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Editorial

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What Is the Common Ground for Modern Psychotherapy? A Discussion Paper Based on EACLIPT's 1st Webinar

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Abstract

Psychotherapy as it is implemented today, can be seen as the composition of unconnected groups of practitioners and scientists pursuing different theories. The idea of finding a common "umbrella" for all evidence-based treatments in the field of psychotherapy is gaining more interest. Based on this background, experts in clinical psychology from various backgrounds led a fundamental discussion about modern psychotherapy and its basic mechanisms. Process-Based Therapy (PBT) was presented by Stefan Hofmann as a possible novel approach to clinical research and practice. In this article we present the different perspectives of the four panelists on PBT and in how far the model builds a common ground for different treatment approaches. Learning mechanisms and the therapeutic alliance were almost unanimously considered as indispensable factors in a global model of psychotherapy. In conclusion, the panelists emphasized a much-needed focus on characteristics and competencies of therapists themselves e.g., in communication, listening and empathy. These core competencies should be trained and promoted independently of the therapeutic approach.

Keywords

psychotherapy, common ground, Process-Based Therapy, panel discussion, EACLIPT webinar

Highlights

- The formulation of a common ground of modern psychotherapy is needed that integrates all evidence-based psychological therapies.
- Process-Based Therapy was proposed as a new overarching concept that complements former general psychotherapy approaches.
- Basic mechanisms of psychotherapy were discussed that considered different psychotherapeutic approaches.
- Implications for education and training in psychological therapies should focus on a competence-based approach.

The European Association of Clinical Psychology and Psychological Treatment EACLIPT has the goal to promote and develop research in clinical psychology, its application and in psychological treatments and fostering the communication throughout the world. In this framework, a webinar has been organized by EACLIPT leading a theoretical discussion about "What is the common ground for modern psychotherapy?" with Stefan Hofmann, Jacques Barber, Bruce Wampold, and Paul Salkovskis as panelists, and chaired by Winfried Rief. The webinar was streamed live on the 16th of November 2021, whereas already over 1.800 people watched the video (still online available on YouTube under the following link: https://www.youtube.com/watch?v=WffZx2lOlTs).

The background of organizing this expert panel was based on the idea of finding a common "umbrella" (EACLIPT, 2019; Rief, 2021), i.e. a common language, for all evidence-based treatments in the field of psychotherapy. The webinar was introduced with the following comments: Psychotherapy was developed from different roots, and many clinicians and scientists still consider psychotherapy as a collection of unconnected groups of theories and associated interventions. However, as long as psychotherapy is not considered as one academic and clinical field, progress and reciprocal stimulation of developments is seriously hampered. Goldfried labeled this stage as "prescientific", and calls for search for a common ground, language and theory of psychotherapy, to develop one science and intervention model that could be used as overarching framework, before specifying into single approaches (Goldfried, 2020). Hofmann and Hayes believe that the evaluation of complete treatment packages (e.g., exposure for phobias) has reached its limit and needs more flexible, process-based, and problem-focused treatment planning, grounded in scientifically proven mechanisms of change (Hayes & Hofmann, 2018). Consequently, training of young clinical psychologists and psychotherapists may require a switch from a single traditional "school" of psychotherapy to a competence-based education that can integrate different, scientifically proven methods, derived from different backgrounds (Rief, 2021).

This article summarizes the main discussion points. A short introduction about the presented theoretical background of Process-Based Therapy (PBT) developed by Hayes

and Hofmann (2018) is given, followed by the main statements about common ground theories of psychotherapy between the panelists.

An Introduction to Process-Based Psychotherapy by Hofmann

Nowadays, clinical psychology based on the nomothetic approach focuses strongly on disorder categories and general treatment approaches instead of on the individual as well as on treatment change processes. Classification systems such as the ICD or DSM laid grounds to study various mental problems and provided effective alternatives to drug treatments. However, they are based on the latent disease model which cannot measure, quantify, or test these syndromes properly. Instead, syndrome clusters or disorders are an expression of symptoms based on a subjective report. Hofmann argued that clinical scientist should be more interested in the interrelationships of complaints and psychological variables, regardless of a possibly underlying latent disease model.

Within this context Hofmann referred to the complex network approach on clinical research of psychotherapy (Hofmann et al., 2016). This network perspective considers therapy as a highly complex process that involves a multitude of variables that typically form dynamic processes. To target these processes Hayes and Hofmann propose a transition from the nomothetic approach to an idiographic approach of theory-based and process-based therapy. Hofmann pointed out that PBT focuses on the biopsychosocial processes that should be targeted specifically for the given client and therapy goals to not only reduce symptoms but to enhance the client's prosperity. Next, he referred to one of his own reviews which examined the most frequently validated mediators of psychosocial interventions. As a result, features such as self-efficacy, acceptance, expectations, psychological flexibility, coping skills etc. presented themselves as functionally important pathways of change, irrespective of being systemized into particular schools of psychotherapy.

Based on the idea to get away from a syndromic perspective, Hayes and Hofmann developed the so-called "*Extended Evolutionary Meta-Model"* (EEMM). As a meta model of adaptive change, the facilitation of clients' competencies for adaption is targeted as a primary goal in PBT. This model is based on evolutionary theories assuming (mal-)adaptive change based on context-dependent variation, selection, and retention. To achieve a specific situational outcome, it is important to firstly be aware of various options (variation), secondly to select the most fitting one (selection) and thirdly to retain it (retention) for the given context, respectively. These change processes are expressed in interrelated dimensions of affect, cognition, attention, self, motivation, overt behavior, physiology and social background/ culture. By developing a whole problem network with the client called *'grid'*, it is possible to identify maladaptation of the individual in the dimensions, respectively, and to help change it to an adaptive self-sustaining

network. This concept opens the possibility to quantify and therefore predict (critical) psychological events (through e.g., critical slowing) such as psychotic breaks, suicide attempts or state of recovery.

In summary, the strategy of PBT is to depart from the latent disease model and embrace an idiographic and functional analytic approach. According to Hofmann, PBT emphasizes on flexibility and the widening of treatment goals from merely reducing negative affect towards positive affect to social connectedness, purpose, and quality of life.

Discussion Points

The main discussion points are summarized in the following:

Moving Away From a Syndrome-Based Approach: Is There an Additional Benefit of Process-Based Therapy as New Concept?

All panelists agreed on the current issues in clinical research and practice presented by Hofmann in his talk: Clinical psychology is too focused on the syndrome level, whereby the individual moves more and more in the background, especially in research. Psychotherapy is a more complex mechanism than just "reducing symptoms" or following treatment protocols. Salkovskis and Wampold pointed out, that these tedious issues are still leading to a constant formation of "new" therapy approaches which basically are still based on old concepts. These therapy approaches are not supposed to be disorder-specific but should rather focus on formulation and the client's adaptation of that formulation as a mechanism of change. This covers helping the client to be less rigid and to formulate alternative interpretations of situations. By working in that collaboration therapy can help the person to learn how to operate in the world. Further, the novelty of the PBT approach was questioned as several process or contextual models of therapy were generated in clinical research over time. Other well-established concepts and therapy models were referenced which address similar therapeutic aspects as PBT such as epistemic trust, common factors model, the idea of flexibility or behavioral activation. Wampold and Salkovskis agreed with Hofmann that different approaches and interventions in therapy should be evaluated to improve the understanding of underlying processes. Hofmann added that the PBT approach is meant to provide broad guidelines from a wide length of therapeutic strategies to make therapy more individualized. From the PBT perspective therapy is a dynamic process of change. Through the complex network concept, it can be visualized and explained to the client as well as systematically adapted as goals change over time within the therapeutic context.

Concept of Learning vs. Evolutionary Theory

The EEMM Model of PBT is based on an evolutionary perspective on adaptation. Building psychotherapy concepts on evolutionary processes was highly discussed between the panelists. This perspective was compared with learning principles as basic mechanism of therapy, whereas learning itself can be seen as an adaption process. It was pointed out that evolutionary theories are rather associated with long-term development processes on a group level whereas learning principles are possibly more applicable and comprehensible for patients on the individual level in a short-term context and therapeutic setting, respectively.

Where to Find the Therapeutic Relationship in PBT?

The therapeutic relationship in the PBT-model can be found and considered in the social dimension. Salkovskis, Wampold, and Barber expressed the idea, to include it in a more salient way into the PBT-model, especially if PBT should present a ground for different psychotherapy traditions. As the need of an evidence-based grounding is crucial in psychotherapy, the therapeutic alliance should be included in experimental psychopathology research. It was proposed to go even further and to include the different aspects of a therapeutic relationship (e.g. communication; expectations about the therapeutic alliance; therapeutic alliance as corrective emotional experience). For psychodynamics this would be essential, as the therapist takes a much more active role in shaping and interpreting the therapist-patient relationship. Further on, computerized psychotherapy with no real therapeutic relationship was consulted. Even in this context, the therapeutic alliance could be seen as the expertise and authority presumed by the patient of the person they imagine behind the book or the program, whereas trust in the medium is discussed as crucial.

In agreement, Wampold pointed out that the therapeutic alliance in computer-assisted therapies is just as predictive as in face-to-face therapy.

Inclusion of Different Therapy Training Approaches?

PBT aspires to be a therapy school- independent approach that integrates different therapy training approaches. In accordance with all panelists, the idea of finding a common language for different schools of therapy was welcomed. However, it was argued that although the combination in PBT of neurobiological aspects with psychology is admirable, important aspects of psychotherapy in general e.g., the ability to listen to somebody well are not instantly recognizable in this model. It was questioned if PBT rather creates a common language for cognitive-behavioral therapy (CBT) and not for all therapies. In response Hofmann pointed out that over the years ‘CBT’ has become a very broad term for a therapy school including constantly evolving therapy approaches

and clinical strategies which do not necessarily represent the traditional image of CBT. It should therefore just be called "therapy".

Implications in Psychotherapy Training

According to Hofmann, one core issue is that therapists are mainly trained based on guidelines that are based on disorders, although therapy is a much more complex process than just reducing symptoms. The therapy school approach is too rigid. Related to this, the selection of therapist in training itself should be considered. Characteristics of a decent human being with the ability to empathize and collaborate with people should be looked out for. The importance of empirical grounding in training and the need of a permanently self-correcting system on the level of own therapy outcomes as well as on the service level was discussed. In this context the example of the IAPT *Improving Access for Psychological Treatment* by David Clark was proposed (Clark, 2018). Using feedback systems and informing about deviances from expected improvements, different measures can be taken such as proposing additional supervision or shifting the training. Furthermore, to evolve psychotherapy training, the question about what characterizes an effective therapist in delivering different treatments should be addressed. As a main criterion, therapists should be trained, regardless of what model they adopt, to do it effectively.

Conclusion

The present paper summarizes the main discussion points between the panelists Jacques Barber, Stefan Hofmann, Paul Salkovskis, and Bruce Wampold on finding a common ground in psychotherapy within the context of the PBT model presented by S. Hofmann. The common agreement about getting away of a school-dependent system towards a more global approach considering school-independent factors became clear. PBT as a proposed modern therapy approach brought up different points of criticism and addition. The focus on more general evidence-based change processes is welcomed, but a better consideration of common factors was proposed, and the therapeutic alliance was specifically highlighted to be integrated. Moreover, the basic process of psychotherapy based on evolutionary theory in PBT was balanced against using the basic principles of learning. To conclude, the way to a common ground in psychotherapy is a highly important and well discussed topic, and when further perspectives are integrated, this can result in a dynamic and developing meta-model for psychotherapy.

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References

Clark, D. M. (2018). Realizing the mass public benefit of evidence-based psychological therapies: The IAPT program. In T. Widiger & T. D. Cannon (Eds.), *Annual Review of Clinical Psychology* (Vol. 14, pp. 159-183). https://doi.org/10.1146/annurev-clinpsy-050817-084833

EACLIPT Task Force On "Competences of Clinical Psychologists". (2019). Competences of clinical psychologists. *Clinical Psychology in Europe, 1*(2), Article e35551. https://doi.org/10.32872/cpe.v1i2.35551

Goldfried, M. R. (2020). The field of psychotherapy: Over 100 years old and still an infant science. *Clinical Psychology in Europe, 2*(1), Article e2753. https://doi.org/10.32872/cpe.v2i1.2753

Hayes, S. C., & Hofmann, S. G. (2018). *Process-based CBT: The science and core clinical competencies of cognitive behavioral therapy*. New Harbinger Publications.

Hofmann, S. G., Curtiss, J., & McNally, R. J. (2016). A complex network perspective on clinical science. *Perspectives on Psychological Science, 11*(5), 597–605. https://doi.org/10.1177/1745691616639283

Rief, W. (2021). Moving from tradition-based to competence-based psychotherapy. *Evidence-Based Mental Health, 24*, 115–120. https://doi.org/10.1136/ebmental-2020-300219

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Research Articles

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The Impact of an Insecure Asylum Status on Mental Health of Adult Refugees in Germany

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Supplementary Materials: Materials [see Index of Supplementary Materials]

Abstract

Background: Forcibly displaced people have a higher chance of developing post-traumatic stress disorder (PTSD) compared to people who have not experienced displacement. In addition to potentially traumatic events due to war, persecution, and flight, post-migration living stressors are an important influencing factor. Among these, an insecure asylum status is one of the main stressors with which forcibly displaced people must cope. The aim of this study was to investigate the additive effect of an insecure asylum status on PTSD symptomatology in refugees, over and above the influence of other pre- and peri-migration factors, in particular potentially traumatic event types reported and duration of stay in Germany.

Method: Two overlapping convenience samples of 177 and 65 adult refugees that were assessed at different timepoints were interviewed by means of face-to-face interviews. Interviews were conducted in either Arabic, Farsi, Kurmancî, English, or German with the assistance of interpreters where necessary. Besides residence status and potentially traumatic events experienced, mental distress was assessed via the Refugee Health Screener-15 (RHS-15; Study A) and the PTSD Checklist for DSM-5 (PCL-5; Study B).

Results: In both samples, an insecure asylum status explained a significant additional amount of variance of PTSD symptomatology, on top of traumatic events experienced and time since arrival in Germany.

Conclusion: Results suggest that refugees with an insecure asylum status are at higher risk for experiencing increased PTSD symptomatology. Policy changes of asylum procedure in receiving countries could have a positive impact on refugees' mental health.

Keywords

refugees, forcibly displaced people, mental health, post-traumatic stress disorder, insecure asylum status, post-migration living stressors

Highlights

- Prevalence rates of mental disorders are high among forcibly displaced people.
- The impact of post-migration stressors on refugees' mental health should not be disregarded.
- As one of the possible post-migration stressors, asylum status is substantially associated with mental health.
- Changes to reception policies may be taken into account.

