

**Self-rated mentalizing mediates the relationship between stress and coping  
in a non-clinical sample**

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## **Abstract**

*Background:* The clinical concept of mentalizing has recently been extended into non-clinical contexts. In particular, the protective function of robust mentalizing as a processing capacity of interpersonal and intrapsychic events has become a focus of consideration. Theoretical approaches hypothesize that mentalizing may allow for an adequate self-awareness in the face of aversive experiences such as stress, leading to a reappraisal of these experiences and therefore enables the use of adaptive coping behaviors.

*Objective:* The study aimed to investigate the association between coping behavior, mentalizing and experiences of stress.

*Method:* 534 healthy adults completed the German-language Stress Processing Questionnaire (SVF), the Mentalization Questionnaire (MZQ), and a short scale of the Trierer Inventory of Chronic Stress (TICS) in a cross-sectional research design.

*Results:* Correlational analyses suggested associations between coping and mentalizing. Furthermore, MZQ scores predicted both positive and negative coping behavior. The relationship between stress and both negative and positive coping was mediated by mentalizing capacity.

*Conclusion:* Findings confirm the hypothesis that mentalizing may represent a coping resource within a resilience framework. An implementation of the concept in preventive mental health interventions is discussed.

*Keywords:* Mentalizing, Stress, Coping, Coping Resource, MZQ

## **Introduction**

### ***Stress, coping and coping resources***

According to the transactional stress model, stress is the result of an interaction between two systems (Lazarus & Folkman, 1984) – the individual and the environment – and is defined as “the relationship between a person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being”

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(Lazarus & Folkman, 1984, p. 21). Furthermore, the transactional stress model takes into account the individual's coping behavior, which is described as "cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Finally, coping resources are understood as adaptive capacities that enable individuals to deal with stressful situations by having a positive influence on coping behavior (Morgenroth, 2015).

Even though recent conceptualizations of coping behavior focus on a more flexible and situational use of individual coping strategies (e.g. Bonanno & Burton, 2013), the distinction between positive and negative coping is well established. Positive coping, including behavior such as the use of social support, problem-solving or the cognitive reappraisal of stressful experiences is the hallmark of an individual's psychological capacity to adapt to adverse environmental circumstances, leading to a decrease in distress. In contrast, negative coping, including strategies such as aggression, escape or avoidance could expose the body and mind to sustained and increased allostatic load, therefore leading to elevated distress (Lazarus & Folkman, 1994; Erdmann & Janke, 2008) The relationship between positive and negative coping and mental health is well documented. Negative coping is associated with increased psychological symptoms, decreased life satisfaction, psychiatric disorders, and increased distress (e.g. Compas et al., 2017; Gustems-Carnicer & Calderon, 2013). In contrast, positive coping is associated with lower symptom distress and greater well-being (e.g. Deasy, Coughlan, Pironom, Jourdan & Mannix-McNamara, 2014; Freire, Ferradas, Valle, Nunez & Vallejo, 2016). For example, a Canadian large-scale study (Meng & D'Arcy, 2015) using data from 36.984 participants showed that positive coping has a negative effect on distress as well as a positive effect on psychological well-being. By contrast, in the studied sample negative coping behavior had a negative impact on the psychological well-being and was associated with increased distress. In addition, positive and negative coping were found to be only slightly linked (Meng & D'Arcy, 2015), indicating significant differences between both

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positive and negative coping as well as different pathways in the positive respectively negative processing of distress.

With reference to the reported results, several authors (e.g. Lazarus & Folkman, 1984; Eschenbeck, 2010) conclude that the way in which individuals cope with stressful events is more significant to psychological and physical well-being than the frequency and severity of the stressful episodes themselves. This is relevant especially from a preventive point of view. Coping resources, which may have a beneficial impact on the use of positive coping and reduce the use of negative coping strategies are of particular interest since they could foster well-being in those exposed to stressful episodes.

### ***Mentalizing***

Mentalizing is an imaginative ability defined as the capacity to perceive and understand one's behavior as well as that of other people in terms of intentionally motivated mental states, such as feelings, wishes, or desires (Fonagy, Gergely, Jurist, & Target, 2002). Mentalizing is described as a multifaceted umbrella concept (Choi-Kain & Gunderson, 2008) covering a wide range of intrapsychic processes, encompassing second-order processes such as self-monitoring (cognitive awareness of the self), mindfulness (emotional awareness of the self), empathy (awareness of emotional states in other people) and theory of mind (understanding of beliefs from other people). Critically, the process of mentalizing allows behavior to become predictable and to be perceived as meaningful if it can be viewed as underpinned by mental states (Fonagy & Allison, 2014). By considering mental states, behavior can be perceived as the result of the underlying emotions, thoughts, and beliefs, and can be represented, integrated, changed, and regulated by actions or reappraisal. Furthermore these mental states can be experienced as subject to modification owing to a perceived temporariness and a related sense of (partial) agency in modulatory processes (Nolte, Campbell & Fonagy, 2019).

