

Warmth Matters: Imagining a Warm-Hearted Colleague Increase Job Specific Self-Efficacy of Rescue Workers

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Abstract

Clinical performance of rescue workers and ambulance personnel depends on job-related self efficacy. Previous studies showed that stereotype threat diminishes self-efficacy. The stereotype content model defines two dimensions of first social perception: warmth and competence. The present study investigates whether the warmth perception affects job-related self-efficacy. In a within subject experiment, 244 rescue workers were instructed to imagine performing a difficult rescue operation with a) a warm-hearted and b) a cold-hearted colleague. They also rate the perceived difficulty of the operation. Our findings indicate a significant difference between the warm-hearted and the cold-hearted condition in job-related self-efficacy ($d = 1.13$) and in the difficulty-rating ($d = 1.04$). Results are discussed by integrating stereotype content model, attachment theory and stress buffering aspects of oxytocin research. Moreover, implications for job trainings were given.

Keywords: Stereotype content model, Self-efficacy, rescue workers, attachment, oxytocin.

Introduction

Rescue workers and ambulance personnel are exposed to high levels of stress during their work activity (Sterud et al., 2008). Unfortunately, the exposure of highly stressful experiences can impair the work performance of paramedics (James, & Wright, 1991). Stress responses affect memory, attention, and decision-making abilities by elevating anxiety and cortisol levels (Starcke, & Brand, 2012; Takahashi et al., 2004). On this account, the impact of acute stress especially targets clinical performance and documentation (LeBlanc et al., 2012). Moreover, high work-related stress in paramedics is associated with lower job

satisfaction, and higher depressive, posttraumatic and physical stress symptoms as well as sleeping disorders and cardiovascular diseases (Hegg-Deloye et al., 2014; Rojas et al., 2022). Thus, LeBlanc et al. (2012) emphasize the importance of training interventions to reduce highly stressful experiences.

Regarding individual differences, a body of research indicates, that individuals with high self-efficacy deal more effectively with difficulties and stress (Gist, 1987), whereas individuals with low emotional competencies seem to interpret more situations as threatening (Vollrath, 2001). In a study with rescue workers, self-efficacy buffered the impact of

perceived stress on quality of life (Prati et al., 2010). Psychological empowerment, a motivational construct including cognitions about competence, meaning, self-determination, and impact (Spreitzer, 1995), seems to enhance performance under stress conditions (Ghaniyoun et al., 2018). In addition, psychological empowerment and self-efficacy increase proactive behavior, whereas the relationship between psychological empowerment and proactive behavior is partially mediated by self-efficacy (Huang, 2017). Thus, interventions targeting self-efficacy seem to improve performance, health, and life quality of rescue workers.

Regarding job demands, self-efficacy beliefs and social support seem to decrease perceived stress (Brouwers, & Tomic, 2016). Additionally, perceived social support from co-workers can prevent negative outcomes after experienced traumatic events in rescue workers (Ogińska-Bulik, 2015) and increase the level of reported job performance (AbuAlRub, 2004). The perception of the availability of social support can differ from actual receipt of support (Meadows, 2009) because the perception of availability of support depends on the beliefs about others' perceptions of the self (Sarason et al., 1991). Social stereotypes influence our beliefs about others (Bordalo et al., 2016), including the extent of expected social support (Ramírez, & Palacios-Espinosa, 2016). Moreover, stereotypes about the self and others affect the beliefs about self-efficacy (Burnette et al., 2010; Chiesa et al., 2016).

Stereotypes influence how we think about, how we judge, how we feel, and how we act toward others or ourselves (Moskowitz, 2010). The fear that negative stereotypes provide frameworks for interpreting one's behavior in an unwanted way and the risk of being judged in line with those stereotypes affects the performance of individuals. This is called stereotype threat (Spencer et al., 2016). Stereotype threat can lead to underperformance, self-blame and loss of self-esteem by producing a vicious cycle of increased anxiety, feelings of despair, and subsequent poor performance (Burnette et al.,

2010). As a result, stereotype threat diminishes self-efficacy (Cadaret et al., 2017).