Background

At the end of 2019, 79.5 million people were forcibly displaced worldwide. Over the course of the previous decades this number has increased consistently (UNHCR, 2020). The high numbers pose serious challenges to the receiving countries, straining their capacity to provide housing, food, healthcare services, and education. As a result, during the last years, several potential receiving countries have adapted their reception policies regarding people seeking refuge (Fazel, Karunakara, & Newnham, 2014; Jakubowicz, 2016; Li, Liddell, & Nickerson, 2016). As a consequence, in 2019 less than 40% of asylum seekers were formally recognized as refugees (UNHCR, 2020).

Compared to non-refugees, those who have been forcibly displaced have a higher risk of mental disorders, most prominently post-traumatic stress disorder (PTSD) and depression (Bozorgmehr et al., 2016; Gäbel, Ruf, Schauer, Odenwald, & Neuner, 2006). Studies demonstrated that mental disorders among refugees come along with a high burden. Due to the symptoms, such as difficulty concentrating or sleeping problems, learning a new language, staying engaged in classes, or going to work on a regular basis can be much harder (Elbert, Wilker, Schauer, & Neuner, 2017).

Several studies have pointed out that post-migration stressors in the receiving countries have an impact on the onset and maintenance of psychological disorders (Chu, Keller, & Rasmussen, 2013; Li et al., 2016).

Asylum Application Procedure in Germany

One of the most salient post-migration stressors is an insecure residence permit that may leave refugees living in uncertainty and with restricted rights for months and even years (Li et al., 2016). In Germany, there are several different types of residence status for refugees (Federal Office for Migration and Refugees, 2019). The *entitlement to asylum*, according to Article 16a para. 1 of the constitution (Grundgesetz), and the *refugee protection*, according to section 3 subs. of the Asylum Act (AsylG), involve similar

implications for affected people's lives. Both comprise a residence permit for three years. Access to the labor market is not restricted and the refugees are entitled to family reunification. Moreover, in case people meet preconditions like German language skills, a permanent settlement permit after three or five years is possible. According to section 4 subs. 1 of the Asylum Act (AsylG), *subsidiary protection* comprises a residence permit for one year, which can be repeatedly extended by two years. Similar to the two other forms of protection stated above, receiving a settlement permit is possible but only after five years. Access to the labor market is unrestricted as well. In contrast to the entitlement to asylum and the refugee protection, people with a subsidiary protection are not entitled to privileged family reunification. Individuals holding one of these three types of permits have a right to move to their own homes with some regional restrictions and a comparable health care protection as the general population in Germany.

Individuals who receive a *national ban on deportation* have a residence permit for at least one year, with possibility of extension. Again, receiving a settlement permit is possible after five years. In contrast to the other forms of protection stated above, there are restrictions regarding the access to the labor market. The same holds for asylum seekers with *pending applications*. When an asylum *application is turned down*, the person has to leave Germany in the near future.

Consequences of an Insecure Residence Status for Mental Health in Refugees

During recent years, the potential influence of an insecure residence status on mental health in forcibly displaced people became increasingly apparent. Research findings tend to show that insecure status is correlated with mental health symptoms (Heeren et al., 2016; Müller, Zink, & Koch, 2018; Newnham, Pearman, Olinga-Shannon, & Nickerson, 2019). In a study by Momartin et al. (2006), residing under a temporary permit to stay was found to be the greatest predictor of PTSD symptomatology even when having accounted for trauma experiences in the analyses. However, some studies have provided mixed results (Schick et al., 2016; Winkler, Brandl, Bretz, Heinz, & Schouler-Ocak, 2019). Schick et al. (2016) found that, while PTSD symptomatology was correlated with a sum-score of other post-migration stressors, there was no isolated influence of visa status. Similarly, Winkler et al. (2019) did not find a significant association between visa status and PTSD symptoms. However, among participants who fulfilled PTSD criteria, symptom intensity was increased with an insecure asylum status.

As reported above, visa insecurity often comes with restrictions in daily life like limited access to health care services or limited rights (Müller et al., 2018). These factors seem to increase the risk of mental disorders (Chu et al., 2013) and complicate the process of integrating into a new society because opportunities to do so are limited (Müller et al., 2018). These findings are supported by previous research that found that mental

health improved following the granting of a residence permit (Lamkaddem, Essink-Bot, Deville, Gerritsen, & Stronks, 2015).

Next to visa status, the duration of stay in the host country (Nickerson et al., 2019) that is highly associated with the duration of the asylum procedure (Laban, Gernaat, Komproe, van der Tweel, & De Jong, 2005) may have an influence on mental health of refugees and people seeking asylum. In a study with refugees in Australia, duration of stay was correlated with suicidal intent (Nickerson et al., 2019). An association of duration of asylum procedure and anxiety disorders was found by Laban et al. (2005). However, findings in the literature have been unable to confirm a consistent association, since other studies have found no effect (Heeren et al., 2016; Winkler et al., 2019). It may be conceivable that duration of stay assumes central importance only when it exceeds a threshold value. Differentiating between different aspects of post-migration stressors, Laban, Komproe, Gernaat, and de Jong (2008) concluded that asylum seekers who had been in the Netherlands for more than two years had several post-migration stressors to cope with, which might explain the association they made in earlier research (Laban et al., 2005) regarding the length of stay in the receiving country with mental health.

Although the nature of the association between asylum seekers' mental health and their length of stay in their host context remains uncertain, it is clear that forcibly displaced people often encounter significant stressors and have limited access to coping resources because of their pre- and peri-migration experiences, new living situation, and post-migration stressors. Research has shown that the stressors experienced by people seeking asylum and recognized refugees can be divided in two categories (Womersley, Kloetzer, & Goguikian Ratcliff, 2017). The first category is associated with difficulties with housing and labor, which are reported by both groups. The second category is experienced more acutely by asylum seekers, who have reported uncertainty, lack of control, and insecurity. Asylum seekers live under constant threat of being expelled from their relatively safe living environment (Müller et al., 2018). Uncertainty is one of the factors increasing the probability of continuing mental disorders (Bogic et al., 2012; Ryan, Benson, & Dooley, 2008) and personal control is lost (Ryan, Benson, & Dooley, 2008). Therefore, no complete security can be felt, which seems to be closely related with the development and maintenance of mental distress/PTSD.

Aim of the Study

This study seeks to investigate the effects of asylum status on PTSD symptomatology over and above the influence of potentially traumatic event types reported and length of stay in country of arrival in refugees living in Germany.

Method

In this paper, two studies and the respective results are presented. *Study A* and *Study B*, including procedures and measures used, will be presented successively. The samples are overlapping and Sample B is a detailed and more comprehensive re-assessment of a subset of Sample A. All participants of *Study A* who consented to a second interview were tried to be reached via telephone, email, or in person. Participants in Sample B participated in additional clinical face-to-face interviews by an expert interviewer that allowed to apply more detailed clinical scales some months after the first interview.

Sample

Study A. Between February and August 2018 face-to-face interviews were conducted with 198 refugees (23.2% female, n = 46). The unselected convenience sample ranged from 18 to 75 years of age (M = 33.03, SD = 11.02). Refugees were eligible to participate if they were at or above the age of majority, were living in North Rhine-Westphalia, had sufficient language skills to be able to conduct the interview in Arabic, Farsi, Kurmancî (as these three languages were the most common ones on site at the time of the study), English or German, and their time since arrival in Germany did not exceed six years.

Study B. Between August 2018 and March 2019, refugees form *Study A* were recontacted and approached for interviews. Out of these, 65 refugees (20.0% female, n = 13) participated, the remaining could not be contacted or were not available for a re-interview. The participation rate of 32.8% may be explained by the fact that a substantial proportion of the participants of *Study A* had no secure residence status and had possibly been forced to leave Germany in the meantime. In general, most participants could be contacted successfully via telephone, email, or in person were consenting to take part in *Study B*. Participants ranged from 19 to 75 years of age (M = 34.50, SD = 12.13).

Procedures

Data collection was conducted within the framework of the research consortium "FlüGe–Opportunities and challenges that global refugee migration presents for health care in Germany" and was part of a larger study. The program was funded by the Ministry of Culture and Science of the State of North Rhine-Westphalia, Germany. Thirteen paraprofessional interviewers (12 male, 1 female) were trained as both interviewers and interpreters (9 Arabic native speakers, 3 Farsi native speakers, 4 Kurmancî native speakers). Data was collected in a region in the north-east of North Rhine-Westphalia, Germany. Interviews took place in shared accommodation facilities, private apartments, and on the Bielefeld University campus. Potential literacy problems were avoided by reading out all questions to participants. The respondents were free not to answer single questions without giving reasons. The Ethical Review Board of Bielefeld University granted appro-

val for the study. To ensure the voluntariness of participation in an interview that may provoke distress in some individuals no compensation was provided for participation.

Study A. All material (informed consent forms, information letters, questionnaire) was translated by a professional translation agency and native speakers. Blind back-translations ensured correct translation. Participants were identified through contact with social workers who have been working in the region and made contact with the shared accommodations. During informational events, initial interview appointments were arranged. Further appointments were agreed on by asking people present in the accommodations and via snowball sampling. Field teams consisted of two supervising researchers and the necessary interviewers. The face-to-face interviews lasted on average 90 minutes (*SD* = 31.9).

Study B. Informed consent forms and information letters were again translated and blind back translated. In the event that participants had previously provided their written consent and contact information, they were contacted via telephone, email, or home visits. Face-to-face interviews were conducted by German speaking researchers with the assistance of interpreters where necessary. Interviews lasted 116 minutes on average (*SD* = 48.2). Participants were interviewed an average of six months after they had been interviewed for *Study A*.

Measures

Study A. Information regarding age, gender, citizenship, education, marital status, length of time since arrival in Germany, and potentially traumatic event types was collected (see Appendix A in the Supplementary Materials). In addition, mental distress and residence status were assessed (see detailed description below).

Study B. In addition to the questions assessed in the first interview, participants were asked to answer further questions regarding potentially traumatic event types and PTSD symptomatology. Residence status was assessed again (see detailed description below).

Mental Distress

Study A. The 15 item Refugee Health Screener-15 (RHS-15; Hollifield et al., 2013) assesses mental distress in refugees. The first 13 questions assess the presence of different symptoms of depression, anxiety, and PTSD during the last month. Question 14 measures the general coping capacities. Answers are given on a 5-point Likert scale (not at all – extremely). Question 15 assesses how much suffering the participant experienced last week. Responses to this item were reported on a scale of 0–10 on a "distress thermometer". Effectiveness, validity, and reliability of the screening instrument have been demonstrated in various studies (Hollifield et al., 2016; Hollifield et al., 2013; Kaltenbach, Härdtner, Hermenau, Schauer, & Elbert, 2017). In *Study A* a Cronbach's α of .87 was found. The cutoff value recommended by Hollifield et al. (2013) is a sum-score of ≥ 12 regarding questions 1–14 and/or a score of ≥ 5 regarding the distress thermometer.

The former cutoff is used in this study. Regarding this cutoff, a sensitivity of = .81 and specificity of = .87 for PTSD was reported (Hollifield et al., 2013).

Study B. The German version of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Krüger-Gottschalk et al., 2017) was used to assess PTSD symptomatology within the past month. The PCL-5 consists of 20 questions. Answers were rated 0 (not at all) – 4 (extremely), which results in the highest possible score of 80. In the current sample, Cronbach's α was .86. Good psychometric properties have been demonstrated in previous studies (Krüger-Gottschalk et al., 2017; Wortmann et al., 2016). Ibrahim, Ertl, Catani, Ismail, and Neuner (2018) used the translated checklist in displaced Arab and Kurdish populations and came up with a cut-off score of 23 to be the best balance between specificity and sensitivity in these populations.

Residence Status

The answers regarding the question assessing residence status were grouped in six categories (recognized as refugee, entitled to asylum, subsidiary protection, asylum applicant with pending procedure, temporary suspension of deportation, demand to leave Germany). The first three of the categories were classified as "secure residence status". The latter three were classified as "insecure residence status".

Data Analysis

Statistical analyses were performed with IBM SPSS Statistics Version 27 for macOS. Due to ≥ 10% missing data in the RHS-15, 21 participants were excluded from *Study A*. Regarding cases with < 10% missing values on the RHS-15, values were set equal to 0. Multiple linear regression analyses with two levels were carried out for both samples. In *Study A*, the RHS sum-score to assess mental distress and in *Study B*, the PCL-5 sum-score to assess PTSD symptomatology were used as dependent variables. Both analyses accounted for age, gender (females coded as 0, males coded as 1), number of traumatic event types reported, and time (in month) since arrival in Germany. The variables accounted for were entered in step one. The dummy coded residence status (secure residence status coded as 0, insecure residence status coded as 1) was added in the second step. For the analyses the alpha level was set at 0.05.

Results

Study A. The 177 participants (20.3%; n = 36 female) were, on average, 33 years old (SD = 11.21). With 42.4% (n = 75) the largest proportion of participants had a Syrian citizenship, followed by 26.6% (n = 47) with an Iraqi citizenship, and 9.0% (n = 16) with an Afghan citizenship. The average time since arrival in Germany was 28.5 months (SD = 9.96). An insecure residence status was reported by 30.5% (n = 61) of participants. RHS

mean sum-score (Items 1–14 of the RHS-15) was 15.61 (*SD* = 10.92). A score above the cutoff (score ≥ 12) was reached by 54.8% (*n* = 97) of the participants.

Study B. The 65 participants (20.0%, *n* = 13 female) were, on average, 35 years old (*SD* = 12.13). The majority stated holding a Syrian citizenship (58.5%, *n* = 38), followed by 23.1% (*n* = 15) with an Iraqi citizenship. Average time since arrival in Germany was almost three years (*M* = 34.66 month; *SD* = 10.68). An insecure residence status was indicated by 15 participants (16.5%; see Appendix A in the Supplementary Materials for all descriptive data). The mean score on the PCL-5 was 19.68 (*SD* = 14.58). Using a suggested cut-off score of 23 for Arabic and Kurdish displaced populations (Ibrahim et al., 2018), 25 participants (38.5%) met DSM-5 criteria for probable PTSD diagnosis.

Mental Distress

Study A. Participants who indicated having an insecure residence status had a higher RHS-15 sum-score (*M* = 20.52; *SD* = 11.53) compared to participants holding a secure residence status, *M* = 13.00; *SD* = 9.76; $t(171) = -4.54$, $p < .001$.

Study B. Participants holding an insecure residence status reported an average score of 30.67 (*SD* = 15.98) on the PCL-5, whereas participants with a secure residence status scored 16.38 (*SD* = 12.52) on average, $t(63) = -3.63$, $p = .001$ (see Appendix A in the Supplementary Materials for all descriptive data).

Residence Status

Of the 177 participants in *Study A*, four participants did not indicate their residence status, 61 indicated having a relatively secure residence status (34.5%). In *Study B*, 23.0% of participants reported an insecure residence status (see Table 1 for a detailed overview).