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Compromised mentalizing has gained prominence as a risk factor associated with a number of mental disorders and potentially implicated in etiological pathways of psychopathology (Luyten, Campbell, Allison, & Fonagy, 2020; Katznelson, 2014). For example, empirical studies have confirmed that mentalizing is impaired in various personality disorders, such as borderline (Németh et al., 2018; Fischer-Kern et al., 2010) and antisocial personality disorder (e.g. Newbury-Helps, Feigenbaum, & Fonagy, 2017; Levinson & Fonagy, 2004), or in affective disorders (e.g. Fischer-Kern et al., 2013). Moreover, mentalizing in patients with severe mental problems can be promoted using psychotherapeutic treatments such as mentalization-based treatment (MBT) (Bateman & Fonagy, 2004) and other approaches (e.g. Levy et al., 2006; Fischer-Kern et al., 2015) also leading to a decrease in psychological symptoms (e.g. Bateman & Fonagy, 1999, 2001; 2008; 2009; 2013; Bateman, O'Connell, Lorenzini, Gardner, & Fonagy, 2016; Jørgensen et al., 2013; Rossouw & Fonagy, 2012; De Meulemeester et al., 2018).

### *Mentalizing as a protective resource*

Owing to the clinical relevance of mentalizing, a body of theoretical work has recently focused on its protective function in non-clinical populations (e.g. Fonagy, Luyten, Allison & Campbell, 2017; Stein, 2013; Bateman, Campbell, Fonagy & Luyten, 2018; Nolte, Campbell & Fonagy, 2019). Within this approach, it has been postulated that mentalizing could play a significant role in the processing of psychosocial stressors, even in non-clinical samples. Mentalizing could serve as an “intrapsychic filter system” (Stein, 2013, p. 428) allowing individuals to adapt resiliently to adverse circumstances by integrating external stressors into coherent self-experiences through intrapsychic elaboration (Taubner, 2015).

Fonagy et al. (2017) integrated these hypothetical assumptions into a broader theoretical framework that conceptualizes psychopathology as a loss of psychic resilience in the face of adverse experiences. The authors assume that psychological resilience is a result of positive

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evaluation processes of potentially adverse stimuli. The underlying theoretical framework is a resilience concept proposed by Kalisch, Müller and Tüscher (2015), which introduces the appraisal of mentally represented experiences as a core feature of psychic resilience.

According to Kalisch and colleagues, the type of appraisal modulates the corresponding emotional response of an individual and also sets in motion the behavioral responses to cope with the stressor. A positive and flexible way of appraisal (which Kalisch and colleagues term a positive appraisal style) is beneficial to resilience. In contrast, a negative appraisal style manifests itself in a rigid and negative mental state and an increased likelihood of activating primarily maladaptive or negative behaviors to cope with aversive stimuli.

According to Fonagy et al. (2017), mentalizing is a central mediating aspect within this framework. The mental representation of stressors and their evaluation requires a consistent self-perception and imaginative capacity that facilitates perspective-taking, which has been described as one of the core features of mentalizing. Therefore, if robust mentalizing is available in the face of stressors, a specific set of adaptive coping strategies – both behavioral but also in terms of affect regulation – seem to be plausible consequences. In contrast, a robust mentalizing capacity may reduce the use of negative coping strategies despite high levels of distress. In summary, the recent developments in relation to mentalizing as a concept suggest the hypothesis that robust mentalizing is a coping resource that may have a beneficial effect on coping behavior.

### ***Empirical evidence of mentalizing as a protective mechanism***

A number of clinical and non-clinical studies confirm the hypothesized protective function of mentalizing.. In a prospective longitudinal study, the mentalizing capacity of 84 adolescents predicted the individuals' well-being in early adulthood 8 years later (Borelli et al., 2019). Moreover, several mediation models (e.g. Huang et al., 2020; Chiesa & Fonagy,2014) showed a partial mediating effect of adverse childhood experiences on general

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psychopathology via mentalizing. In detail mentalizing had a protective, buffering effect which leads to a decrease in general psychopathology. Findings reported by Taubner and Curth (2013), Taubner, Zimmermann, Ramberg and Schröder (2016) and Euler et al. (2019) point in a similar direction. Traumatic experiences in childhood such as physical and emotional abuse led to higher levels of aggressive behavior and interpersonal problems. Robust mentalizing, however, had an opposite effect on the use of aggressive behaviors in the mediation models. With reference to high stress-levels in teachers, Schwarzer (2019) found mediation effects via mentalizing using data from 532 non-clinical subjects. While experiences of global distress had a negative effect on the subjects' self-rated mental health, there was also a contrary indirect effect via mentalizing, which had a counteracting effect on self-rated mental health. .