Individuals form impressions of each other quickly, in first encounters (Cafaro et al., 2012). The behavior of other persons provides information about his or her intentions and goals related to the self (Abele, & Bruckmüller, 2011; Fiske et al., 2002). Thus, individuals may also form expectations about how others evaluate their own status and their competencies. Moreover, they can draw conclusions, about whether others are potentially hostile or friendly and whether others are able to achieve their goals (Fiske et al., 2006). If one interprets another person as cold-hearted, this may cue the expectancy that he or she underestimates or devalues one's competencies. This may lead to feelings of threat and thus, these feelings may decrease self-efficacy and performance. In contrast, if the interaction partner was perceived as a warm-hearted person, expectancies that he or she trusts one's competencies may be activated. Moreover, positive expectations regarding the intentions or behavior of one could be seen as one aspect of interpersonal trust (Spadaro et al., 2020). In a meta-analysis, Colquitt et al. (2007) found moderately strong relationships between trust and job performance.

The everchanging constellation of rescue teams requires the individual rescue workers to repeatedly familiarize themselves with new colleagues. Thus, at the beginning of many operations, they have to evaluate the new colleagues quickly. Stereotypes simplify information processing by categorize incoming (social) information fast (Hilton, & Von Hippel, 1996). The stereotype content model (SCM) lines out, that the social categorization of others is based on two fundamental dimensions of social perception, warmth and competence (Cuddy et al., 2008). Perceived warmth and competence are based on group stereotypes, whereas high status groups are stereotypically competent and competitive groups stereotypically lack warmth. (Cuddy et al., 2009). Instead, the warmth dimension is associated with cooperating and forming connections with others (Kervyn et al., 2015), whereas perceived competition is inversely

correlated with perceived warmth (Fiske, 2015). The warmth dimension includes words like warm, trustworthy, friendly, honest, likable, sincere (Fiske, 2018) as well as friendly, kind, reliable, well-intentioned, enthusiastic, sincere, and tolerant (Simon et al., 2020). Competence is associated with a list of words including competent, intelligent, skilled, efficient, assertive, confident (Fiske, 2018), decisive, capable, independent, persuasive, skillful, confident, and efficient (Simon et al., 2020).

The warmth-dimension is associated with cooperation and excludes competition. A body of research indicates that cooperation is connected to self-efficacy (e.g., Cannon, & Scharmann, 1996; Raelin et al., 2011).

to the best of our knowledge no study investigates the impact of activating the warmth stereotype on self-efficacy and the perceived difficulty of job tasks. Thus, this study aims to close this gap.

In order to do so, it should be clarified how to activate a stereotype. First, it is known, that if one interacts with a member of a stereotyped group the stereotype could come to one's mind, but it is not absolutely sure. Only if the upcoming stereotype affects the experience, the judgement, or the behavior of this person, it could be labelled as stereotype activation (Kunda, & Spencer, 2003). Second, stereotype activation can target both the self and other. But for both, self- and other-stereotype activation it has been found that people behave consistent to the stereotype (Wheeler, & Petty, 2001). In line with this, Wheeler and Petty (2001, p. 797) "define stereotype activation as the increased accessibility of the constellation of attributes that are believed to characterize members of a given social category". Third, stereotype can be activated by very subtle and by obvious cues (Gupta et al., 2013). Regarding rescue workers, subtle (and environmental) stimuli may activate a warmth-stereotype by body-language, accent, and appearance in contact with the colleague. Regarding the abstinence of real contact, Abrams et al. (2008) found that merely imagined contact activates stereotypes and reduces the effect of threat on

performance. It should be clarified whether imagination of a warmth contact could improve self-efficacy and perceived performance of rescue workers.

Thus, we hypothesized that the mission-related self-efficacy of rescue workers could be increased if they imagine how they work with a warm colleague compared to imaging the work with a cold-stereotyped colleague (H1). Moreover, we expect that imagining the cooperation with a warmth-stereotyped colleague decreases perceived difficulty of a mission (H2), whereas imagining the cooperation with a cold-stereotyped colleague increases perceived difficulty (H3). Additionally, we assume that the impact of warmth on perceived difficulty is mediated by job specific self-efficacy (H4).

Method

Procedure

In order to investigate the influence of warm-hearted colleagues on self-efficacy, we conduct an experimental within-subjects study. After the informed consent was filled in by the participants, they were asked to indicate sociodemographic information about themselves. Then, each participant was randomly assigned to one of two groups. Each group consisted of two conditions which differed in the to-be-imagined warmth of a team colleague. Data was collected using a standardized online questionnaire. The server SoSciSurvey was used as the tool for data collection. All procedures were in line with the ethical guidelines of the ethics committee of the APOLLON University of Applied Science in Bremen, Germany.