Table 1

Descriptive Statistics of Participants' Residence Status Type

	Study A (*N* = 177)		Study B (*N* = 65)	
Residence status	***n***	**%**	***n***	**%**
Secure residence status				
Recognized as refugee	42	23.7	6	9.2
Entitled to asylum	35	19.8	24	36.9
Subsidiary protection	35	19.8	20	30.8
Insecure residence status; *n* (%)				
Asylum applicant with pending procedure	38	21.5	6	9.2
Temporary suspension of deportation	19	10.8	8	12.3
Demand to leave Germany	4	2.3	1	1.5
Missing	4	2.3	0	0.0

Note. % figures rounded to one decimal place.

The Impact of Residence Status on Mental Health–Multiple Regression Analyses

Study A. Variables added in the first step (age, gender, number of event types reported, time (in month) since arrival in Germany) resulted in an R^2 of .12 ($p < .001$). The variables accounted for a significant amount of variance of mental distress variability. Adding residence status in the second step explained an additional 7.7% of variance ($\Delta R^2 = .08$, $p < .001$). In the first step, age, gender, and number of traumatic event types experienced were significantly associated with the RHS sum-score. In the second step, gender, number of reported event types, and residence status were significantly associated with the RHS sum-score. An insecure residence status was associated with a higher RHS sum-score. Overall, a significant regression equation was found, $F(5, 161) = 7.82$, $p < .001$. The final model accounted for 19.5% of the total variance in mental distress captured by the RHS-15 (see Table 2 for exact values).

Table 2

Hierarchical Regression Analysis of PTSD Symptoms

	Study A (RHS-15 sum-score as dependent variable)[a]		Study B (PCL-5 sum-score as dependent variable)[b]	
Variable	***B* [95% CI]**	***p***	***B* [95% CI]**	***p***
Step 1				
Age	0.15 [0.00, 0.30]	.046*	0.12 [-0.14, 0.39]	.351
Gender	-5.47 [-9.61, -1.33]	.010*	-15.29 [-23.70, -6.88]	.001*
Number traumatic event types reported	0.92 [0.45, 1.30]	< .001*	1.02 [0.37, 1.68]	.003*
Time since arrival in Germany[c]	-.04 [-0.22, 0.14]	.657	0.49 [0.17, 0.82]	.004*
Step 2				
Age	0.14 [-0.01, 0.28]	.059	0.16 [-0.08, 0.40]	.187
Gender	-5.35 [-9.32, -1.38]	.009*	-16.33 [-24.09, -8.56]	< .001*
Number traumatic event types reported	0.67 [0.20, 1.14]	.005*	0.71 [0.09, 1.34]	.026*
Time since arrival in Germany[a]	-0.04 [-0.21, 0.14]	.640	0.45 [0.14, 0.75]	.004*
Insecure residence status	6.65 [3.30, 10.00]	< .001*	12.38 [5.13, 19.63]	.001*

[a]$R^2 = .12$ for Step 1 ($p < .001$); $\Delta R^2 = .08$ for Step 2 ($p < .001$). Listwise deletion. $N = 167$. [b]$R^2 = .34$ for Step 1 ($p < .001$); $\Delta R^2 = .11$ for Step 2 ($p = .001$). Listwise deletion. $N = 64$. [c]in month.
*$p \leq .05$.

Study B. Variables added in the first step accounted for 34.4% of variance of PTSD symptomatology ($R^2 = .34$, $p < .001$). By adding residence status in the second step additional 11.0% of variance of the PCL-5 sum-score was explained ($\Delta R^2 = .11$, $p = .001$). Apart from age, all variables were significantly associated with the PTSD symptom variability in both steps of the regression analysis. A significant regression equation was found,

$F(5, 58) = 9.64$, $p < .001$. The final model accounted for approximately 45.4% of the total variance of PTSD symptomatology (see Table 2 for exact values).

Discussion

Impact of Residence Status on Refugees' Mental Health

Our study of forcibly displaced people found that people with an insecure asylum status are at higher risk for an increased PTSD symptomatology. These findings are in line with earlier research (Heeren et al., 2016; Müller et al., 2018; Newnham et al., 2019). Potential explanations for our results must include a consideration of the kind and amount of post-migration stressors experienced by the refugees. As described by Womersley et al. (2017), people with an insecure asylum status often have a larger number of stressors than those with a more secure asylum status.

Female gender was accompanied with increased symptomatology scores (5.35 on the RHS-15 and 16.33 on the PCL-5). This finding is in line with earlier research reporting female gender as a predictor of PTSD symptomatology (Mahmood, Ibrahim, Goessmann, Ismail, & Neuner, 2019; Nickerson et al., 2019). As females did not report a significantly higher number of potentially traumatic event types, we assume that it may be the type of trauma rather than simply the number that is associated with an increased mental stress/PTSD symptomatology score. Moreover, other factors like perceived social support may play a role here. The fact that participants in our studies holding an insecure asylum status reported having experienced a higher number of traumatic event types, on average, is in line with earlier studies as well (e.g., Nickerson et al., 2019). For every additional event type reported, the RHS-15 and PCL-5 sum-scores increased by 0.67 in *Study A* and 0.71 points in *Study B*. Participants with an insecure asylum status reached an RHS-15 sum-score 6.65 points higher than participants with a secure asylum status. The PCL-15 sum-score was 12.38 points higher for participants with an insecure status. Duration of stay was only significant in *Study B*. A possible explanation is that participants who took part in *Study B* had spent on average six months longer in Germany and thus had a longer exposure to post-migration stressors. Furthermore, the different finding may be explained by the different questionnaires used in the studies.

Strength and Limitations

An advantage of having two different studies is the potential for participants to develop an increased level of trust with research staff by taking part in *Study B*. This aspect was emphasized by statements of some of the participants describing a joy to meet again. By collecting all information through face-to-face interviews instead of (online) questionnaires, possible difficulties in comprehension could be resolved.

Our study is based on convenience samples that, although unselected, are far from representative of refugee populations in Germany, which limits the generalizability of the findings. However, the fact that the same associations were found consistently across two measurements with different instruments supports validity of findings.

Data collection was cross-sectional in both studies. To be able to increase explanatory power and investigate causation longitudinal studies are needed. Even though the RHS-15 is a well-known screening tool with good reliability and validity scores, it is a screening tool with 15 items and does not allow a more detailed insight in a person's mental health status or the diagnosis of potential mental health disorders.

Recommendations

In line with previous research (Chu et al., 2013), we found that asylum status as a post-migration factor explains a significant amount of variance in PTSD symptomatology. It seems evident that post-migration conditions can interfere with recovery from traumatic experiences (Heeren et al., 2014). People are best positioned to thrive when they experience a safe environment to be able to profit from available resources (Ryan et al., 2008). Further research on post-migration stressors could provide more insight in the potential influence of these stressors on PTSD symptomatology. Moreover, including additional measures apart from RHS-15 and PCL-5 to investigate mental health status could offer an even more comprehensive insight in refugees' mental health. Lastly, investigating the possible confounding associations of citizenship with asylum status and mental distress may be insightful. However, to make reliable statements and draw conclusions, a larger sample size with a more balanced distribution of citizenships as well as residence status types will be needed.

Refugees need the opportunity to participate in everyday life. With a working permit for integration, learning a new language, making socially supportive contacts, the PTSD rate decreases (Hocking, Kennedy, & Sundram, 2015). Policy changes regarding the asylum procedure in receiving countries could therefore have a positive impact on refugees' mental health (Porter & Haslam, 2005). As long as asylum procedures cannot be substantially shortened, freedom of movement and access to the labor market should be provisionally granted. These changes may relieve at least some post-migration stressors.

Furthermore, the possible influence of an insecure asylum status on psychotherapy needs to be considered (Chu et al., 2013). The additional stress might impede the therapeutic process. The increased risk of symptoms becoming chronic and the accompanying higher costs for the health care system could be bypassed by granting unconditional access to the health care system regardless of asylum procedure. Knowing about the negative aspects of post-migration living stressors it might be also interesting to consider the opposite side, namely whether easing post-migration living conditions can promote recovery and growth.

Conclusions

It is not only the potentially traumatic events experienced before or during flight that have an impact on refugees' mental health. In fact, conditions in the receiving countries contribute to psychological well-being. To be able to expect successful integration, opportunities for inclusion in everyday life need to be offered. Changes in residence status policies may be one step in the right direction. Apart from the people going through the established asylum procedure, forcibly displaced people who immigrated illegally should be kept in mind as well. Healthcare services should not be hold back for people suffering from physical or mental illness regardless of asylum status. By providing refugees opportunities to be independent and active members of their communities, both they and society at large stand to benefit as refugees have a clearer path to realizing their potential.

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Supplementary Materials

In the Supplementary Materials, a table with descriptive statistics of all relevant variables is displayed (for access see Index of Supplementary Materials below).

Index of Supplementary Materials

Boettcher, V. S., & Neuner, F. (2022). *Supplementary materials to "The impact of an insecure asylum status on mental health of adult refugees in Germany"* [Descriptive statistics]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.5412

References

Bogic, M., Ajdukovic, D., Bremner, S., Franciskovic, T., Galeazzi, G. M., Kucukalic, A., . . . Priebe, S. (2012). Factors associated with mental disorders in long-settled war refugees: Refugees from the former Yugoslavia in Germany, Italy and the UK. *The British Journal of Psychiatry, 200*(3), 216–223. https://doi.org/10.1192/bjp.bp.110.084764

Bozorgmehr, K., Mohsenpour, A., Saure, D., Stock, C., Loerbroks, A., Joos, S., & Schneider, C. (2016). Systematische Übersicht und "Mapping" empirischer Studien des Gesundheitszustands und der medizinischen Versorgung von Flüchtlingen und Asylsuchenden in Deutschland (1990–2014). *Bundesgesundheitsblatt, Gesundheitsforschung, Gesundheitsschutz, 59*(5), 599–620. https://doi.org/10.1007/s00103-016-2336-5

Chu, T., Keller, A. S., & Rasmussen, A. (2013). Effects of post-migration factors on PTSD outcomes among immigrant survivors of political violence. *Journal of Immigrant and Minority Health, 15*(5), 890–897. https://doi.org/10.1007/s10903-012-9696-1

Elbert, T., Wilker, S., Schauer, M., & Neuner, F. (2017). Dissemination psychotherapeutischer Module für traumatisierte Geflüchtete: Erkenntnisse aus der Traumaarbeit in Krisen- und Kriegsregionen. *Der Nervenarzt, 88*(1), 26–33. https://doi.org/10.1007/s00115-016-0245-3

Fazel, M., Karunakara, U., & Newnham, E. A. (2014). Detention, denial, and death: Migration hazards for refugee children. *The Lancet Global Health, 2*(6), e313–e314. https://doi.org/10.1016/S2214-109X(14)70225-6

Federal Office for Migration and Refugees. (2019). *The stages of the German asylum procedure: An overview of the individual procedural steps and the legal basis.* Retrieved from https://www.bamf.de/SharedDocs/Anlagen/EN/AsylFluechtlingsschutz/Asylverfahren/das-deutsche-asylverfahren.pdf

Gäbel, U., Ruf, M., Schauer, M., Odenwald, M., & Neuner, F. (2006). Prävalenz der Posttraumatischen Belastungsstörung (PTSD) und Möglichkeiten der Ermittlung in der Asylverfahrenspraxis. *Zeitschrift für Klinische Psychologie und Psychotherapie, 35*(1), 12–20. https://doi.org/10.1026/1616-3443.35.1.12

Heeren, M., Wittmann, L., Ehlert, U., Schnyder, U., Maier, T., & Müller, J. (2014). Psychopathology and resident status – Comparing asylum seekers, refugees, illegal migrants, labor migrants, and residents. *Comprehensive Psychiatry, 55*(4), 818–825. https://doi.org/10.1016/j.comppsych.2014.02.003

Heeren, M., Wittmann, L., Ehlert, U., Schnyder, U., Maier, T., & Müller, J. (2016). Psychopathologie und Aufenthaltsstatus. *Forum der Psychoanalyse, 32*(2), 135–149. https://doi.org/10.1007/s00451-016-0235-x

Hocking, D. C., Kennedy, G. A., & Sundram, S. (2015). Mental disorders in asylum seekers: The role of the refugee determination process and employment. *The Journal of Nervous and Mental Disease, 203*(1), 28–32. https://doi.org/10.1097/NMD.0000000000000230

Hollifield, M., Toolson, E. C., Verbillis-Kolp, S., Farmer, B., Yamazaki, J., Woldehaimanot, T., & Holland, A. (2016). Effective screening for emotional distress in refugees: The Refugee Health

Screener. *The Journal of Nervous and Mental Disease, 204*(4), 247–253. https://doi.org/10.1097/NMD.0000000000000469

Hollifield, M., Verbillis-Kolp, S., Farmer, B., Toolson, E. C., Woldehaimanot, T., Yamazaki, J., . . . SooHoo, J. (2013). The Refugee Health Screener-15 (RHS-15): Development and validation of an instrument for anxiety, depression, and PTSD in refugees. *General Hospital Psychiatry, 35*(2), 202–209. https://doi.org/10.1016/j.genhosppsych.2012.12.002

Ibrahim, H., Ertl, V., Catani, C., Ismail, A. A., & Neuner, F. (2018). The validity of Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) as screening instrument with Kurdish and Arab displaced populations living in the Kurdistan region of Iraq. *BMC Psychiatry, 18*(1), Article 507. https://doi.org/10.1186/s12888-018-1839-z

Jakubowicz, A. (2016, November 7). European leaders taking cues from Australia on asylum seeker policies. *The Conversation*. Retrieved from https://theconversation.com/european-leaders-taking-cues-from-australia-on-asylum-seeker-policies-66336

Kaltenbach, E., Härdtner, E., Hermenau, K., Schauer, M., & Elbert, T. (2017). Efficient identification of mental health problems in refugees in Germany: The Refugee Health Screener. *European Journal of Psychotraumatology, 8*(Suppl 2), Article 1389205. https://doi.org/10.1080/20008198.2017.1389205

Krüger-Gottschalk, A., Knaevelsrud, C., Rau, H., Dyer, A., Schäfer, I., Schellong, J., & Ehring, T. (2017). The German version of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Psychometric properties and diagnostic utility. *BMC Psychiatry, 17*(1), Article 548. https://doi.org/10.1186/s12888-017-1541-6

Laban, C. J., Gernaat, H. B., Komproe, I. H., van der Tweel, I., & De Jong, J. T. (2005). Postmigration living problems and common psychiatric disorders in Iraqi asylum seekers in the Netherlands. *The Journal of Nervous and Mental Disease, 193*(12), 825–832. https://doi.org/10.1097/01.nmd.0000188977.44657.1d

Laban, C. J., Komproe, I. H., Gernaat, H. B. P. E., & de Jong, J. T. V. M. (2008). The impact of a long asylum procedure on quality of life, disability and physical health in Iraqi asylum seekers in the Netherlands. *Social Psychiatry and Psychiatric Epidemiology, 43*(7), 507–515. https://doi.org/10.1007/s00127-008-0333-1