Despite the broad evidence suggesting a mediating effect of mentalizing, no research has taken into account coping behavior per se. A recently published study by Borelli et al. (2018) lends initial evidence to this hypothesized relationship, using physiological data. The mentalizing capacity of 76 children aged 8 to 12 years, and their cardiovascular reactivity in an experimental stress induction were measured and results showed that the children's physiological stress responses were lower with increasingly better mentalizing. Furthermore, mentalizing was associated with a more efficient restoration of normal psychophysiological arousal, indicating associations between stress, mentalizing and coping.

### **Objective**

With reference to the summarized research above, mentalizing might serve as a mediating factor in the intrapsychic processing of adverse experiences, even though little is known about the pathways between stress, mentalizing and coping to date. Consequently, a specific set of coping strategies – both behavioral but also in terms of affect regulation – could seem to be plausible consequences due to high levels of self-awareness, enabled by a mentalizing stance

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towards one's own intrapsychic experiences in the face of distressing stimuli. Within this approach robust mentalizing could serve as a coping resource, enabling both an adaptive processing of adverse experiences (positive coping), using strategies such as social support, problem-solving or the reappraisal of stressful experiences, as well as low rates of maladaptive strategies (negative coping) such as avoidance or escape, as shown in Figure 1. This is of particular interest because empirical data shows that the promotion of mentalizing in clinical (e.g. Levy et al., 2006, De Meulemeester et al., 2018) and non-clinical samples (e.g. Adkins, Luyten, & Fonagy, 2018; Valle et al., 2016; Welstead et al., 2018) is possible, using mentalization-informed interventions such as mentalization-based treatment (MBT) (Bateman & Fonagy, 2004), but also preventive programs such as the peaceful schools-program (e.g. Twemlow et al., 2001).

In the present study we aim to extend findings, concerning the protective role of mentalizing in the processing of distress to coping behavior, expecting close associations between stress, mentalizing and both positive and negative coping behavior. With reference to the summarized research above, the present study examines the following hypotheses:

*Hypothesis 1.* It is expected that mentalizing will lead to an increase in the use of positive coping behavior and a decrease in the use of negative coping strategies.

*Hypothesis 2.* Mentalizing will mediate the direct links between stress and both positive and negative coping, exerting a protective influence.

\*\*\*\*\* PLEASE PLACE FIGURE 1 HERE \*\*\*\*\*



## Method

### *Procedure and sample*

The present study was part of a cross-sectional research project examining the health-promoting function of mentalizing capacities in a non-clinical sample of prospective and already employed nursery teachers and childcare workers, as well as teachers in training at a university. Participation in the study was voluntary. Participants were recruited at a university, at a vocational school, and in daycare centers in Baden-Württemberg, southern Germany. All participants were asked to complete a series of questionnaires and performance tests. Data collection took 90 minutes and was conducted in small groups in college seminars, training classes, and team sessions. Beforehand, all participants were informed about the aims of the study and gave written informed consent to take part in the study. They were able to stop data collection at any time and to withdraw their data retrospectively. Overall, data was collected from 534 participants, who were between 15 and 57 years old ( $M = 23.68$ ,  $SD = 7.25$ ). The sample consisted largely of female participants ( $n = 472$ , approximately 88% of the total sample). The sample can be described as non-clinical owing to the recruitment strategy (none of the participants were in inpatient psychiatric care at the time of data collection) but psychopathology was not screened for. The study was approved by the Ethics Committee of the Ludwigsburg University of Education.

### *Measures*

*Mentalizing.* The German version of the Mentalization Questionnaire (MZQ) was used to assess self-rated mentalizing (Hausberg et al., 2012). The MZQ consists of 15 items (e.g. “Sometimes I only realize in retrospect, what feelings I had before.”) rated on a 5-point Likert scale from 1 (*totally disagree*) to 5 (*totally agree*). According to the test authors (Hausberg et al., 2012), all items of the MZQ can be added to give a mean score, which reflects self-rated mentalizing in all further analyses. After recoding all values, high scores indicate robust

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mentalizing, whereas low scores represent impaired mentalizing. The internal consistency of the scale was good ( $\alpha = .81$ ). The scale was normally distributed (Kolmogorov–Smirnov test  $p = .185$ ). Construct validity could be confirmed in several studies, recently: MZQ was able to differentiate between healthy and clinical samples with large effects (Murri et al., 2016, Schwarzer, 2019). Furthermore, Hausberg and colleagues (2012) showed that during inpatient treatment, patients mentalizing capacity improved, which was measured via MZQ (Hausberg et al., 2012). In addition, MZQ is positively associated with other measures of mentalizing, as well as negatively with psychological symptom severity (Schwarzer, 2019).