Participants

Participants were 244 (157 men, 84 women, 3 diverse) rescue service workers. The mean age of female participants ($M = 25.17$) was lower than the mean age of male participants ($M = 33.73$). Diverse participants were 19, 21 and 27 years old. 98% indicated German as their nationality, whereas 2% indicated German/Australian, German/Italian,

German/Russian, Luxembourgish and Spanish. Mean job experience was higher for male participants ($M = 12.04$ years) than for female participants ($M = 5$ years) and diverse participants ($M = 2.67$ years). The sample is a decent representation for the rescue service since gender distribution, mean age and mean length of job experience matches samples from other studies (Behnke et al., 2021; Heringshausen et al., 2010, Völker; Flohr-Devaud, 2021). The sample participated voluntarily in the study and was recruited via chief heads of ambulances belonging to the six different aid organization in Rheinland Pfalz. They were contacted via E-Mail. Thereby a link and a QR Code with the questionnaires was sent. Moreover, the link was posted in various social media groups and shared at rescue stations.

Experimental manipulation

Participants were randomly assigned to one of two sequential arrangements. Either participants start with the warmth-condition followed by the cold-hearted-condition, or vice versa.

Before assignment to one condition, the participants received an instruction to imagine a difficult rescue service operation that could have been experienced in the past. On a scale from 1 (very simple) to 10 (very difficult) the ranked difficulty was supposed to score an 8. Only this heightened difficulty allowed for the proper measurement of self-efficacy afterwards by suggesting a new, stressful situation (Schwarzer & Jerusalem, 2002). A manipulation check indicated that participants followed the instruction. Analyses reveal that 74,6% estimated the difficulty of the operation between 7 and 9, whereas 32,4% rate the difficulty exactly on 8 after imagining the scene. The median was 8, the average $M = 7.68$ and the standard deviation was $SD = 1.32$. In order to avoid an early turn to the next step of the instruction, a checkbox was attached to the end of the page including more criteria for the rescue service (e.g. "The service took place outside of the routine"), helping to evoke a better imagination of the service. Afterwards participants were asked to rank the difficulty of

the service on a scale anchored from (1) not challenging at all to (10) absolutely challenging, since it could have been changed through the added criteria. Moreover, a baseline level was used for this item.

Next, subjects were randomly assigned to one of two groups which differed in the order of the two integrated conditions. All participants went through both conditions, respectively. The random assignment was conducted by a random generator that was programmed in SoSciSurvey. Depending on the group, participants were then asked to think of a warm-hearted (group A) or cold-hearted (group B) person who was or might have been a colleague. In order to prime mental representations of the concept of warm- or cold-hearted, subjects should tick provided attributes in a checkbox which were associated with either warmth (e.g., fair, generous, helpful, honest) or cold-heartedness (e.g., jealous, conscienceless, hard-hearted, dissembling). Both times the imagined colleague was supposed to be very competent in his or her job. At the end of this step another checkbox for the colleague was implemented.

In order to investigate the influence of warmth vs. cold-heartedness on self-efficacy, subjects were asked to add the colleague to the imagined rescue service operation. They were further instructed to imagine how they would have had experienced the operation by thinking about the whole course of it, including all the imaginable difficulties. As a support for the imagination, more questions were entailed (e.g., "How does the colleague look at you?" or "How does the colleague react to possible questions/mistakes?").

After each condition, participants completed a scale measuring self-efficacy Scale for job specific self-efficacy, especially for rescue service and were asked to evaluate how challenging the imagined rescue service operation accompanied by the colleague was. Depending on which colleague (warm-hearted vs. cold-hearted) the participants imagined first, they were now invited to imagine a colleague with the contrasting characteristic. Group A, who first imagined a warm-hearted colleague,

now imagined a cold-hearted one and vice versa. Another checkbox was implemented at this condition. Afterwards, participants were asked to imagine the same detailed rescue service operation with the new colleague. In the end they again completed the Scale for job specific self-efficacy, especially for rescue service and were asked to estimate how challenging the imagined rescue service operation accompanied by the second colleague was. By implementing this procedure, the initial situation and the colleague’s competence were held equal. Only the perceived colleague’s warmth varied. Figure 1 shows the procedure as a flowchart.