Lamkaddem, M., Essink-Bot, M.-L., Deville, W., Gerritsen, A., & Stronks, K. (2015). Health changes of refugees from Afghanistan, Iran and Somalia: The role of residence status and experienced living difficulties in the resettlement process. *European Journal of Public Health, 25*(6), 917–922. https://doi.org/10.1093/eurpub/ckv061

Li, S. S. Y., Liddell, B. J., & Nickerson, A. (2016). The relationship between post-migration stress and psychological disorders in refugees and asylum seekers. *Current Psychiatry Reports, 18*(9), Article 82. https://doi.org/10.1007/s11920-016-0723-0

Mahmood, H. N., Ibrahim, H., Goessmann, K., Ismail, A. A., & Neuner, F. (2019). Post-traumatic stress disorder and depression among Syrian refugees residing in the Kurdistan region of Iraq. *Conflict and Health, 13*(1), Article 51. https://doi.org/10.1186/s13031-019-0238-5

Momartin, S., Steel, Z., Coello, M., Aroche, J., Silove, D. M., & Brooks, R. (2006). A comparison of the mental health of refugees with temporary versus permanent protection visas. *The Medical Journal of Australia, 185*(7), 357–361. https://doi.org/10.5694/j.1326-5377.2006.tb00610.x

Müller, M. J., Zink, S., & Koch, E. (2018). The negative impact of an uncertain residence status: Analysis of migration-related stressors in outpatients with Turkish migration background and psychiatric disorders in Germany over a 10-year Period (2005-2014). *Journal of Immigrant and Minority Health, 20*(2), 317–326. https://doi.org/10.1007/s10903-017-0555-y

Newnham, E. A., Pearman, A., Olinga-Shannon, S., & Nickerson, A. (2019). The mental health effects of visa insecurity for refugees and people seeking asylum: A latent class analysis. *International Journal of Public Health, 64*(5), 763–772. https://doi.org/10.1007/s00038-019-01249-6

Nickerson, A., Byrow, Y., O'Donnell, M., Mau, V., McMahon, T., Pajak, R., . . . Liddell, B. J. (2019). The association between visa insecurity and mental health, disability and social engagement in refugees living in Australia. *European Journal of Psychotraumatology, 10*(1), Article 1688129. https://doi.org/10.1080/20008198.2019.1688129

Porter, M., & Haslam, N. (2005). Predisplacement and postdisplacement factors associated with mental health of refugees and internally displaced persons: A meta-analysis. *Journal of the American Medical Association, 294*(5), 602–612. https://doi.org/10.1001/jama.294.5.602

Ryan, D. A., Benson, C. A., & Dooley, B. A. (2008). Psychological distress and the asylum process: A longitudinal study of forced migrants in Ireland. *The Journal of Nervous and Mental Disease, 196*(1), 37–45. https://doi.org/10.1097/NMD.0b013e31815fa51c

Schick, M., Zumwald, A., Knopfli, B., Nickerson, A., Bryant, R. A., Schnyder, U., . . . Morina, N. (2016). Challenging future, challenging past: The relationship of social integration and psychological impairment in traumatized refugees. *European Journal of Psychotraumatology, 7*, Article 28057. https://doi.org/10.3402/ejpt.v7.28057

UNHCR. (2020). *UNHCR–Global Trends 2019*. Retrieved from https://www.unhcr.org/5ee200e37.pdf

Winkler, J. G., Brandl, E. J., Bretz, H. J., Heinz, A., & Schouler-Ocak, M. (2019). Psychische Symptombelastung bei Asylsuchenden in Abhängigkeit vom Aufenthaltsstatus. *Psychiatrische Praxis, 46*(4), 191–199. https://doi.org/10.1055/a-0806-3568

Womersley, G., Kloetzer, L., & Goguikian Ratcliff, B. (2017). Mental health problems associated with asylum procedures of refugees in European countries. *NCCR-on the move, 2*, 34–40.

Wortmann, J. H., Jordan, A. H., Weathers, F. W., Resick, P. A., Dondanville, K. A., Hall-Clark, B., . . . Litz, B. T. (2016). Psychometric analysis of the PTSD Checklist-5 (PCL-5) among treatment-seeking military service members. *Psychological Assessment, 28*(11), 1392–1403. https://doi.org/10.1037/pas0000260

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Fear of Becoming Infected and Fear of Doing the Wrong Thing – Cross-Cultural Adaptation and Further Validation of the Multidimensional Assessment of COVID-19-Related Fears (MAC-RF)

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Supplementary Materials: Data [see Index of Supplementary Materials]

Abstract

Background: With the COVID-19 infection speeding around the world, many experience fear and anxiety. To detect those at risk of psychopathology and provide treatment, valid instruments are needed. The aim of this study was to cross-culturally validate the theory-based instrument Multidimensional Assessment of COVID-19-Related Fears (MAC-RF) in Croatian and to further examine the scale's validity by exploring its relationship with relevant constructs.

Method: A total of 477 participants completed an online survey during a rapid rise in new daily COVID-19 cases in Croatia and while new restrictions were being imposed.

Results: MAC-RF had a stronger association with health anxiety, cyberchondria, and anxiety sensitivity compared to depression, attesting to its convergent and divergent validity. However, a 2-factor structure was revealed in this sample: Fear of infection and Fear of using an inadequate strategy in dealing with pandemic. Fear of infection had a stronger association with health anxiety and COVID-19 anxiety and was a better predictor of COVID-19 related protective health behaviors. Fear of choosing an inadequate strategy had a stronger association with cyberchondria, fear of consequences of the epidemic on mental health, as well as financial consequences, and loss of civil liberties.

Conclusion: Fear of infection captures negative emotional states due to feared consequences on personal somatic health and the health of loved ones, while Fear of choosing an inadequate

strategy in dealing with the pandemic reflects a metacognitive aspect. Treatments may have to target both aspects of COVID-19 related fear.

Keywords

COVID-19 fear, MAC-RF, health anxiety, cyberchondria, scale validity

Highlights

- MAC-RF is a theory-based instrument for measuring COVID-19 related fears.
- MAC-RF has two factors: Fear of infection and Fear of using an inadequate strategy in dealing with the pandemic.
- First factor had a stronger association with heath anxiety and protective health behaviors.
- Second factor had a stronger association with cyberchondria and fear for mental health.

With over 200 million people infected and over 4 million dead from COVID-19 around the world, in addition to the social restrictions that affect our everyday life, the rise of fear, anxiety and distress is to be expected. Although somatic health has the focus of attention, it has become evident that psychological consequences of the epidemic may be equally severe (e.g., Kumar & Nayar, 2021), but more difficult to detect. The development of instruments that measure psychopathology associated with COVID-19 is an important step in identifying individuals at risk and developing treatments.

During 2020, several measures focused on different aspects of negative psychological reactions to COVID-19 pandemic emerged. The *Fear of COVID-19 Scale* (FCV-19S; Ahorsu et al., 2020) is a 7-item instrument measuring a single factor. The *Coronavirus Anxiety Scale* (CAS; Lee, 2020) and *COVID-19 Anxiety Scale* (CAS5; Lauri-Korajlija & Jokić-Begić, 2020) are both 5-item scales, both measuring a single factor. The *COVID-19 Anxiety Syndrome Scale* (C-19ASS; Nikčević & Spada, 2020) is a 9-item scale measuring two factors: Perseveration and Avoidance. The *COVID-19 Phobia Scale* (C19P-S; Arpaci et al., 2020) is a 20-item instrument measuring four factors: Psychological, Psycho-somatic, Economic, and Social. Finally, the *COVID Stress Scales* (CSS; Taylor et al., 2020) is a 36-item instrument, measuring 5-factors: Danger and contamination fears, Fears about economic consequences, Xenophobia, Compulsive checking and reassurance seeking, and Traumatic stress symptoms about COVID-19. Considering differences in the breadth of focus of these scales, it is not surprising that different structures of the underlying construct have been reported.

Determining which aspects of psychological experience should be captured in such an instrument might be aided by a theoretical framework. This type of theory-based instrument has been recently developed – the *Multidimensional Assessment of COVID-19-Related Fears* (MAC-RF). According to the model behind the MAC-RF, as proposed

by Schimmenti, Billieux, and Starcevic (2020), four mutually linked domains are involved in fear experiences during a pandemic: bodily, relational, cognitive, and behavioral. These domains are assumed to be organized in a dialectical structure. As such, the bodily domain involves 1) fear of the body and 2) fear for the body; the interpersonal domain involves 3) fear of others and 4) fear for others; the cognitive domain involves 5) fear of knowing and 6) fear of not knowing; and the behavioral domain involves 7) fear of action and 8) fear of inaction. The MAC-RF appears to be a useful instrument in assessing pathological levels of fear during pandemics (Schimmenti, Starcevic, et al., 2020). However, more studies of its validity are needed.

Fear related to COVID-19 is found to be associated with general psychopathology, general anxiety, health anxiety and depression (Ahorsu et al., 2020; Schimmenti, Starcevic, et al., 2020; Taylor et al., 2020), functional impairment and dysfunctional coping (Lee, 2020; Nikčević & Spada, 2020). Several studies have suggested that anxiety sensitivity (fear of consequences of anxiety) and cyberchondria (excessive online search for health information followed by distress) might explain problematic responses to pandemic (Hashemi et al., 2020; Manning et al., 2021; McKay et al., 2020). Specifically, it is suggested that because people with high anxiety sensitivity believe their physical sensations produced by anxiety to be harmful, they might experience more distress. Those who are more distressed may be prone to searching for information about their health on the internet, resulting in even more distress due to the frightening information they encounter (Hashemi et al., 2020). Anxiety sensitivity may be associated with Fear of and for the body, whereas cyberchondria may reflect the Fear of knowing and not knowing, as proposed in Schimmenti, Billieux, and Starcevic's (2020) model.

Although the pandemic is a global crisis, there are differences in how a given country will respond to an outbreak in the type and duration of restrictions, in addition to economic, societal and cultural differences, which may affect how individuals experience and cope with pandemic. Hence, the aim of this study was to: 1) cross-culturally validate the Croatian version of the MAC-RF; and 2) to further examine the scale validity by exploring its relationship with relevant constructs: health anxiety, anxiety sensitivity, cyberchondria, COVID-19 safety behaviors, health care use and fear of different COVID consequences.

We predicted that the MAC-RF would: 1) have a single-factor solution, as reported by the scale's authors; 2) be associated with general psychopathology, as reported by the authors; 3) have a strong correlation with a previously validated measure of fear of COVID-19 (concurrent validity); 4) have a stronger association with health anxiety, anxiety sensitivity and cyberchondria as compared to depression (converged and divergent validity); and 5) have a positive association with COVID-19 safety behaviors, health care utilization and fear of different COVID consequences.

The results of this study would inform the possibility of cross-cultural generalization of findings in the field. Furthermore, this study may shed further light on possible

predictors, mechanisms and consequences of fear of pandemic, and hence inform future experimental, longitudinal and intervention research.

Method

Participants

There were 477 participants in this study (an additional 25 participants filled out sociodemographic items only and were excluded from the data set), of which 74.8% were female. The mean age was 34.70 years (*SD* = 9.71; *Total range [TR]* = 18-71). With respect to education, 25.99% were high school graduates, 10.27% held a bachelor's degree, 53.46% held a master's degree, and 10.27% held a PhD. Furthermore, 8.17% of participants were employed in the health care system and an additional 1.26% were trained in health sciences but were not employed in the health system. A total of 11.94% of participants reported suffering from a chronic condition, most commonly from thyroid diseases, asthma, allergies, depression, diabetes and anxiety. In regards to their experiences with COVID-19, most participants reported personally knowing five (mode = 5; *M* = 7.05; *TR* = 0-200) people who tested positive for COVID-19, 12.88% reported they themselves had tested positive for COVID-19 at some point, and an additional 18.03% believed they had had COVID-19 although this was not confirmed by a test. Participants who tested positive for COVID-19 on average estimated their symptoms to be mild (*M* = 32.04, *SD* = 22.90, *TR* = 0-83) and this experience to be only mildly uncomfortable (*M* = 34.63, *SD* = 27.88, *TR* = 0-100), although there was great variability in responses.

Instruments

Multidimensional Assessment of COVID-19-Related Fears (MAC-RF)

The MAC-RF (Schimmenti, Starcevic, et al., 2020) is a newly developed 8-item measure of clinically relevant domains of fear during the COVID-19 pandemic. Items cover four domains of fear: bodily, relational, cognitive, and behavioral and are scored on a scale ranging from 0 (very unlike me) to 4 (very like me). Authors reported a single-factor structure, satisfactory reliability (Cronbach's alpha = .84), whereas convergent validity was based on its positive correlation with overall psychopathology. Cronbach's α in this study was .72.

COVID-19 Anxiety Scale (CAS5)

The CAS5 (Lauri-Korajlija & Jokić-Begić, 2020) is a recently developed 5-item instrument inspired by the *Swine Flu Anxiety Scale* (Wheaton et al., 2012) that assesses worrying about COVID, perceived likelihood of contracting the virus (oneself and others), perceived severity of infection, and the degree to which a person believes COVID is a more serious illness than the flu. Each item is rated on a 5-point scale (1 = not at all; 5 = very

much). Authors reported a Cronbach's alpha coefficient of 0.76 and 0.78. This is the only COVID-19 distress scale that has been validated in the Croatian language. Cronbach's α in this study was 0.74.

DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure—Adult (CCSM)

The CCSM (APA, 2013) consists of 23 questions assessing 13 psychiatric domains: depression, anger, mania, anxiety, somatic symptoms, suicidal ideation, psychosis, sleep problems, memory problems, repetitive thoughts and behaviors, dissociation, personality functioning, and substance use. The respondent rates their experiences during the last two weeks on a scale ranging from 0 (none or not at all) to 4 (severe or nearly every day). The instrument has demonstrated good psychometric properties (Narrow et al., 2013). Cronbach's α in this study was 0.89.

Short Health Anxiety Inventory (SHAI)

The SHAI (Salkovskis et al., 2002) consists of 18 items measuring two factors: health anxiety (14 items) and fear of negative consequences of illness (4 items). It uses a multiple choice format with response options ranging from 0 to 3 (from no pathology to severe pathology; Alberts et al., 2013). The instrument demonstrated good psychometric properties in both clinical and non-clinical samples (Alberts et al., 2013). Cronbach's α in this study was 0.85 for the health anxiety factor and 0.86 for the full scale.

Short Cyberchondria Scale (SCS)

The SCS (Jokić-Begić et al., 2019) consists of four items (e.g., After searching for health information, I feel frightened) rated on a 5-point Likert scale. The SCS has demonstrated satisfactory psychometric properties, has a unidimensional structure and measures the same latent construct as the significantly longer instrument developed by McElroy and Shevlin (2014); *Cyberchondria Severity Scale*, (Jokić-Begić et al., 2019). Cronbach's α in this study was 0.80.