*Stress.* A screening scale of the Trierer Inventory of Chronic Stress (Trierer Inventar zum chronischen Stress) (TICS) (Schulz, Schlotz & Becker, 2004) was used to assess individual experience of stress. Based on self-ratings, the TICS asks the participant to rate 12 statements on a 5-point Likert scales from 0 (*never*) to 4 = (*very often*) to assess chronic stress experience. High scores indicate high levels of chronic stress. The TICS is a reliable and valid instrument for measuring chronic stress and, owing to its low cost, is suitable for use in large samples. The internal consistency of the TICS, with a Cronbach's alpha of .90, can be considered very good. A significant Kolmogorov–Smirnov-Test ( $p = .027$ ) indicated that values were not normally distributed.

*Coping.* The German version of the Stress Processing Questionnaire (Stressverarbeitungsfragebogen) (SVF78) (Erdmann & Janke, 2008) was used to assess positive and negative coping. The SVF78 is designed to measure a range of different coping strategies (Erdmann & Janke, 2008) to assess the individual's tendency to use different strategies in the face of stressful experiences. Both behavioral and cognitive aspects of coping are taken into account. The self-report questionnaire consists of 78 items. Item responses are indicated on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*most likely*). The SVF78 consists of 13 subscales representing 13 different coping strategies, which can be summarized as two mean scores, positive coping (e.g. reappraisal, distraction, positive self-instruction,

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control) and negative coping (e.g. resignation, self-accusation, persevering, escape). In this study, individual coping strategies were not taken into account. Instead, only the mean scales, positive coping and negative coping, were used in all analyses. The internal consistencies of both mean scales were excellent, with  $\alpha = .90$  and  $\alpha = .95$ , respectively. In addition, both scales were normally distributed (Kolmogorov–Smirnov test  $p = .223$  and  $p = .428$ , respectively).

### *Data analysis*

The number of missing values (< 1%) was considered trivial. Missing data was assumed to be missing at random (Little's Missing Completely At Random-test) and imputed using an expectation-maximization algorithm (Tabachnick & Fidell, 2012). All variables were included in the imputation model. Multivariate outliers were identified by using the Mahalanobis distance. Cases with  $p < .001$  for the  $\chi^2$  value of the Mahalanobis distance were considered outliers and excluded from all analyses (Tabachnick & Fidell, 2012). Overall, the dataset contained one multivariate outlier. Correlation analyses (Pearson), controlled for sex and age, were used to examine the relationships between stress experience, coping, and self-rated mentalizing. Two multiple linear regression analyses were used to predict positive and negative coping. Self-rated mentalizing as well as stress experiences, sex, and age were entered simultaneously in the models as predictors. In both models, residuals were analyzed using a scatter plot and independence of residuals was tested using the Durbin–Watson statistic (Tabachnick & Fidell, 2012). Multicollinearity was tested using the tolerance (<0.01) and variance inflation factor (<10) criteria. Finally, mediation effects were assessed using pathway analyses with stress as exogenous variable, mentalizing as mediator and positive coping (Model 1) respectively negative coping (Model 2) as dependent variable. Age and gender were included as covariates in all analyses. Mediation effects were further examined using the bootstrap confidence interval (CI) method with 1000 bootstrap samples, and 95%

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CI's were analyzed. All analyses were carried out using SPSS 21 and AMOS 23. Significance levels were set at  $p = .05$  (Döring & Bortz, 2016).

### Results

Descriptive statistics and intercorrelations controlled for age and sex are shown in Table 1. Partial correlation analyses showed significant associations between self-rated mentalizing and both positive coping and negative coping. Overall, the positive correlation between mentalizing and positive coping was low ( $r = .16$ ), whereas the negative association between mentalizing and negative coping was much stronger ( $r = -.54$ ). Associations between stress experience and positive or negative coping showed similar relationships, but in the opposite directions ( $r = -.10$  and  $r = .57$ , respectively). Furthermore, there was a negative correlation between stress experience and self-rated mentalizing ( $r = .63$ ), which could indicate potential multivariate collinearity.