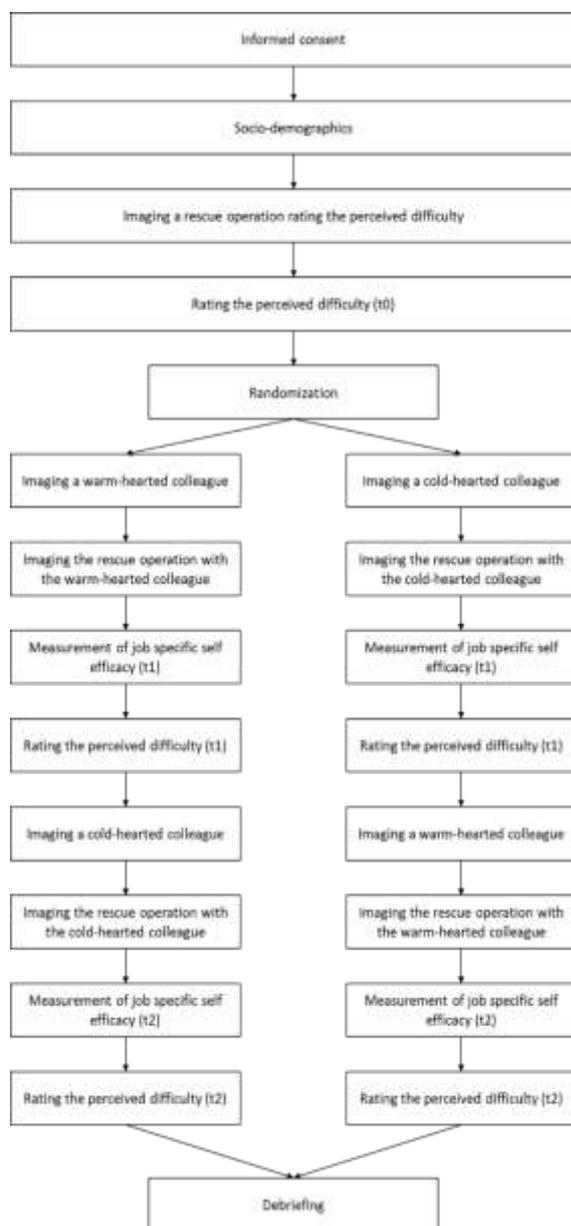


Figure 1. Flowchart of the study

Materials

Since there was no scale to measure self-efficacy especially for rescue service, the Scale for job specific self-efficacy, especially for rescue service was constructed for this study by modifying Items from the Scale for job specific self-efficacy, especially for inpatient care (Heindle, 2009). For example, one original item was “Even under time pressure I was able to organize my work in a way, that I can finish all important tasks.”, whereas the modified item reads “Even under time pressure I was able to organize my work in a way, that I can process rescue operation satisfactory.”. The original scale has 13 items all together, but for the modified scale we deleted three items completely, because these items do not fit to the rescue service (e.g., “Even with difficult patients or relatives, I find ways and means to get them to cooperate.”). The following psychological aspects were considered for the development of the scale: “Emotional-motivational competence/ empathy, goal conflicts/ diffuse goals, emotional work, work organization/ self-management, self-esteem, team-atmosphere/ social conflict, control/ autonomy, sense making, professional competence, death & dying” (Heindle, 2009). Responses were based on a 4-point rating scale, anchored from (1) strongly disagree to (4) strongly agree. All scores on the ten items were summed up; hence results indicated a final score between 10 and 40. Thus, two new variables resulted from this procedure: 1. Perceived self-efficacy during a rescue service accompanied by a warm-hearted colleague and 2. Perceived self-efficacy during a rescue service accompanied by a cold-hearted colleague. Heindle (2009) reported that cronbach’s alpha was $\alpha = .82$. In our sample the modified version has an internal consistence of $\alpha = .73$, which is satisfactory.

Data analysis

Frequency distributions were calculated for the sociodemographic information. In order to examine differences between the baseline, the warm-hearted and the cold-hearted condition regarding perceived difficulty of the operation, in a first step, we conducted an analysis of

variance (ANOVA) with repeated measures. Since every participant was assigned to both conditions (within-subjects), no between-subject-factor was calculated. To estimate the effect size, eta square (η^2) was calculated. Furthermore, three t-tests were conducted to test for significant differences between the separate conditions (baseline vs warm-hearted, baseline vs cold-hearted, warm-hearted vs. cold-hearted). Moreover, effect-sizes between each group were estimated with Cohen's *d*.

In a second step, we test whether warm or cold-hearted colleagues affect self-efficacy. Therefore, we compare the variable perceived self-efficacy during a rescue service accompanied by a warm-hearted colleague and perceived self-efficacy during a rescue service accompanied by a cold-hearted colleague, these scores were used to run a t-test for dependent variables. We also calculated Cohen's *d* to estimate effect sizes.