Anxiety Sensitivity Index – 3 (ASI-3)

The ASI-3 (Taylor et al., 2007) consists of 18 items measuring fear of anxiety and its consequences that are rated from 0 (very little) to 4 (very much). The ASI has three subscales measuring the fear of physical (It scares me when I become short of breath), cognitive (When I feel "spacey" or spaced out I worry that I may be mentally ill) and social (When I tremble in the presence of others, I fear what people might think of me) aspects of anxiety. ASI has demonstrated good psychometric properties. Cronbach's α in this study was 0.92.

Depression, Anxiety and Stress Scale 21 (DASS)

The DASS (Lovibond & Lovibond, 1993) is a short form of the original DASS instrument and consist of 21 items measuring depression, anxiety, and stress during the last week, each rated on a scale ranging from 0 (Did not apply to me at all) to 3 (Applied to me very much or most of the time). Only the Depression subscale was used in this study (DASS-D), which consists of seven items describing dysphoria, hopelessness, lack of interest etc. (e.g., I couldn't seem to experience any positive feeling at all). All three subscales demonstrated good psychometric properties in both clinical and non-clinical populations (Parkitny & McAuley, 2010). Cronbach's α in this study was 0.92.

COVID Safety Behavior Checklist (CSBC)

The CSBC (Lauri-Korajlija & Jokić-Begić, 2020) consists of 13 items measuring safety behaviors that people engage in to avoid COVID infection, such as thorough and frequent hand washing, avoiding people that appear ill, avoiding leaving home etc., each rated on a 5-point scale (1 = not at all; 5-very much). The CSB was inspired by the *Ebola Safety Behavior Checklist* (Blakey et al., 2015). Cronbach's α in this study was 0.86.

Health Care Use (HCU)

HCU was measured using a single item where participants assess the number of doctor visits (both GP and specialists) they attended in the last two months.

Fear of COVID-19 Consequences (FCCC)

FCCC was developed for the purposes of this study and consisted of six items covering fear of consequences on: physical health, mental health, loved ones' health, financial loss, loss of civil liberties and disturbed relationships. Respondents rated how much they feared each of these consequences from 1 (very little) to 5 (very much).

Procedure

We followed the procedure for instrument cross-validation described in the literature (van Widenfelt et al., 2005). The MAC-RF was first translated into Croatian by the two authors (Professor in clinical psychology and a doctoral student in clinical psychology) and by another colleague (Professor in biological psychology). All three versions were reviewed and compared and a final version was agreed upon. Next, a bilingual Professor in Health Psychology translated the final version back into English. Small differences were discussed by all four psychologists and minor alterations were made. This revised version was assessed by another two colleagues: a psychotherapist with a PhD in clinical psychology and a doctoral student in cognitive psychology. Neither reviewer found any issues. Finally, this version was completed and its content discussed by a small sample of laypersons known to the researchers, who found the items clear and easy to respond to.

Data were collected via an online survey using the SurveyMonkey software. This survey consisted of the aforementioned instruments and several questions regarding sociodemographic data and experiences with COVID-19 described in the "participants" section. The data collection period was limited to four weeks from the date the survey was published. Data was collected during the second wave of the COVID-19 pandemic in Croatia (November and December 2020), when a steady rise in new daily cases was being registered and new restrictions were being introduced. The survey was advertised using social media (several open groups dealing with different topics), the website of a CBT counseling center in Croatia and the authors' personal contacts.

This study was approved by the Ethical committee of Department of Psychology, Faculty of Humanities and Social Sciences, University of Zagreb (EPOP – 2021 – 005).

Data Analyses

Analyses were performed using the Lavaan R package (Rosseel et al., 2017). To explore the underlying structure of the MAC-RF, we performed confirmatory factor analyses. To determine the fit of the model, several goodness-of-fit criteria were used: the standard root mean square residual (SRMR), the root mean square error of approximation (RMSEA) with 90% confidence intervals, and the comparative fit index (CFI). A model is considered to have a good fit to the data if the SRMR is close to or below 0.08, if RMSEA is close to or below 0.06, (the upper limit of the 90% RMSEA confidence interval should be below 0.10), and if CFI is close to or above 0.95 (Brown, 2015; Hu & Bentler, 1999; Kline, 2015). To explore scale's reliability and validity, we calculated Cronbach's alpha and correlations with relevant measures.

Results

Descriptive data for the MAC-RF items is presented in Table 1.

Preliminary Analysis

Because it was treated as a single question by the program, there were no missing data within the MAC-RF matrix. Single multivariate and nine univariate outliers were detected and subsequently omitted from the data set. No indications of collinearity were detected (maximum variance inflation factor value = 2.11; minimum tolerance value = .47). All items were non-normally distributed (Kolmogorov-Smirnov Z = 4.16-8.52, all p values < .001).

Model Generation

We specified three alternative models: a single factor model suggested by the authors, a 4-factor model with each domain of fear - bodily, relational, cognitive, and behavioral

Table 1

Descriptive Statistics for MAC-RF Items

Item and domain	*M (SD)*	*TR*	Skewness	Kurtosis
1. Fear of the body	1.17 (1.13)	0-4	.643	-.612
2. Fear for the body	1.60 (1.29)	0-4	.133	-1.326
3. Fear of others	1.93 (1.29)	0-4	-.156	-1.271
4. Fear for others	2.55 (1.24)	0-4	-.754	-.464
5. Fear of knowing	1.82 (1.34)	0-4	-.009	-1.264
6. Fear of not knowing	0.55 (0.86)	0-3	1.436	1.000
7. Fear of action	0.80 (1.05)	0-4	1.110	.122
8. Fear of inaction	1.05 (1.17)	0-4	.724	-.788
Total score	11.48 (5.47)	0-27	.11	-.56

- comprising its own factor, and a 2-factor model with fear of infection comprising one factor (Items 1-4; fear for/of the body, fear of/for others) and fear of choosing an inadequate strategy in dealing with pandemic comprising the other factor (Items 5-8; fear of knowing and not knowing, fear of action/inaction).

Confirmatory Factor Analyses

Due to non-normal data, the maximum likelihood estimation method with robust standard errors (MLR) was employed (Brown, 2015). MLR is recommended for variables that have five or more categories (Rhemtulla, Brosseau-Liard, & Savalei, 2012).

According to the proposed criteria (Brown, 2015; Hu & Bentler, 1999), the goodness-of-fit indices for three tested models suggested that a single factor solution fits the data poorly, whereas 2- and 4-factor solutions both provided a good fit to the data (Table 2). Since the difference in the fit of these two models was not statistically significant, $\chi^2(5) = 4.08$, $p = 0.54$, we preserved the more parsimonious 2-factor model.

Table 2

Goodness of Fit Indices for the Three Tested CFA Models of MAC-RF (N = 477)

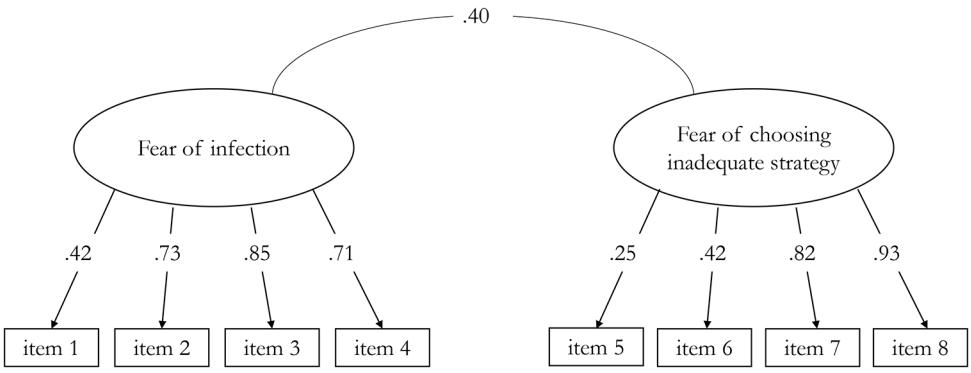
Model	χ^2 (*df*)	*p* (χ^2)	SRMR	RMSEA [90% CI]	CFI
1-factor	204.13 (20)	< .001	0.10	0.14 [0.12, 0.16]	0.78
2-factor	32.06 (19)	.031	0.04	0.04 [0.01, 0.06]	0.99
4-factor	28.27 (14)	.013	0.03	0.05 [0.02, 0.07]	0.98

Note. SRMR = Standardized Root Mean Square Residual; RMSEA = The Root Mean Square Error of Approximation; CFI = comparative fit index.

All indicators had a meaningful saturation with their corresponding factor, apart from Item 5 whose saturation was somewhat low (Figure 1). A correlation of 0.40 ($p < .001$) between the two factors suggests that the MAC-RF measures two related but clearly distinct aspects of COVID fears; one describing fear of being infected with the virus, oneself or a person's loved one, and the other describing fears related to choosing an inadequate strategy in dealing with the pandemic, including informing oneself too much or too little about the pandemic.

Figure 1

Standardized Parameter Estimates of the Accepted 2-Factor Model of the MAC-RF (N = 477)



Note. All parameters are significant at $p < .001$.

Scale Reliability and Validity

In accordance with the CFA results, two subscales for MAC-RF were created. The Cronbach's alpha for MAC-RF 1 is .77 and for the MAC-RF 2 is .65. The correlation between the two subscales is $r = 0.29$, $p < .001$.

To inspect associations with psychopathology, correlations between the MAC-RF (subscales and total score) and the CCSM (domains and total scores) were calculated. As seen in Table 3, the highest correlations were detected between the anxiety domain of the CCSM and MAC-RF, falling in the range of a moderate correlation. Other correlations were mostly small in magnitude or, in the case of suicidal ideation and psychosis, non-significant.

To further explore the construct of fear of COVID-19, we examined the associations between the two subscales of the MAC-RF (and total score) and a similar measure of COVID-19 anxiety (CAS5), health anxiety (SHAI), cyberchondria (SCS), three aspects of anxiety sensitivity (ASI-3), depression (DASS-D), protective health behaviors (HB) and health care utilization (HCU).

Table 3

Correlations Between the MAC-RF and CCSM (N = 346)

	MAC-RF		
CCSM subscale	**1**	**2**	**Total**
Depression	.23**	.30**	.33**
Anger	.24**	.27**	.31**
Mania	.01	.11*	.07
Anxiety	.27**	.40**	.40**
Somatic symptoms	.15**	.24**	.23**
Suicidal ideation	-.02	.06	.02
Psychosis	-.02	.05	.02
Sleep problems	.12*	.18**	.18**
Memory problems	.11*	.15**	.15**
Obsession/compulsion	.08	.16**	.14**
Dissociation	.09	.18**	.16**
Maladaptive personality	.08	.20**	.16**
Substance use	.09	.10	.11*
Total score	.20**	.33**	.32**

Note. CCSM = DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure—Adult. MAC-RF = Multidimensional Assessment of COVID-19-Related Fears.
*$p < .01$. **$p < .001$.

As seen in Table 4, the two aspects of fear of COVID-19 measured by the MAC-RF appear to have varying associations with a number of these constructs. For example, the CAS5 captures only one aspect of fear of COVID-19 – the fear of infection – and not the second aspect - the fear of choosing the wrong strategy in coping with pandemic. This explains the fact that a correlation of only .58 was detected between the two measures. As expected, a stronger correlation was found between the MAC-RF total score and health anxiety (.39) and cyberchondria (.44) than with depression (.28). Fear of infection had a stronger correlation with health anxiety and Fear of choosing the wrong strategy in coping with pandemic had a stronger correlation with cyberchondria and depression. With respect to anxiety sensitivity, a somewhat stronger correlation was found between the social domain of ASI and the Fear of infection subscale of the MAC-RF, which includes the fear of others and for others. Furthermore, protective health behaviors were strongly correlated with Fear of infection (.64), but not with Fear of choosing the wrong strategy in dealing with pandemic (.26). Finally, neither aspect of fear of COVID-19 correlated with the number of doctor visits in the previous two months.

Table 4

Correlations Between MAC-RF Subscales and Related Constructs

	MAC-RF			
Measure	**1**	**2**	**Total**	***N***
CAS5	.65	.23	.58	477
SHAI	.33	.29	.39	346
SCS	.32	.42	.44	321
ASI physical	.28	.31	.36	346
ASI cognitive	.20	.25	.27	346
ASI social	.36	.21	.29	346
DASS-D	.17	.29	.28	346
HB	.64	.26	.58	346
HCU	$.04^{ns}$	$.05^{ns}$	$.06^{ns}$	346

Note. MAC-RF = Multidimensional Assessment of COVID-19-Related Fears; CAS5 = COVID-19 Anxiety Scale; SHAI = Short Health Anxiety Inventory; SCS = Short Cyberchondria Scale; ASI = Anxiety Sensitivity Index; DASS-D = Depression, Anxiety and Stress Scale 21; HB = Protective Health Behaviors; HCU = Health Care Use. All correlations are significant at $p < .001$ except correlations with HCU, which are all non-significant. With respect to the SCS, participants who reported never searching for health information online were excluded from the analyses because including these participants would obscure the definition of cyberchondria at the low end.

Finally, correlations between the MAC-RF subscales and fear of different types of consequences related to COVID-19 are presented in Table 5.

Table 5

Correlations Between the MAC-RF and Fear of Different Types of Consequences Related to COVID-19

Feared Consequences Related to COVID-19	***M* (*SD*)**	**MAC-RF**		
		1	**2**	**Total**
Physical health	2.70 (1.13)	.49**	.27**	.49**
Mental health	2.74 (1.25)	.27**	.46**	.44**
Loved ones health	3.64 (1.12)	.47**	.29**	.48**
Financial loss	3.18 (1.21)	.06	.22**	.16**
Loss of civil liberties	3.10 (1.38)	-.20**	.18**	-.05
Disturbed relationships	3.07 (1.32)	.02	.28**	.16**

Note. MAC-RF = Multidimensional Assessment of COVID-19-Related Fears.
*$p < .01$. **$p < .001$.

The Fear of infection subscale had a stronger correlation with the fear of consequences for one's physical health and the health of loved ones and a small negative correlation with the fear of loss of civil liberties. Conversely, Fear of choosing inadequate strategy had a stronger correlation with the fear of consequences for mental health and was also positively correlated with fear of financial loss, loss of civil liberties and disrupted relationships with others.

Discussion

The aim of this study was to validate a theoretically based measure of COVID-19 related fear – the MAC-RF – in a Croatian sample and to further explore its validity. In contrast to the 1-factor structure reported by the authors of the scale (Schimmenti, Starcevic, et al., 2020), a 2-factor structure was revealed in the Croatian sample. With regards to the scale's general properties, its association with general psychopathology as measured by the CCSM was similar to that reported by the authors. Furthermore, the stronger associations between the MAC-RF and health anxiety and cyberchondria than with depression found in this study further attest to its convergent and divergent validity and expands previous findings regarding the instrument. Additionally, with respect to concurrent validity, we found a moderate to strong association between the MAC-RF and a previously validated scale of COVID anxiety (MAC5).