\*\*\*\*\* PLEASE PLACE TABLE 1 HERE \*\*\*\*\*

All predictor variables were entered simultaneously into the multivariate regression models to determine which of them predicted positive coping and which predicted negative coping. In both models, the residuals were normally distributed and spread regularly (homoskedasticity); autocorrelations between the residuals did not exist (Durbin–Watson statistic). Variance inflation factors and tolerance values indicated sufficient separability despite correlative relationships between the predictors. The regression model for positive coping was significant ( $F = 8.124$ ;  $p < .001$ ), but the  $R^2$  of .051 indicated only a small effect (Döring & Bortz, 2016). Both the age ( $\beta = .10$ ;  $p = .018$ ) and sex ( $\beta = -.11$ ;  $p = .011$ ) of the subjects, as well as self-rated mentalizing ( $\beta = .16$ ;  $p = .003$ ), were significant predictors of the dependent variable positive coping. Experience of stress, on the other hand, was not a significant predictor ( $\beta = -.001$ ;  $p = .988$ ). In contrast, the regression model for negative coping was much more powerful ( $F = 83.073$ ;  $p < .001$ );  $R^2 = .38$  can be interpreted as a large

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effect (Döring & Bortz, 2016). The subjects' age ( $\beta = .04$ ;  $p = .310$ ) and sex ( $\beta = .05$ ;  $p = .177$ ) were not significant predictors. Both stress ( $\beta = .38$ ;  $p < .001$ ) and self-rated mentalizing ( $\beta = -.31$ ;  $p < .001$ ) predicted negative coping.

\*\*\*\*\* PLEASE PLACE TABLE 2 HERE \*\*\*\*\*

Based on the regression models to predict positive and negative coping, two pathway analyses were conducted to test for mediation effects. Stress experience was the exogenous variable in both path models, and self-rated mentalizing was the mediator. The dependent variable was positive coping in Model 1 and negative coping in Model 2. Results reveal that in model 1 stress experience had no significant effect on positive coping ( $\beta = -.03$ ;  $p = .561$ ), but a negative effect on self-rated mentalizing ( $\beta = -.62$ ;  $p < .001$ ). Furthermore, self-rated mentalizing had a direct influence on positive coping ( $\beta = .15$ ;  $p = .007$ ). The indirect effect amounted to  $b = -.09$  (95% CI:  $-.18 - -.01$ ) and was significant at  $p < .04$ . Pathway analysis indicated a full mediation of stress experience on positive coping via mentalizing. However, the model was able to account for only 3% of the variance of the dependent variable of positive coping. In the second model, with stress experience as exogenous variable, self-rated mentalizing as mediator, and negative coping as endogenous variable, all effects were significant. The stress experience of the subjects had a direct influence on negative coping ( $\beta = .39$ ,  $p < .001$ ) and on self-rated mentalizing ( $\beta = -.62$ ,  $p < .001$ ). Self-rated mentalizing had a negative influence on the dependent variable of negative coping ( $\beta = -.30$ ,  $p < .001$ ). The indirect effect amounted to  $b = .19$  (95% CI:  $.13 - .25$ ) and was significant at  $p = .001$ . Results indicate a partial mediation of stress experience on negative coping through self-rated mentalizing. Model 2 was able to account for 39% of the variance of the dependent variable negative coping.

\*\*\*\*\* PLEASE PLACE FIGURE 1 HERE \*\*\*\*\*

### **Discussion**

The present study investigated associations between self-rated coping behavior and mentalizing. Coping includes cognitive and behavioral efforts to manage specific external and/or internal demands (Lazarus & Folkman, 1984), and mentalizing describes the imaginative ability to interpret one's own and others' behaviors in terms of mental states (Fonagy et al., 2002). Although mentalizing has so far been mainly studied in clinical contexts, there has recently been a widening of conceptual and empirical work that examines the relevance of the concept in non-clinical samples. In this context, it is hypothesized that robust mentalizing or relatively fast restoration of mentalizing under stressful conditions can allow a relatively accurate perception of one's own mental states and, as a result, enables an adaptive orchestration and activation of coping behavior in response to the stress (Fonagy et al., 2017; Stein, 2013). Mentalizing could thus constitute a coping resource that has a beneficial influence on the use of positive coping behavior and reduces the tendency to activate negative coping behavior, as the current study had hypothesized.