In a third step, we conducted a mediation analysis by applying the SPSS MACRO PROCESS (Hayes, 2022). First, we tested the direct effects of the independent variable (imagination of warm- vs- cold-hearted colleagues) on the change in perceived difficulty of the rescue operation. To calculate the change in perceived difficulty of the rescue operation we subtracted the baseline-measure from the warm- respective cold-hearted measure. Therefore, we duplicated the data set, in order to generate a variable that integrates both values, perceived difficulty after imagining a warm-hearted colleague and perceived difficulty after imagining a cold-hearted colleague. The condition (warm vs. cold) was coded in a new variable by setting 1 for the warm-hearted and 2 for the cold-hearted condition. For this reason, the sample consisted of 488 participants. Then, we tested the indirect effects of the job specific self-efficacy. Therefore, we conducted separate analyses. The data was analyzed using the software IBM SPSS Statistics 24.0.0.0 (IBM Corp., 2013).

Results

Perceived Difficulty of the Rescue Operation

To examine whether the perception of a colleague as warm- or cold-hearted affects the perceived difficulty of a rescue operation, an ANOVA with repeated measures was conducted. Therefore, we first tested whether the assumptions for an ANOVA were met. A significant Kolmogorov-Smirnov-test indicated that the normal distribution assumption could be violated. Furthermore, skewness and kurtosis were investigated. A normally distributed variable should score $\leq \pm 2$ for skewness and $\leq \pm 3$ for kurtosis (Kline, 2005). Both values were acceptable for all variables (see Table 1 and 2). A significant Levene test ($p < .001$) indicates that homogeneity of variances assumption is violated. Although the assumptions for an ANOVA were partially violated, we conducted an ANOVA with repeated measures, since the ANOVA is robust in terms of the error rate when sample sizes are equal.

The ANOVA outlines a significant difference between the three conditions baseline ($M = 7.68$, $SD = 1.32$), warm-hearted colleague ($M = 5.51$, $SD = 1.95$) and cold-hearted colleague ($M = 7.80$, $SD = 1.75$, $F_{2, 486} = 200.535$, $p < .001$, $\eta^2 = .45$). T-tests for dependent variables indicate no difference between the baseline condition and the cold-hearted colleague condition ($t_{243} = -1.196$, $p = .233$), whereas the difference between the baseline and warm-hearted colleague condition ($t_{243} = 16.004$, $p < .001$) as well as the cold-hearted and warm-hearted colleague condition ($t_{243} = -16.168$, $p < .001$) were significant. Large effect sizes were found (d_{baseline vs. warm-hearted} = 1.03, d_{cold-hearted vs. warm-hearted} = 1.04). Comparing baseline condition with cold-hearted condition, no significant difference was found ($t_{243} = -1.196$, $p > .05$). Figure 2 shows differences in the perceived difficulty of the rescue operation.

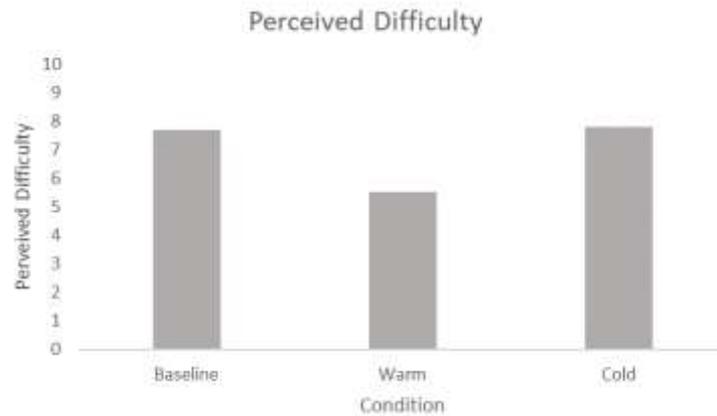


Figure 2. Means of the perceived difficulty in the baseline, the warm-hearted and the cold-hearted condition

Table 1. Descriptive Statistics of mission related self-efficacy (Mean, Standard Deviation, Skewness, and Kurtosis)

	N	Mean	SD	Skewness		Kurtosis		T-test	
				M	SE	M	SE	T	p
Self-efficacy _{warm-hearted}	244	32.96	3.43	.004	.16	-.344	.31	17.59	.000
Self-efficacy _{cold-hearted}	244	27.91	4.57	-.358	.16	-.208	.31		

Table 2. Descriptive Statistics of perceived difficulty (Mean, Standard Deviation, Skewness, and Kurtosis)

	N	Mean	SD	Skewness		Kurtosis		ANOVA	
				M	SE	M	SE	F	p
Difficulty _{baseline}	244	7.68	1.32	-.409	.16	.642	.31	200.535	.000
Difficulty _{warm-hearted}	244	5.51	1.95	-.034	.16	-.624	.31		
Difficulty _{cold-hearted}	244	7.80	1.75	-.875	.16	.602	.31		