However, total scale reliability was lower in our study (.72; original study = .84). This might be the consequence of the 2-factor structure registered in this study. Considering that each subscale has only four items, low Cronbach's alpha (.77 and .65) is not surprising. Therefore, it would be more suitable to assess test-retest reliability. The two items from the cognitive domain showed the lowest factor saturations in both studies, suggesting that there may be issues with item formulation. Furthermore, informing oneself about COVID-19 may also be seen as an action (behavioral domain). Finally, cognitive domain is maybe too narrowly defined since knowing and not knowing can be achieved through different means besides informing oneself in an explicit way; such as through talking vs. not talking about COVID-19 or maybe even through ruminating about the information one has attained vs. suppressing it.

The two MAC-RF factors identified in this study are: Fear of infection, which reflects emotional-interpersonal feature, and Fear of choosing an inadequate strategy, which reflects cognitive-behavioral feature form the Schimmenti, Billieux, and Starcevic's model (2020). The two factors were only moderately associated (.40), suggesting that they measure two distinct aspects of COVID-19 related fears. This is further confirmed by a somewhat different patterns of association that the two subscales shared with several relevant constructs. For example, Fear of infection has a stronger correlation with health anxiety and COVID-19 anxiety, suggesting that this factor captures negative emotional states related to COVID-19 and primarily deals with feared consequences for one's

somatic health and the health of others. This aspect of COVID-19 fear also appears to be a much stronger predictor of safety behaviors. Furthermore, this subscale is more strongly related to the social aspect of anxiety sensitivity, which may reflect the fear of embarrassment due to revealing COVID-19 anxiety.

On the other hand, Fear of choosing an inadequate strategy when dealing with pandemic has a stronger association with cyberchondria, which is itself a dysfunctional strategy for dealing with health fears. According to a recently proposed metacognitive model of cyberchondria (Fergus & Spada, 2018), the vicious cycle of excessive online health information and distress is maintained due to conflicting metacognitive beliefs about this strategy: it is deemed helpful in protecting one's somatic health, but harmful to one's mental health. Similarly, the second MAC-RF subscale may reflect a metacognitive aspect of COVID-19 fear (beliefs about strategies for dealing with pandemic) that is dialectical in nature: fear of doing too much or too little, reading too much or too little. Furthermore, this subscale shares the strongest correlation with the fear of consequences of pandemic for mental health. This finding, together with the dialectic nature of this subscale, may explain its weak correlation with safety behaviors. This subscale is also associated with the fear of disturbed relationships due to pandemic. Besides dealing with evaluation of one's knowledge and action in respect with COVID-19, this subscale also deals with tolerating uncertainty so its association with this aspect needs to be explored in further studies. Finally, an important aspect of this subscale is considering responsible social action as discussed in the Schimmenti, Billieux, and Starcevic's model (2020). Although, we did not find correlation between this subscale and safety behaviors, it seems probable that only certain items or their combination is predictive of taking action.

A lack of association between number of doctor's visits with either of the MAC-RF subscales may be explained by the fact that some people might avoid doctors due to the fear of contracting the coronavirus, while others may go "doctor shopping" to get reassurance. Also, it should be noted that over 60% of the sample have not visited a doctor during the last two months.

The different underlying structure of the MAC-RF in our sample may suggest cultural, social or economic differences, but might also be due to fact that the two studies were conducted in different epidemiological circumstances. In the original study (Schimmenti, Starcevic, et al., 2020), data was collected a month after restrictions were lifted, while our data was collected during a period in which new restrictions were being imposed and a significant growth in new cases was being registered. It is possible that there are differences in the definition of this construct depending on epidemiological circumstances. Further studies should examine a bifactor structure for the MAC-RF having in mind that both a single and two-factor structure may co-exist and may both have a meaningful interpretation as suggested for other psychopathology constructs (Bornovalova et al., 2020).

Finally, the different instruments developed in this field capture different aspects of problematic psychological reactions to COVID-19. While some emphasize emotional (Lauri-Korajlija & Jokić-Begić, 2020), behavioral (Nikčević & Spada, 2020) or physiological (Lee, 2020) aspects, others encompass a combination of emotional, physiological, cognitive and behavioral components (e.g., Taylor et al., 2020; Ahorsu et al., 2020). Others even go beyond the fear of illness and include fear of economic consequences (Arpaci et al., 2020). An instrument's scope will certainly affect its associations with other relevant constructs: predictors, mediators and outcomes of fear. Developing a theoretical approach to COVID-19 related distress can help in achieving a consistent definition of this construct (or constructs), developing adequate measurement tools, integrating knowledge form different studies, and developing targeted interventions.

This study supports the dialectical nature of COVID-19 fears (Schimmenti, Billieux, & Starcevic, 2020), since items describing opposing fears reflect a single construct, and attests to the complexity of human experiences in the time of a global health crisis. Several strategies for addressing COVID-19 anxiety have been suggested by the authors of MAC-RF (Schimmenti, Billieux, & Starcevic, 2020); practicing mindfulness to improve appraisal of the body and to adopt acceptance and self-compassion, delivering targeted interventions to foster attachment security, using strategies to improve emotion regulation, and promoting responsibility. The results of this study further emphasize that treatment might need to focus not only on fear of becoming infected, but also on a metacognitive aspect that reflects conflicting beliefs about strategies used when dealing with the pandemic. Using a combination of cognitive continuum and listing advantaging and disadvantages of extreme strategies (e.g., reading about COVID too much or not at all), as a form of cognitive restructuring within cognitive-behavioral therapy, could help adopting appropriate intensity of health-related behaviors. It may also be necessary to modify metacognitive beliefs about strategies in dealing with pandemic and practice tolerating uncertainty which fuels COVID-19 anxiety.

The disadvantages of this study that place limits on its findings include: a non-representative sample (certain groups are underrepresented), a self-selection bias (people more affected by COVID-19 might have been more likely to participate) and the cross-sectional design (no causal associations can be claimed).

Conclusions

This study suggests that the MAC-RF might be a useful instrument in assessing COVID-19 fears. In a Croatian sample and at a time of a rapid increase in daily cases, this instrument appears to measure two distinct, but related factors: Fear of infection (emotional aspect) and Fear of choosing an inadequate strategy when dealing with pandemic (metacognitive aspect). Further studies using the MAC-RF across different cultures and different epidemiological circumstances are needed.

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Competing Interests: The authors have declared that no competing interests exist.

Ethics Statement: This study was approved by the Ethical committee of the Department of Psychology, Faculty of Humanities and Social Sciences, University of Zagreb (EPOP – 2021 – 005). The study was conducted in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Data Availability: For this article, a data set is freely available (Bagarić & Jokić-Begić, 2022)

Supplementary Materials

The research data is collected in the validation study of Multidimensional Assessment of COVID-19-Related Fears (MAC-RF) – Croatian version. A total of 477 participants completed the online survey during the COVID-19 pandemic. For access see Index of Supplementary Materials below.

Index of Supplementary Materials

Bagarić, B., & Jokić-Begić, N. (2022). *Supplementary materials to "Fear of becoming infected and fear of doing the wrong thing – Cross-cultural adaptation and further validation of the multidimensional assessment of COVID-19-related fears"* [Research data]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.5408

References

Ahorsu, D. K., Lin, C.-Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction.* Advance online publication. https://doi.org/10.1007/s11469-020-00270-8

Alberts, N. M., Hadjistavropoulos, H. D., Jones, S. L., & Sharpe, D. (2013). The Short Health Anxiety Inventory: A systematic review and meta-analysis. *Journal of Anxiety Disorders, 27*(1), 68–78. https://doi.org/10.1016/j.janxdis.2012.10.009

American Psychiatric Association. (2013). *DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure—Adult.* Arlington, VA, USA: American Psychiatric Publishing.

Arpaci, I., Karataş, K., & Baloğlu, M. (2020). The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and Individual Differences, 164*, Article 110108. https://doi.org/10.1016/j.paid.2020.110108

Blakey, S. M., Reuman, L., Jacoby, R. J., & Abramowitz, J. S. (2015). Tracing "Fearbola": Psychological predictors of anxious responding to the threat of Ebola. *Cognitive Therapy and Research, 39*(6), 816–825. https://doi.org/10.1007/s10608-015-9701-9

Bornovalova, M. A., Choate, A. M., Fatimah, H., Petersen, K. J., & Wiernik, B. M. (2020). Appropriate use of bifactor analysis in psychopathology research: Appreciating benefits and limitations. *Biological Psychiatry, 88*(1), 18–27. https://doi.org/10.1016/j.biopsych.2020.01.013

Brown, T. A. (2015). *Confirmatory factor analysis for applied research.* New York, NY, USA: Guilford Press.

Fergus, T. A., & Spada, M. M. (2018). Moving toward a metacognitive conceptualization of cyberchondria: Examining the contribution of metacognitive beliefs, beliefs about rituals, and stop signals. *Journal of Anxiety Disorders, 60*, 11–19. https://doi.org/10.1016/j.janxdis.2018.09.003

Hashemi, S. G. S., Hosseinnezhad, S., Dini, S., Griffiths, M. D., Lin, C. Y., & Pakpour, A. H. (2020). The mediating effect of the cyberchondria and anxiety sensitivity in the association between problematic internet use, metacognition beliefs, and fear of COVID-19 among Iranian online population. *Heliyon, 6*(10), Article e05135.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Jokić-Begić, N., Mikac, U., Čuržik, D., & Sangster Jokić, C. (2019). The development and validation of the Short Cyberchondria Scale (SCS). *Journal of Psychopathology and Behavioral Assessment, 41*(4), 662–676. https://doi.org/10.1007/s10862-019-09744-z

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. The Guilford Press.

Kumar, A., & Nayar, K. R. (2021). COVID 19 and its mental health consequences. *Journal of Mental Health, 30*(1), 1–2. https://doi.org/10.1080/09638237.2020.1757052

Lauri-Korajlija, A., & Jokić-Begić, N. (2020). COVID-19: Concerns and behaviours in Croatia. *British Journal of Health Psychology, 25*(4), 849–855. https://doi.org/10.1111/bjhp.12425

Lee, S. A. (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Studies, 44*(7), 393–401. https://doi.org/10.1080/07481187.2020.1748481

Lovibond, S. H., & Lovibond, P. F. (1993). *Manual for the Depression Anxiety Stress Scales (DASS).* Psychology Foundation Monograph (Available from the Psychology Foundation, Room 1005 Mathews Building, University of New South Wales, NSW 2052, Australia).

Manning, K., Eades, N. D., Kauffman, B. Y., Long, L. J., Richardson, A. L., Garey, L., Zvolensky, M. J., & Gallagher, M. W. (2021). Anxiety sensitivity moderates the impact of COVID-19 perceived stress on anxiety and functional impairment. *Cognitive Therapy and Research, 45*, 689–696. https://doi.org/10.1007/s10608-021-10207-7

McElroy, E., & Shevlin, M. (2014). The development and initial validation of the Cyberchondria Severity Scale (CSS). *Journal of Anxiety Disorders, 28*(2), 259–265. https://doi.org/10.1016/j.janxdis.2013.12.007

McKay, D., Yang, H., Elhai, J., & Asmundson, G. J. (2020). Anxiety regarding contracting COVID-19 related to interoceptive anxiety sensations: The moderating role of disgust propensity and

sensitivity. *Journal of Anxiety Disorders, 73*, Article 102233. https://doi.org/10.1016/j.janxdis.2020.102233

Narrow, W. E., Clarke, D. E., Kuramoto, S. J., Kraemer, H. C., Kupfer, D. J., Greiner, L., & Regier, D. A. (2013). DSM-5 field trials in the United States and Canada, Part III: Development and reliability testing of a cross-cutting symptom assessment for DSM-5. *The American Journal of Psychiatry, 170*(1), 71–82. https://doi.org/10.1176/appi.ajp.2012.12071000

Nikčević, A. V., & Spada, M. M. (2020). The COVID-19 Anxiety Syndrome Scale: Development and psychometric properties. *Psychiatry Research, 292*, Article 113322. https://doi.org/10.1016/j.psychres.2020.113322

Parkitny, L., & McAuley, J. (2010). The Depression Anxiety Stress Scale (DASS). *Journal of Physiotherapy, 56*(3), 204. https://doi.org/10.1016/S1836-9553(10)70030-8

Rhemtulla, M., Brosseau-Liard, P. É., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM estimation methods under suboptimal conditions. *Psychological Methods, 17*(3), 354–373. https://doi.org/10.1037/a0029315

Rosseel, Y., Oberski, D., Byrnes, J., Vanbrabant, L., Savalei, V., Merkle, E., . . . Rosseel, M. Y. (2017). Package 'lavaan' [Computer software]. Retrieved June 17, 2017.

Salkovskis, P. M., Rimes, K. A., Warwick, H. M., & Clark, D. M. (2002). The Health Anxiety Inventory: Development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine, 32*, 843–853. https://doi.org/10.1017/S0033291702005822

Schimmenti, A., Billieux, J., & Starcevic, V. (2020). The four horsemen of fear: An integrated model of understanding fear experiences during the COVID-19 pandemic. *Clinical Neuropsychiatry, 17*(2), 41–45.

Schimmenti, A., Starcevic, V., Giardina, A., Khazaal, Y., & Billieux, J. (2020). Multidimensional assessment of COVID-19-related fears (MAC-RF): A theory-based instrument for the assessment of clinically relevant fears during pandemics. *Frontiers in Psychiatry, 11*, Article 748. https://doi.org/10.3389/fpsyt.2020.00748

Taylor, S., Zvolensky, M., Cox, B., Deacon, B., Heimberg, R., Ledley, D. R., Abramowitz, J. S., Holaway, R. M., Sandin, B., Stewart, S. H., Coles, M., Eng, W., Daly, E. S., Arrindell, W. A., Bouvard, M., . . . Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index–3 (ASI-3). *Psychological Assessment, 19*(2), 176–188. https://doi.org/10.1037/1040-3590.19.2.176

Taylor, S., Landry, C. A., Paluszek, M. M., Fergus, T. A., McKay, D., & Asmundson, G. J. (2020). Development and initial validation of the COVID Stress Scales. *Journal of Anxiety Disorders, 72*, Article 102232. https://doi.org/10.1016/j.janxdis.2020.102232

van Widenfelt, B. M., Treffers, P. D., De Beurs, E., Siebelink, B. M., & Koudijs, E. (2005). Translation and cross-cultural adaptation of assessment instruments used in psychological research with children and families. *Clinical Child and Family Psychology Review, 8*(2), 135–147. https://doi.org/10.1007/s10567-005-4752-1

Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2012). Psychological predictors of anxiety in response to the H1N1 (swine flu) pandemic. *Cognitive Therapy and Research, 36*(3), 210–218. https://doi.org/10.1007/s10608-011-9353-3

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Perceived Criticism and Family Attitudes as Predictors of Recurrence in Bipolar Disorder

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Abstract

Background: Bipolar disorder (BD) is a highly recurrent psychiatric condition. While combined pharmacological and psychosocial treatments improve outcomes, not much is known about potential moderators that could affect these treatments. One potential moderator might be the quality of interpersonal relations in families, for example, familial attitudes and perceived criticism.