With reference to the preliminary results mentalizing correlated positively with self-rated positive coping and was negatively associated with the use of negative coping. Building on these correlational results, that suggest associations between self-rated mentalizing and coping, two linear regression analyses were conducted to investigate whether mentalizing predicts both positive and negative coping. As stated in hypothesis 1, we expected that mentalizing has a positive effect on positive coping as well as a negative effect on negative coping behavior. Both regression analyses confirmed the expected associations in line with our first hypothesis. In detail, the linear regression analysis to predict positive coping indicated that mentalizing is a significant predictor that has a positive effect on positive coping. Furthermore, subjects' reported experiences of stress were not a significant predictor, despite the correlations between stress experience and positive coping. However, the regression model was generally weak (indicating a small effect) and thus suggests that

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mentalizing contributes to the use of positive coping. The predictors in the model were able to account only for 4% of variance, which is very low, and as likely to be an indication of other potentially co-funding variables which were not assessed during data collection such as personality traits or supportive relationships, but also methodological aspects such as shared method variance. A different picture emerges from the regression model to predict negative coping. The regression model ( $R^2 = .38$ ) indicated that the subjects' self-rated mentalizing and reported stress experience make significant contributions in predicting negative coping. While stress was the more powerful predictor in the regression model, reflecting a strong association with negative forms of coping, the negative regression coefficient indicated to a slightly lesser extent the potential protective function of mentalizing reducing the likelihood of using negative strategies to cope with distress. Therefore, higher levels of mentalizing appear to predict a tendency to avoid negative coping.

Based on both regression models, we gained some insight into the mediation effects of stress on coping through self-rated mentalizing. Mentalizing mediates the direct effect of stress experience on both positive and negative coping. Therefore, hypothesis 2, suggesting a mediating function of mentalizing, can be verified in view of both path models. The large discrepancy in the strength of association suggests that the nature of the mediation may be quite different in relation to these two aspects of coping behavior. Our interpretation of this pattern of results is that a relatively high capacity for mentalizing may forestall the need to implement negative coping behaviors through addressing stressful experiences using appropriate affect-regulation strategies, which presuppose adequate mentalizing (Holmes, 2017). The mediation is, however, only partial, as mentalizing may assist in relation to stress in some contexts but not in others. For example, stress caused by physical challenges, rather than interpersonal problems, is less likely to be mitigated by increased mentalizing.

In model 1, high levels of stress appeared to be only weakly associated with positive coping, but in this instance the mediation via mentalizing was complete. It appears that to a

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small extent that stress calls forth positive coping, it is entirely explained by the individual's potential for mentalizing. This is perhaps not surprising if we assume that positive coping strategies such as positive self-instruction (e.g. "I tell myself that everything will turn out all right"), distraction ("I try to distract myself"), and control ("I tell myself that I can cope with this") all presume a capacity to mentalize. We would therefore anticipate that robust mentalizing is associated with more pronounced positive coping. However, the results suggest that neither stress nor mentalizing is a strong predictor of positive coping. This may be because positive strategies are not used only when individuals are under high stress, but are also used as generally adaptive strategies in conditions of low stress. This would mitigate against identifying a strong overall association between stress and positive coping. The low shared variance also suggests that positive cognitive or behavioral actions to manage stress may be linked to unmeasured factors, such as indicators of temperament or personality (e.g., McRae, Jacobs, Ray, John, & Gross, 2012). A different picture emerged for model 2 with negative coping as the dependent variable. The much higher explained account of variation as well as a significant mediation effect indicate evidence that confirms the hypothesis formulated above. Because self-rated mentalizing partially mediates the positive effect of the subjects' experiences of stress on coping mentalizing may be a compensatory coping resource as our data suggests. In detail, the use of negative forms of coping is reduced if subjects' mentalizing is rated as robust.

Consequently, the findings fit well with the resilience concept proposed by Kalisch et al. (2015), who describe resilience as the result of a positive appraisal of mentally represented stimuli. According to Kalisch and colleagues, positive appraisal increases the likelihood of using positive coping and reduces the use of negative coping. Mentalizing could be of central importance in this framework because it enables a mental representation of the stressor and as its appraisal requires appropriate self-perception (Fonagy et al., 2017). If robust mentalizing is available in the face of stressors, (1) a flexible and positive appraisal of stressors is possible,



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and (2) a specific set of coping strategies seem to be a plausible consequence, as our findings confirm. While mentalizing is still predominantly studied in clinical contexts, it might prove important for non-clinical samples as it may also promote resilience. There is emerging evidence for the latter relationship (e.g., Fonagy et al., 2017; Schwarzer, 2019; Borelli et al., 2018; 2019). However, the extent to which mentalizing drives resilience and what role it might play in the prediction of resilience in comparison to other resilience factors (e.g. attachment, supportive relationships) remains to be investigated.