Job specific Self-efficacy

A t-test for dependent variables was conducted to examine whether the imagination of a cold-hearted vs. a warm-hearted colleague affects the perceived self-efficacy. Skewness and kurtosis (see Table 1 and 2) indicates that a normal distribution is given. The t-test reveals a

significant difference between the conditions ($t_{243} = 17.59, p < .001$), whereas those rescue worker imagining a warm-hearted colleague report higher job specific self-efficacy ($M = 32.96, SD = 3.43$) than those imagining a cold-hearted colleague ($M = 27.91, SD = 4.57$). The effect size of the difference is large ($d = 1.13$). Figure 3 displays these results.

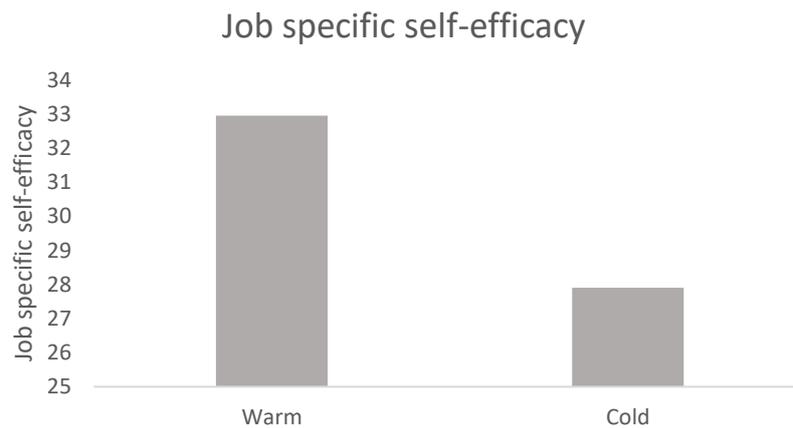


Figure 3. Means of the job specific self-efficacy in the warm-hearted and the cold-hearted condition

Mediating effect

To test whether the effect of being warm-hearted (manipulation) on perceived difficulty of the rescue operation was mediated by self-efficacy, an analysis of indirect effects was conducted. There was a significant indirect effect of the warm-heartedness on the change in perceived difficulty through job specific self-efficacy ($\beta = 0.44$, 95% CI [0.230; 0.672]). Following Baron and Kenny (1986), a mediation effect needs a significant pathway from the independent variable on the dependent variable before including the mediator, a significant pathway from the independent variable to the mediator, and a significant

pathway from the mediator to the dependent variable. Mediation analysis outlines that all pathways were significant (see Table 3). Moreover, for a full mediation effect the pathway from the independent variable on the dependent variable needs to fail significance after including the mediating variable in the regression. Our analysis reveals a significant pathway after including self-efficacy (mediating variable) in the regression analysis (see Table 3). This means, that job-specific self-efficacy mediates the influence of warm-heartedness on the change in perceived difficulty of the operation only partially and a direct effect remains ($\beta = 0.42$, 95% CI [1.462; 2.247]).

Table 3. Indirect effects on perceived difficulty. The independent variable was warmth; the dependent variable was change in perceived difficulty ($D \text{ difficulty} = \text{difficultywarm/cold} - \text{difficultybaseline}$) and the mediator is mission specific self-efficacy

Pathway	T	Beta	P	CI
(I) Regression on self-efficacy				
Warmth	13.81	.531	.000	4.331 5.768
(II) Regression on D difficulty				
Warmth	-13.33	-.517	.000	-2.247 -1.462
(III) Regression on D difficulty				
Self-efficacy (mediator)	-4.15	-.187	.000	-.129 -.046
Warmth	-9.28	-.418	.000	-2.247 -1.462

Note. Model I is the pathway from warmth to the mediator (job specific self-efficacy). Model II is the direct pathway from warmth to the change in perceived difficulty and Model III shows the pathway

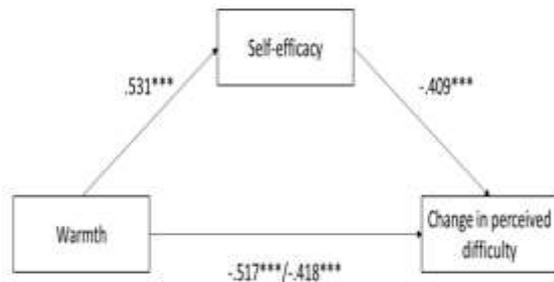


Figure 4. The mediating effect model

Note. Path values are the path coefficients of single regression analyses. *** p value < .001