Method: To explore this question we conducted a post-hoc analysis that used an existing data set from a previous study by our group that compared cognitive behavioral therapy (CBT) and supporting therapy (ST) in remitted BD. In the present study, we used Cox proportional hazard models.

Results: We found that the relatives' ratings of criticism predicted the likelihood of depressive recurrences, especially in the ST condition. The patients' ratings of negative familial attitudes predicted the risk of recurrences in general, irrespective of the therapy condition.

Conclusion: These results suggest that it might be important to assess perceived criticism and familial attitudes as potential moderators of treatment outcome in BD.

Keywords

bipolar disorder, cognitive behavioral therapy, expressed emotion, perceived criticism, illness course, family, psychotherapy

Highlights

- Patients with BD had an increased risk for depressive recurrences when their relatives had rated themselves as highly critical towards the patients. This was only true for patients who attended an unspecific therapy instead of CBT.
- Patients with BD had an increased risk for depressive recurrences when they thought that their relatives had negative attitudes towards them.
- There was no significantly increased risk for manic recurrences in relation or criticism or negative familial attitudes.

Bipolar disorder (BD) is a mental health condition characterized by depressive and hypomanic or manic episodes. While individuals experiencing BD can remit, it is considered a life-long condition and over 50% of patients with BD suffer at least one recurrence within two years (Perlis et al., 2006; Tohen et al., 2003). Furthermore, functional impairments at work, home, or school, and in interpersonal relations often persist beyond symptomatic states of the disorder and despite medication (Gitlin & Miklowitz, 2017). These findings on long-term outcomes of BD have encouraged experts to develop and evaluate psychosocial and psychological therapies adjuvant to medication. The combination of psychological and pharmacological treatments overall improves the long-term outcome in BD (Miklowitz & Scott, 2009; Swartz & Swanson, 2014) but the evidence is mixed. A recent network analysis showed that the evidence is stronger for some therapies such as Family Focused Therapy (FFT) or Cognitive Behavior Therapy (CBT) than others, but that these findings should be balanced against evidence that dropping out of CBT is more likely than for FFT, and that efficacy varies depending on the outcome such as recurrence, depressive or manic symptoms (Miklowitz et al., 2021). For example, FFT seems to protect against recurrences, especially in families with greater levels of impairment (Kim & Miklowitz, 2004). CBT, however, was specifically associated with stabilizing depressive symptoms (Miklowitz et al., 2021). In general, more studies are needed to determine under what circumstances which form of psychological therapy is most effective.

One potential factor or moderator of outcome in BD could be the quality of interpersonal relations, because similar to other psychiatric disorders (e.g. Grover & Dutt, 2011; Hooley & Teasdale, 1989; Weintraub et al., 2017) it has been suggested that characteristics of familial relations may also predict outcome in bipolar depression (Johnson et al., 2016). In regard to BD, criticism expressed by families when interacting with their ill relative predicted hospital admissions (Scott et al., 2012) and relapse (Rosenfarb et al., 2001). Also, high expressed emotion, which is a construct that is characterized by critical comments, hostility, and emotional over-involvement that family members express towards an affected relative (Kavanagh, 1992; Vaughn & Leff, 1976), predicted relapses as does a communication style called 'negative affective style' (Miklowitz et al., 1988; O'Connell et al., 1991). Finally, two studies found that perceived criticism and expressed emotion

were specifically associated with depressive rather than with manic recurrences (Kim & Miklowitz, 2004; Yan et al., 2004).

Most of the before mentioned studies looked at the natural course of BD. In order to examine if perceived criticism and hostile/critical attitudes influence the effect of CBT on recurrences in BD, we reanalyzed data previously collected in a randomized controlled trial (Meyer & Hautzinger, 2012). In this study individual CBT and supportive therapy (ST) were administered to patients with remitted BD. CBT was manual-based including cognitive and behavioral strategies, techniques to prevent relapse, and coping strategies for symptoms (Basco & Rush, 1996). ST was less structured and followed a client-centered approach. In the original study (Meyer & Hautzinger, 2012), it was found that the relapse rates did not significantly differ between the two therapy groups in the long run. However, a higher number of prior mood episodes and a lower number of attended therapy sessions were associated with less time to relapse in both groups, indicating that other potential factors shared by both groups influenced outcome. Based on the evidence cited above, we hypothesized that higher levels of negative familial attitudes and perceived criticism expressed by the patients with BD and their relatives could be such a moderator of outcome.

Method

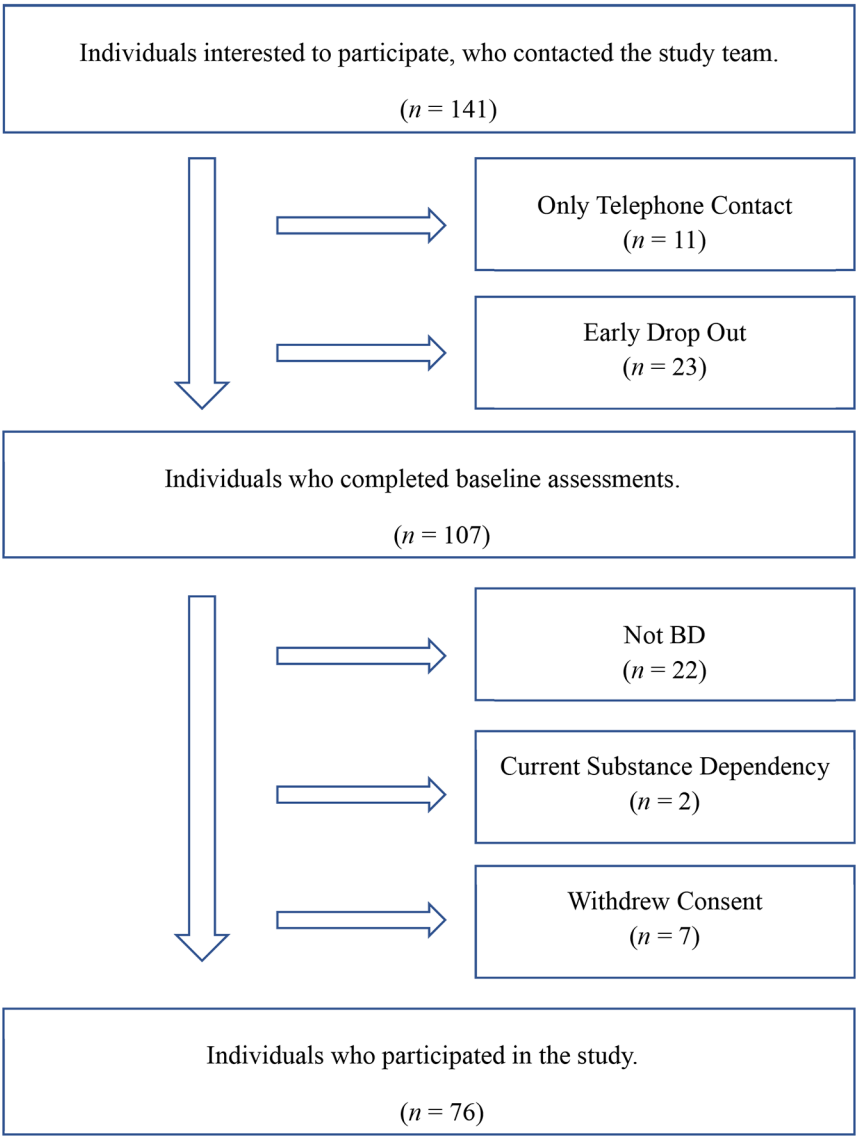
Participants

Initially, 141 individuals who were interested to participate in a study of psychological treatment for BD contacted our study team. They were either referred by local hospitals, psychiatrists or were self-referrals due to public information in newspapers, brochures, or radio. Sixty-five individuals were excluded (Figure 1), therefore, the present paper reports data relating to clinical course and attitudes of 76 participants who were randomized for a study on psychotherapy for BD (Meyer & Hautzinger, 2012).

Inclusion criteria were a diagnosis of BD, age between 18 and 65, informed consent to the present study, and adherence to their usual psychiatric treatments. Participants with severe manic or depressive symptoms, i.e. scores $\geq$ 20 on the Bech-Rafaelsen Melancholia Scale (BRMS; Bech, 2002) or $\geq$ 20 on the Bech-Rafaelsen Mania Scale (BRMAS; Bech et al., 1978), were excluded. Also, participants with comorbid substance dependency requiring detoxification and/or the presence of current psychotic symptoms could not participate in the present study. We obtained informed consent that included the consent to send a questionnaire to their spouse, or if single or divorced to their partner or closest relative (e.g. mother).

Figure 1

Flow Chart of the Recruitment Process



Note. Not BD = Individuals who were not diagnosed with BD.

Procedures and Measurements

First, the participants were in a baseline screening session. They gave informed consent, were administered clinical interviews (e.g., SCID-I and SCID-II), and completed self- and observer-rated measures (see for further details: Meyer & Hautzinger, 2012). Then they were randomized either to an individual CBT or supportive therapy (ST), which both contained individual 20 sessions over 9 months. The CBT followed a structured manual similar to the manual by Basco and Rush (1996), which included relapse prevention plans, coping strategies, and interpersonal skills. In the ST a client centered approach was adopted focusing on whatever topics the individuals brought into the sessions. All sessions were video-taped. Qualified therapists who were at least in a 1-year postgraduate training led the sessions. In addition, all therapists attended a 2-day workshop relating to CBT and ST therapy. Raters who were blind to group allocation assessed conducted assessments at month 0, 3, 6, 9, 12, and 24 during the trial. Information on recurrences was obtained by using repeatedly the SCID-I modules for mood episodes during the follow-up but also by monitoring hospitalizations, clinical notes, and mood diaries of the participants.

Family Attitude Scale (FAS)

The FAS (Kavanagh et al., 1997) contains 30 items covering 4 key aspects of critical attitudes among close family members: criticism, hostility, anger, and warmth. The items are rated on a 5 point scale ranging from *always* (4) to *never* (0), therefore scores may range between 0 to 120. Higher scores reflect higher levels of critical familial attitudes. We used two versions of the FAS, one for patients (FAS-P; e.g., “He/she thinks, that I am a real burden”) and one for relatives (FAS-R; e.g., “He/she is a real burden”). The FAS-P, therefore, reflects how the patient perceives the attitudes of his/her relative, while the relative reports in the FAS-R how he/she feels about the patient and what he/she thinks about the patient. In order to obtain a German version, the senior author translated the original English version, and then a native English speaker did the backtranslation. The inconsistencies were discussed and finally removed. To our knowledge, the German FAS has not been formally validated, but we published high internal consistencies for the FAS-P (Cronbach's $\alpha = 0.94$) and for the FAS-R Cronbach's $\alpha = 0.95$; Lex et al., 2019).

Perceived Criticism Measure (PCM)

The rating on a 10 point scale of the question "How critical is your relative of you?" has been used as a valid indicator of overall criticism in families (Hooley & Miklowitz, 2017; Renshaw, 2007). Therefore, in the PCM-P (Hooley & Teasdale, 1989) we asked the patients to rate the question “How critical has he/her been of you?”. Parallel, the relatives self-rated their level of criticism with the question “How critical have you been of him/her?” (PCM-R). Although there is no recommended cutoff, higher scores reflect higher levels of criticism and a score above 6 raises concern about an increased relapse risk

(Masland & Hooley, 2015). Information about correlates of the German PCM scale can be found in Lex et al. (2019).

Beck Depression Inventory (BDI)

The BDI (Beck et al., 1961) is a self-report questionnaire measuring the severity of depression. Participants rate 21 items that correspond to depressive symptoms on a four-point scale from 0 to 3. Scores above 9 reflect mild, and scores above 18 reflect moderate depression. In the present study, we used the validated German version with comparable psychometric properties compared to the English version (Brieger et al., 2007; Hautzinger et al., 1994).

Self Rating Mania Inventory (SRMI)

The SRMI (Shugar et al., 1992) is a 47-item self-rating instrument that assesses manic and hypomanic symptoms. It can be used to assess acute symptoms or residual symptoms in remitted states. In the present study, we asked the participants to focus on the previous month when rating their (hypo)manic symptoms. Scores above 14 reflect a high probability of acute mania. The SRMI shows a good internal consistency (Cronbach's α = 0.94) and high retest reliabilities between 0.79 and 0.93 (Shugar et al., 1992).

Bech Rafaelsen Melancholia Scale (BRMS)

The observer-based BRMS (Bech, 2002; Smolka & Stieglitz, 1999) has 11 items that relate to depressive symptoms and is used to rate the severity of depression. The rating for each items ranges from 0 (no symptom) to 4 (severe). A sum score ≤ 14 indicates no or doubtful depression, scores between 15 and 20 indicate mild depression, 21–28 indicate moderate depression, and scores above 28 reflect severe depression (Lam et al., 2005).

Bech Rafaelsen Mania Scale (BRMAS)

The BRMAS (Bech et al., 1978) has 11 items and the observer rates the presence of manic symptoms on a scale from 0 (not present) to 4 (severe). Parallel to the BRMS, scores range between 0 and 44, and scores ≤ 14 suggest no or doubtful mania, scores between 15 and 20 indicate mild mania, and scores above 20 are interpreted as moderate to severe mania (Lam et al., 2005). The BRMAS shows good interrater reliabilities between 0.80 and 0.95 (e.g., Bech, 2002). The BRMAS is often combined with the BRMS to cover the full range of bipolar symptoms (Rossi et al., 2001).

Statistical Methods

Hierarchical Cox proportional hazard models were used to assess the relapse risk for depression in relation to the patients' and the relatives' assessments of familial attitudes and perceived criticism. The potential covariates were therapy condition (CBT vs. ST;

Block 1), attitudes (FAS or PCM scores; Block 2), and the interaction between therapy and attitudes (block 3). When looking at the recurrence risk for (hypo)manic events, SRMI scores were entered at Block 1, the subsequent blocks were the same as before. SRMI scores were included, because in a previous analysis we found that the only baseline clinical variable that predicted recurrence of manic episodes was the level of subthreshold self-reported manic symptoms (Bauer et al., 2017). With less than 5% of the corresponding z-scores being greater than 1.96, there were no outliers for the FAS and PCM measures. There were no substantial bivariate correlations between predictors (see Table 1) indicating that there was no problem with multicollinearity (Field, 2013). In addition, bivariate listwise correlations and independent *t*-Tests were used. The significance level was set at 5% for all statistical procedures, exact *p* values and effect size values will be displayed.

Table 1

Bivariate Listwise Pearson Correlations Between Predictors, FAS, and PCM Measures

***N* = 76**	**FAS-P**	**PCM-P**	**FAS-R**	**PCM-R**
Therapy Condition	.05	.19	.17	.04
FAS-P		.48**	.47**	.29*
PCM-P			.30*	.49**
FAS-R				.40**

Note. FAS-P = Family Attitude Scale rated by patients; FAS-R = Family Attitude Scale rated by relatives; PCM-P = Perceived Criticism Scale rated by patients; PCM-R = Perceived Criticism Scale rated by relatives.
*$p < .05$. **$p < .01$.