### *Limitations*

Although the present study provides insights into the protective function of mentalizing capacity as a coping resource in a large non-clinical sample several limitations of the study should be considered. The differentiation between positive and negative coping tends to oversimplify the highly complex concept of coping. A nuanced conceptualization of coping is being discussed by Bonanno and Nurton (2013). Future studies that take this into account may provide further insight into the relationship of adaptive coping and mentalizing. Moreover, the cross-sectional study design allows no causal conclusions to be drawn. Instead, all causal interpretations are based on theoretical assumptions that the cross-sectional data can confirm. In addition, the study used self-report assessments which could lead to shared method variance and skew the results. Therefore, the findings should be replicated in prospective or longitudinal designs to validate the results with further empirical evidence using alternative measures (e.g. performance, interview based). The operationalization of mentalizing using self-rating assessment in particular has been criticized by various authors (Taubner & Sevecke, 2015), although efforts have been made to use economically manageable test instruments based on questionnaires for some time now (Fonagy et al., 2016; Badoud et al., 2015). Nevertheless, this study does not claim to have measured mentalizing abilities per se. Instead, it is the self-rated mentalizing capacity of the subjects that underlies the findings. Finally, the sample itself can be considered to be a limitation. Although we studied a non-

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clinical sample, the results cannot easily be applied to the general population (i.e., beyond those working and training in educational settings), as indicated by the high proportion of female participants and the heterogeneous age structure in the sample, as well as by the particular personality characteristics that lead people to their career choices in education. In addition, it should be noted that the mentalizing capacities in the current sample, on average, were very high which may have skewed the results.

### **Conclusion**

With reference to the present results and bearing in mind the methodological constraints of a cross-sectional design, our hypothesis that robust mentalizing could constitute a coping resource can be confirmed. In particular, results reveal that mentalizing can partially compensate for the negative influence of experiences of stress, leading to a decrease in the use of the negative coping behavior. Consequently, the current study highlights the protective function of robust mentalizing capacities. This is relevant from a health psychological perspective. The promotion of mentalizing abilities is feasible in the context of psychotherapeutic treatment for manifest mental illness. Also in preventive settings, the fostering of reflective capacities has been documented and is effective within a shorter period of time in adults (e.g. Adkins et al., 2018; Valle et al., 2016; Welstead et al., 2018) and in adolescents (e.g. Twemlow et al., 2001).

It is possible that mentalization-based supervision or reflective practice which aims to create a mentalizing culture for the understanding of conflicts and challenges in professional work contexts may be a promising approach for the prevention of stress-related mental health problems among professionals, especially in mental health settings. Moreover, mentalization-informed school interventions for children and adolescents and approaches for implementation in pedagogical work contexts are available (e.g. Twemlow et al., 2001; Gingelmaier et al., 2018), addressing student's mentalizing capacities.

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Table 1

*Descriptive statistics of the sample and correlations between measures controlling for sex and age.*

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Variable	<i>N</i>	Mean ( <i>SD</i> )	MZQ	TICS_SCSS	SVF_Pos	SVF_Nega
Age	534	23.68 (7.25)	–	–	–	–
MZQ	534	53.36 (8.48)	–	–	–	–
TICS_SCSS	534	20.24 (9.09)	–.63**	–	–	–
SVF_Pos	534	85.06 (18.81)	.164**	–.10*	–	–
SVF_Nega	534	43.45 (18.02)	–.54**	.57**	–.15**	–

*Note.* MZQ: Mentalization Questionnaire, TICS\_SCSS = Trierer Inventory of Chronic Stress – Screening Scale, SVF\_Pos: Stress Processing Questionnaire – Positive Coping, SVF\_Nega: Stress Processing Questionnaire – Negative Coping. \*\*  $p < .01$ , \*  $p < .05$ .

Table 2

*Results of linear regression analyses examining the contributions of TICS\_SCSS and MZQ scales to predict positive and negative coping in a community sample.*

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	SVF_Pos				SCF_Nega			
	B	SE	$\beta$	CI (95%)	B	SE	$\beta$	CI (95%)
TICS_SCSS	-.002	.113	-.001	-.224 – .221	.756	.088	.382**	.584 – .928
MZQ	.365	.123	.164**	.123 – .607	-.647	.095	-.305**	-.835 – -.460
Age	.267	.112	.103*	.046 – .488	.088	.087	.036	-.083 – .259
Sex	-6.391	2.501	-.109*	-11.303 – -1.479	2.616	1.934	.047	-1.184 – 6.415
$R^2$								
$F$								

*Note.* MZQ: Mentalization Questionnaire, TICS\_SCSS = Trierer Inventory of Chronic Stress – Screening Scale, SVF\_Pos: Stress Processing Questionnaire – Positive Coping, SVF\_Nega: Stress Processing Questionnaire – Negative Coping. \*\*  $p < .01$ , \*  $p < .05$ .