Discussion

In line with our assumptions, results indicated that imagining a warm-hearted colleague reduces the perceived difficulty of a rescue operation (H2), whereas no difference was found comparing the baseline condition and the cold-hearted condition (H3). Regarding job specific self-efficacy, results reveal significantly higher values in the warm-hearted condition compared to imagining a cold-hearted colleague (H1). We hypothesized that the decrease of perceived difficulty is mediated by job specific self-efficacy. In order to investigate this assumption, we conducted a mediation analysis which revealed an indirect effect from the condition (warm-hearted vs. cold-hearted) on perceived difficulty (H4).

Regarding the mediation hypotheses (H4), Table 3 indicates that indirect pathways from condition (warm-hearted vs. cold-hearted) on perceived difficulty were significant. Following Baron and Kenny (1986), the significance of all pathways is a premise of mediation. Additionally, the relationship between the predictor and the criterion must be reduced when controlling for the effect of the mediator. Although the regression weight of the pathway between condition and perceived difficulty was reduced when controlling for self-efficacy, it was still significant. This could indicate that self-efficacy does not fully mediate the relation between warm-hearted colleagues and the perceived difficulty of the rescue operation. Thus, the reduction of the perceived difficulty

seems to be mediated partially by the increase of self-efficacy.

Importantly, the imagination of warm-hearted but not cold-hearted colleagues affects job specific self-efficacy and perceived difficulty of the rescue operation. The instruction was to imagine a difficult operation. The stereotype of warm-hearted individuals as well as the characteristics of secure attachment relations include trust, warmth, care and commitment acceptance, validation of feelings, and interest in other’s goals, and encouragement (Fiske et al., 2008; Liddle, & Schwartz, S. J. (2002). Thus, it can be beneficial to take a look at selected insights of attachment studies. Regarding attachment security in children, Colman and Thompson (2002) observed children and their mothers in manageable and difficult problem-solving tasks. Results indicate that children with lower security scores showed more help-seeking behavior which may be induced by inability attributions. Moreover, attachment security is associated to self-efficacy, meta-cognitive skills (Tavakolizadeh et al., 2015), job performance (Neustadt et al., 2011) and – in case of health professionals – low emotional violence from patients (Berlanda et al., 2019). Regarding our results, it could be concluded that the internal representation of warmth may evoke feelings of security and hence foster self-efficacy.

Attachment theory proposes that an internal working model represent the security of attachment experiences, which provide feelings of security in challenging situations. It forms the basis of how attachment processes operate in adult relationships (Pietromonaco, & Barrett, 2000). By revising the working model Arriaga et al. (2017) conclude, that challenging situations can trigger feelings of anxiety or uncertainty, but security-triggering situations also may “foster a secure model of self when they cause individuals to feel valued and capable in personal domains...” (Arriaga et al. 2017, p. 15). Other persons (e.g., partners) can support this feeling of security by highlighting person’s strengths, goals, interests, and positive qualities. Individuals who experience a secure base with their partners tend to be more likely to engage in exploratory activities. Moreover,

experiencing a secure base with a partner increases self-esteem and self-efficacy (Feeney, 2004). By imagining a warm-hearted colleague, a situational representation of a secure base for the rescue operation may be activated. The warmth stereotype may provide feelings of interpersonal security which boosts self-efficacy. But it is still unclear whether the attachment style of individuals interact with the actual representations of warm-hearted individuals. Future research should address this gap.

Regarding the stereotype content model, beyond warmth, competence is another universal dimension of social perception. Although both dimensions – warmth and competence – are important for social perception, warmth seems to be primary (Cuddy et al., 2008). Thus, in the present study, we focused on warmth-perception. Participants in both conditions got the instruction to imagine a colleague with high competences in the domain rescue operations. To refer again to an attachment perspective, Feeney (2004) points out, that “support-providers are those individuals who are able to effectively restore their partner’s felt security when it is needed—by facilitating problem resolution and alleviating distress“ (Feeney, 2004, p. 632). Competence could be an ability to elicit feelings of security since competence is seen as a resource to cope with stressful efforts within rescue operations. Thus, if one believes in a challenging situation that the colleague is competent his or her job specific self-efficacy may be affected as well as the perceived difficulty of the rescue operation, but only if the colleague is also warm. Since we did not vary competence, future research should clarify whether the social perception of competence affects self-efficacy as well.

