus, the tendency to use abandonment or responsibility shifting can be a secondary consequence of minimal social support. Our results suggest that it would be useful to inform workers that habitual use of abandonment and responsibility shifting is not helpful and to encourage them to discuss their problems with others.

We found that emotion-focused cognitive approach coping (cognitive reappraisal) and problem-focused cognitive/behavioral avoidance coping (abandonment, responsibility shifting) were significant mediators. In contrast, problem-focused cognitive/behavioral approach coping (planning, information seeking), emotion-focused behavioral approach coping (catharsis), and emotion-focused cognitive/behavioral avoidance coping (cognitive distancing, distraction) did not mediate between empathy and psychological distress. These results suggest the following. First, mitigating the tendency to avoid problems is more important than enhancing problem-solving skills for workers with low empathy. The effectiveness of problem-focused coping is highly dependent on whether the stressor is controllable or not (Forsythe & Compas, 1987). Attempting to handle a problem may be beneficial when the problem is controllable. However, many things in the workplace cannot be controlled, such as human relations, nature of the work, and company regulations. Thus, problem-solving efforts may not necessarily reduce worker distress. Second, cognitive and behavioral strategies to avoid emotion are not necessarily helpful, but a cognitive approach toward emotion may be critical in improving worker mental health. In another words, proactive attempts to regulate emotion should be based on cognition rather than on behavior. A well-known method for successfully regulating cognition and emotion is mindfulness meditation. Mindfulness is the awareness that emerges through deliberately paying attention, being in the present moment, and responding nonjudgmentally to the unfolding of experience moment by moment (Kabat-Zinn, 2003). Several studies suggest that the capacity for reappraisal may be enhanced by cultivating a disposition and state of mindfulness through the practice of mindfulness meditation (Garland, Hanley, Farb, & Froeliger, 2015). Mindfulness meditation fosters the viewing of thought as ephemeral mental events, rather than as direct representations of reality, and facilitates cognitive flexibility (Chambers, Lo, & Allen, 2008). Thus, mindfulness meditation training programs may be highly effective for workers with low empathy.

Although not the main aim of the study, our results also showed that empathy is a critical coping resource. We found that empathy was positively correlated with planning, information seeking, cognitive reappraisal, catharsis, and distraction and negatively correlated with abandonment and responsibility shifting. These results suggest that people with low empathy have maladaptive coping styles and relatively little coping variability. Some study findings suggest that empathy affects coping (Buchwald, 2003; Carlo et al., 2012) and our results support this. In a review of articles on coping and personality traits, Carver & Connor-Smith (2010) argued that agreeableness involves high levels of concern for others and people with high agreeableness tend to have strong social networks, enabling them to choose socially supported coping styles. Carver & Connor-Smith (2010) also suggested that conscientiousness should facilitate problem solving and reduce the

likelihood of avoidance. Empathy can be seen as an ability that underlies fundamental personality traits such as agreeableness and conscientiousness. Previous studies have reported an association between empathy and personality traits (Del Barrio, Aluja, & García, 2004; Song & Shi, 2017) and our results suggest that empathy critically affects the selection of coping strategy.

The present study has several limitations. First, we assumed that empathy is a global concept so did not investigate the effect of empathy subtypes on coping. In recent years, neuroscientific studies have revealed the differential neural bases of affective and cognitive empathy (Eres, Decety, Louis, & Molenberghs, 2015). Psychiatric studies have shown that deficits in affective empathy are related to psychopathy (Pfabigan et al., 2015) and that deficits in cognitive empathy are related to autism spectrum disorders (Dziobek et al., 2008). Nevertheless, we chose to focus on empathy as a comprehensive construct because affective and cognitive empathy should occur simultaneously (Baron-Cohen & Wheelwright, 2004). A future study direction would be to explore specific empathy components and to examine their effects on coping and psychological distress. The second limitation is that we did not take into account the severity of stressors. A previous study on the relationship among coping resources, coping, and depression also investigated the impact of stressors; the results demonstrated that coping mediated between coping resources and depression in the high stressor group but not in the low stressor group (Holahan & Moos, 1991). To reduce survey response time and obtain a large sample size, we did not include variables measuring stressors and stressor severity. However, stressor severity might moderate the association of empathy, coping, and psychological distress and further study is needed to examine these associations.

Despite these limitations, this is the first study to offer a useful model of how coping mediates the effect of empathy on psychological distress in the workplace. In sum, we found that workers with low empathy are likely to develop high psychological distress through low cognitive reappraisal, high abandonment, and high responsibility shifting. This suggests that helping workers to promote cognitive/emotional regulation skills and to reduce problem avoidance may improve mental health in the workplace. Assessment of both coping style and empathy in workplace health checks may also help prevent psychiatric illness among workers.

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