Figure 1. Hypothesized mediation model

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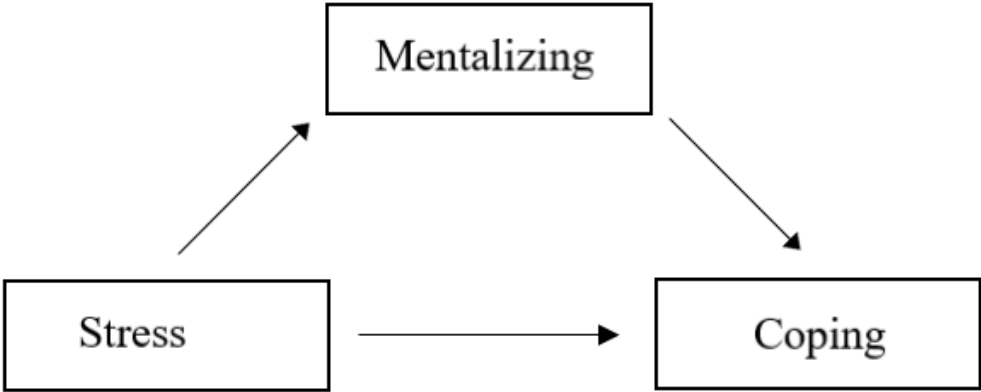
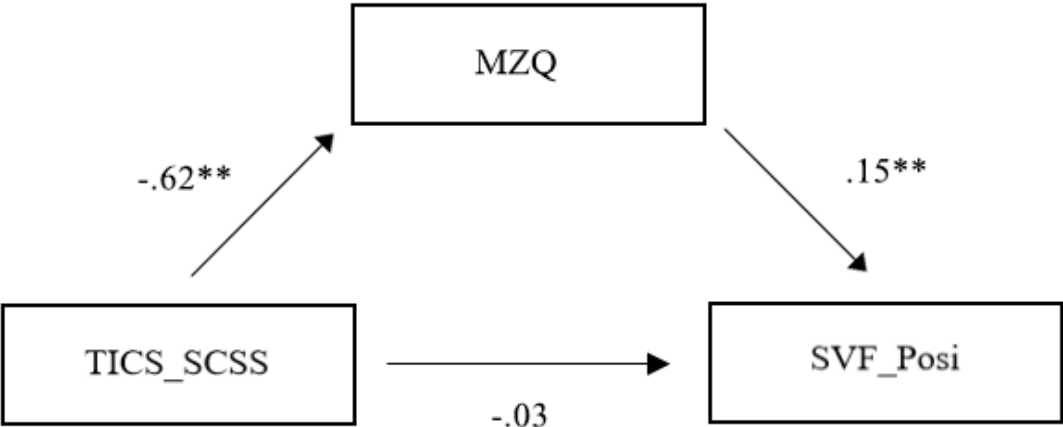


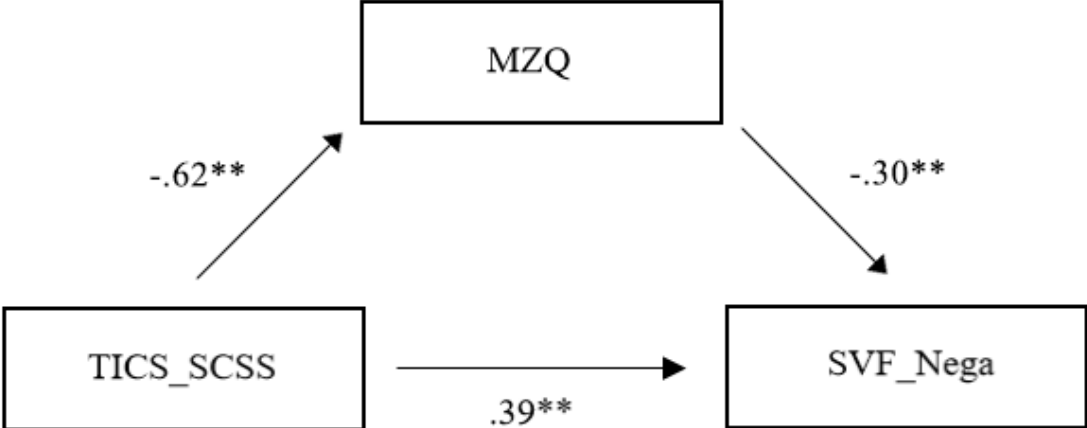
Figure 2. Path analysis examining the mediating role of self-rated mentalizing between stress and coping in a non-clinical sample (N = 534).

MENTALIZING AS MEDIATOR BETWEEN STRESS AND COPING

Model 1



Model 2



Note. MZQ: Mentalization Questionnaire, TICS\_SCSS = Trierer Inventory of Chronic Stress – Screening Scale, SVF\_Pos: Stress Processing Questionnaire – Positive Coping, SVF\_Nega: Stress Processing Questionnaire – Negative Coping.  $^{***} p < .001$ ,  $^{**} p < .01$ ,  $^{*} p < .05$ .