An alternative but not competing explanation could be that the social perception of warmth increases endogenous oxytocin. Previous research found that receiving social support and warm partner contact increase oxytocin (Crockfort et al., 2017; Grewen et al, 2005). Moreover, cooperation was assumed to increase oxytocin release. It could be assumed that imagining a warm supportive colleague

may increase oxytocin (Crockfort et al., 2014). And oxytocin was found to buffer stress and anxiety (Smith, & Wang, 2014; Quirin et al., 2011). The stress reduction of oxytocin is mediated by decreasing cortisol (Cardoso et al., 2013). Considering that a high level of cortisol is associated with feelings of insecurity (Minkley et al., 2014), this may explain changes in self-efficacy and perceived difficulty of the rescue operation since the regulation of aversive states and related cortisol by oxytocin may increase subjective feelings of security and affect the subjective perception of self-efficacy and task difficulty. In line with our approach to attachment theory, Pierrehumbert et al. (2012) report that individuals classified as autonomously attached by the Adult Attachment Interview showed low subjective stress, a moderate level of cortisol and ACTH and a high level of oxytocin. Autonomous attachment could be seen as the equivalent of secure attachment. Although this seems to be plausible, future research is needed to investigate whether imaging a warm-hearted colleague actually increases oxytocin levels.

This study has several limitations that need to be addressed. First, we measured changes in self-efficacy and the perceived difficulty in rescue operations that the participants only imagined. But we do not know whether this affects self-efficacy and perceived difficulty in real situations. Thus, future studies should investigate this in real-life-situations. Second, we methodically conducted a mediation analysis to test whether the change in perceived difficulty is mediated by self-efficacy. But the mediating effect should be seen as preliminary since we only measured two times. This does not allow conclusions about causality. Regarding previous findings, self-efficacy seems to decrease perceived difficulty. Huang et al. (2003) found that increasing self-efficacy of home-based caregivers decreases problems like aggression which may be caused by an overload. Regarding students, perceived task difficulties in learning were predicted by self-efficacy (Lee, & List, 2021). Although previous findings support the assumption that self-efficacy decreases the perceived difficulty and thus, support the mediation hypothesis, further

research is needed to clarify. Third, although participants were asked to imagine a rescue operation at a perceived difficulty of eight on a scale between one and ten, some participants rated their operation clearly lower. One possible explanation could be that some participants experienced no reference situation that corresponded to an eight. A post-hoc analysis reveals that among those who rated the initial difficulty of the operation lower than six, the self-efficacy ratings of both conditions were moderately associated to the ratings of difficulty ($r_{\text{warm-hearted}} = -.50$; $r_{\text{cold-hearted}} = -.42$). Because only 10 participants rated the situation lower than a six, correlations were not significant. Regarding all participants, ratings of difficulty don't correlate with self-efficacy after imaging a warm-hearted colleague and correlate with self-efficacy in the cold-hearted condition only weakly, but significantly ($r_{\text{cold-hearted}} = -.13$, $p < .05$). If those who rated lower than six on the initial difficulty would be excluded, effect size would increase a little (from $d = 1.13$ to $d = 1.28$). Since the conclusion of this study would be the same, we decided not to exclude anyone from the analyses.

Conclusion

To conclude, this study aimed to expand research on the effects of warm- vs. cold-hearted colleagues on perceived difficulty of rescue operations and job specific self-efficacy, especially for rescue service. The present research adds valuable insights regarding the effects of social perception in the field of rescue services. To the best of our knowledge, this is the first study investigating the perception of warmth on self-efficacy.

It seems vital to note that, if the social perception of warmth had such eligible effects, future research should investigate how to increase the perception of warmth in rescue workers. This may decrease mistakes since self-efficacy predicts interprofessional conflict resolutions in health professionals (Sexton, & Orchard, 2016). Employees who reported higher levels of self-efficacy were more likely

to mobilize their job resources which indirectly increased performance (Tims et al., 2014). Moreover, job self-efficacy in health professionals moderated the relationship between stress and quality of life of rescue workers (Prati et al., 2010). Thus, our results may provide valuable insights for the development of interpersonal trainings for rescue workers.

Moreover, other occupational groups may benefit from the present results. For example, the performance as well as the well-being of teachers and students is affected by self-efficacy (Ahmad, & Safaria, 2013; Klassen, & Tze, 2014; Zee, & Koomen, 2016). Considering, that both teacher's and student's success depend on their cooperation (Yunus et al., 2011) future research should clarify the effects of perceiving a warm-hearted other in this and in other fields to broaden this promising approach.

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