Results

Demographics

The participants' mean age was 43.96 (*SD* = 11.81) and included 38 women. Thirty-two individuals were single, 31 were married, and 13 were divorced. Sixty individuals were diagnosed with BD-I, and 16 were diagnosed with BD-II. Based on the SCID-I, all participants were in full remission; looking at rating scales, most patients had scores below 15 on the BRMS (93.4%) and the BRMAS (98.7%). Table 2 displays demographical and clinical data of the participants. The participants of CBT and ST did not differ significantly on age, gender, clinical course of BD, and time until first relapse (Meyer & Hautzinger, 2012). Also, conducting independent *t*-tests revealed that scores on the FAS-P, $t(66) = -.66$, $p = .51$ and the PCM-P, $t(66) = -1.47$, $p = .15$, for the patients did not differ significantly between the two treatment conditions. Similarly, the scores in the FAS-R, $t(62) = -.90$, $p = .37$ and the PCM-R, $t(61) = -.18$, $p = .85$, were not significantly different in relatives of the patients who had been randomly assigned to CBT and ST.

Table 2

Means (M) and Standard Deviations (SD) of Patients With BD Who Received Either CBT or ST

	CBT		ST	
Variable	***M***	***SD***	***M***	***SD***
Age	44.40	11.00	43.53	12.72
BDI	13.53	9.23	11.03	7.60
BRMS	6.08	4.70	5.55	5.24
SRMI	17.65	10.98	19.00	11.19
BRMAS	2.34	3.69	1.03	2.56
N of prior episodes	11.18	15.17	10.13	10.61
Age of onset	26.63	9.24	29.84	12.44
Weeks until relapse	54.95	46.36	50.08	51.64
Patient FAS	39.63	19.58	40.10	15.58
Patient PCM	4.69	2.49	5.47	1.81
Relative FAS	33.08	15.99	36.68	16.18
Relative PCM	4.88	2.31	4.97	1.64

Note. BDI = Beck Depression Inventory; BRMS = Bech Rafaelsen Melancholia Rating Scale; BRMAS = Bech Rafaelsen Mania Rating Scale; FAS = Family Attitude Scale; PCM = Perceived Criticism Scale; SRMI = Self-Rating Mania Inventory (Meyer & Hautzinger, 2012).

Cox Proportional Hazards Models

The Cox proportional hazards model included the two measures of interest (FAS and PCM), the therapy condition (CBT and ST), and their interaction. First, the outcome was defined as recurrence of a depressive episode. Table 3 contains the relevant outcome values of these analyses. Two separate models were calculated: one for patients' and one for relatives' scores. Although, the overall model for the patients was not significant; $\chi^2 = 7.65$, $p = .18$, the FAS-P predicted significantly more recurrences of depressive episodes. The overall model for relatives was also not significant, $\chi^2 = 6.27$, $p = .28$, but PCM-R significantly interacted with therapy group in predicting depressive recurrences. Specifically, increased PCM-R predicted a higher number of depressive recurrences in the ST group but not in the CBT group (Figure 2).

Table 3

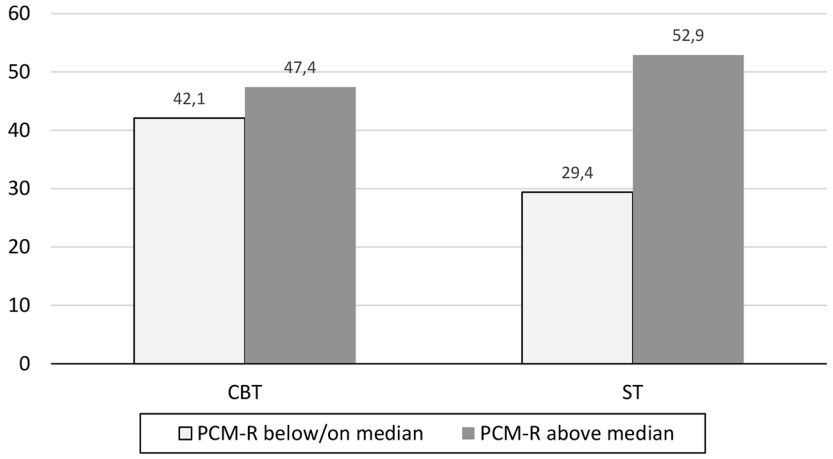
Cox Proportional Hazards Models Testing FAS and PCM as Predictors of Depressive Recurrence

					95% CI for HR			
Variable	***B***	***Wald***	***p***	***HR***	***LL***	***UL***	χ^2	***p***
				Patients				
Model 1							0.16	.69
Therapy	.14	0.16	.69	1.15	0.57	2.31		
Model 2							6.38	.09
Therapy	.07	0.04	.84	1.08	0.53	2.19		
FAS-P	.03	5.89	.01	1.03	1.01	1.06		
PCM-P	-.14	1.53	.22	0.87	0.70	1.08		
Model 3							7.65	.18
Therapy	-.74	0.54	.46	0.47	0.06	3.49		
FAS-P	.04	2.94	.09	1.04	1.00	1.08		
PCM-P	-.28	2.63	.10	0.76	0.54	1.06		
FAS-P x Therapy	-.01	0.16	.69	0.99	0.94	1.04		
PCM-P x Therapy	.24	1.16	.28	1.27	0.82	1.97		
				Relatives				
Model 1							0.36	.55
Therapy	.22	0.36	.55	1.25	0.61	2.57		
Model 2							2.27	.52
Therapy	.27	0.51	.48	1.32	0.62	2.80		
FAS-R	.01	1.19	.28	1.01	0.99	1.04		
PCM-R	.03	0.06	.81	1.03	0.83	1.27		
Model 3							6.27	.28
Therapy	1.82	2.12	.15	6.19	0.53	71.92		
FAS-R	-0.01	0.27	.61	0.99	0.96	1.03		
PCM-R	0.40	3.52	.06	1.50	0.98	2.28		
FAS-R x Therapy	0.03	1.68	.20	1.03	0.98	1.09		
PCM-R x Therapy	-0.52	4.43	.03	0.59	0.37	0.97		

Note. B = regression coefficient; FAS-P = Family Attitude Scale rated by patients; FAS-R = Family Attitude Scale rated by relatives; PCM-P = Perceived Criticism Scale rated by patients; PCM-R = Perceived Criticism Scale rated by relatives; HR = hazard ratio; SRMI = Self Rating Mania Scale; Wald = Wald test.

Figure 2

Percentage of Participants With a Depressive Recurrence Whose PCM-R Scores Were Below/On and Above the Median



Note. CBT = Cognitive Behavioral Therapy; PCM-R = Perceived Criticism Scale rated by relatives; ST = Supportive Therapy.

When the outcome was defined as recurrence of (hypo)manic episodes, the overall models for patients (χ^2 = 11.89, p = .07) and for relatives (χ^2 = 7.34, p = .29) were not significant. In both models, the score of the SRMI was the only significant predictor of manic recurrences (Table 4).

Table 4

Cox Proportional Hazards Models Testing FAS and PCM as Predictors of (Hypo)Manic Recurrence

					95% CI for HR			
Variable	***B***	***Wald***	***p***	***HR***	***LL***	***UL***	χ^2	***p***
				Patients				
Model 1							5.11	.02
SRMI	.04	4.92	.03	1.04	1.01	1.08		
Model 2							6.01	.05
SRMI	.04	5.00	.03	1.04	1.01	1.08		
Therapy	.44	1.05	.31	1.55	.67	3.56		

Variable	*B*	*Wald*	*p*	*HR*	95% CI for HR *LL*	95% CI for HR *UL*	χ^2	*p*
Model 3							10.01	.04
SRMI	.05	6.63	.01	1.05	1.01	1.09		
Therapy	.37	.74	.39	1.45	.62	3.37		
FAS-P	-.01	.66	.42	.99	.95	1.02		
PCM-P	-.12	1.10	.29	.88	.70	1.11		
Model 4							11.89	.07
SRMI	.06	8.12	.004	1.07	1.02	1.11		
Therapy	-.30	.05	.82	.74	.06	9.18		
FAS-P	-.05	3.23	.07	.95	.90	1.01		
PCM-P	.05	.07	.77	1.05	.73	1.51		
FAS-P x Therapy	.06	2.56	.11	1.06	.99	1.13		
PCM-P x Therapy	-.29	1.26	.26	.75	.45	1.24		
Relatives								
Model 1							4.24	.04
SRMI	.04	4.13	.04	1.04	1.00	1.08		
Model 2							4.86	.09
SRMI	.04	4.25	.04	1.04	1.00	1.08		
Therapy	.37	.70	.40	1.44	.61	3.40		
Model 3							6.50	.17
SRMI	.05	4.93	.03	1.05	1.00	1.08		
Therapy	.41	.85	.36	1.51	.63	3.64		
FAS-R	.001	.01	.95	1.00	.97	1.03		
PCM-R	-.13	1.38	.24	.88	.70	1.09		
Model 4							7.34	.29
SRMI	.04	4.48	.03	1.05	1.00	1.09		
Therapy	1.27	.86	.35	3.58	.24	52.50		
FAS-R	.004	.02	.89	1.00	.95	1.06		
PCM-R	-.03	.02	.90	.97	.58	1.62		
FAS-R x Therapy	-.01	.06	.80	.99	.93	1.06		
PCM-R x Therapy	-.12	.18	.67	.89	.51	1.55		

Note. B = regression coefficient; FAS-P = Family Attitude Scale rated by patients; FAS-R = Family Attitude Scale rated by relatives; PCM-P = Perceived Criticism Scale rated by patients; PCM-R = Perceived Criticism Scale rated by relatives; HR = hazard ratio; SRMI = Self Rating Mania Scale; Wald = Wald test.

Discussion

The present study explored whether negative familial attitudes and perceived criticism predicted recurrences in euthymic individuals with BD who attended individual CBT or

ST. In general, there was no significant difference in risk of recurrence between the two groups (Meyer & Hautzinger, 2012), but the present post-hoc exploration showed that the relatives' rating of their own perceived criticism towards the patient influenced the likelihood of depressive recurrences to a greater extent in the ST than in the CBT condition. In addition, the patients' perception of the family climate was related to the risk of depressive recurrences. There was no significant link between indicators for the familial climate and the risk for manic recurrences. These results are in line with previous studies that report familial criticism was linked to depressive relapse and symptoms but not to mania (Kim & Miklowitz, 2004; Yan et al., 2004).

At first sight, the interaction between treatment condition and self-rated perceived criticism of the relatives towards the patient (PCM-R) remains puzzling. However, the wording of the item for relatives refers to how much they see themselves being critical of the patients. The data therefore suggests that admitting more critical comments on side of the relatives increased risk for depressive recurrences specifically in the ST group, while it did not make a difference in the CBT group. One goal of the manual-based CBT was to help patients to differently communicate and solve problems which often includes how to react to perceived criticism. Although this is speculative, this perhaps helped to protect against being criticized or differently to react to perceived criticism. For example, the patients might learn to attribute critical remarks to their relatives' mood or the specific situation instead to their own person. In ST, the patients did not specifically learn communication or coping skills, therefore pre-treatment differences in actual or perceived criticism by the relative might still have had the same effect on risk of recurrence as having had no treatment, while CBT helped to attenuate the effect of this factor. While the latter is a potential explanation of the differential effect, it remains unclear why the relatives' but not the patients' perception of criticism had an impact on recurrence rates. This is puzzling because a) PC measures were administered at baseline, i.e. before the therapy sessions started, b) the PC of patients and relatives were positively correlated at baseline, and c) both therapies were done in an individual and not in a couple or family setting. In addition, while it is an intriguing idea that individual CBT might be effective in families with a hostile and critical climate, it is important to keep mind that these conclusions are exploratory and based on post-hoc analyses.

Regardless of the condition, patients who perceived their familial climate as more hostile had an increased risk for depressive recurrences. This is in line with previous studies that found that expressed emotions were linked to more depressive symptoms (Kim & Miklowitz, 2004) and recurrences (Yan et al., 2004). Those studies, however, used observer-based assessments based on frequency counts of critical and hostile behavior while we assessed the familial climate with questionnaires. The mostly used version of the FAS is self-rated by the patient and asks for specific thoughts, behaviors and feelings expressed by the relative towards the patient (e.g., "He/she loses his/her temper with me"; "He/she thinks I am real burden"; "He/she feels very close to me"). The pa-

tient-rated FAS was found to be related to relapse in patients with psychosis (Pourmand et al., 2005), and its content rather taps into hostility and criticism than to emotional overinvolvement, which is considered as one of the key factors of expressed emotion (Kavanagh et al., 1997). In the present study, we also used a relatives' version of the FAS, and we found that it did not significantly predict the risk of recurrences. Although observer-rated measures, e.g., the Camberwell Family Interview (Leff & Vaughn, 1985), are regarded as the gold standard to assess the familial climate (Hooley & Parker, 2006), our results suggest that the patient-rated FAS could be a sensible instrument to tap intrafamilial hostility and criticism and to predict depressive recurrences in BD. It is essential to keep in mind that in the FAS the patient reports his/her perception of the family member's attitudes and feelings, while the relative reports how he/she actually feels and what he/she thinks.

Interestingly, the relatives' one-item measure PCM interacted with therapy group to predict relapses, while the patients' FAS predicted relapses regardless of the treatment condition. First, this result emphasizes the importance to assess criticism and hostility in both interaction partners, because it is still not clear how the reciprocity of interactions relate to hostility, criticism and expressed emotion (Hooley & Gotlib, 2000). For example, hostility expressed by a relative's remark could be escalated or descaled depending on the response by the patient. Second, patients' actual perceptions of the attitudes are important, because the patient might or might not identify the hostility and criticism expressed by the relative (Yan et al., 2004). While the FAS and PCM share variance, they do not assess identical constructs (Lex et al., 2019). While perceived criticism, whether rated by the patient or relative, is fairly specific, the FAS encompasses more general negative attitudes within the family beyond critical comments. Possibly, in patients this perception of criticism can be better measured by ratings of a range of specific behaviors, feelings and thoughts, i.e., FAS, while in relatives the one-item measure PCM might be sufficient.

This is one of the few studies in which criticism and hostile familial attitudes, two key elements of expressed emotion, were rated by the affected individuals and their relatives themselves instead by observers. Although the PCM and the FAS have empirical evidence to predict relapse similar to the more time consuming interviews or observations of actual family interactions (Chambless & Blake, 2009; Hooley & Parker, 2006; Kavanagh et al., 1997), relying solely on self-reports is a limitation of the study. Also, emotional overinvolvement as a key factor of expressed emotion was not assessed. We also received information from only one relative who might not be the one who necessarily was the most critical or most relevant person for the patient. Some studies suggest that the kind of relation between the relative and patient might play a crucial role (Hooley, 2007). Finally, as mentioned before, these were post hoc analyses, therefore the study was probably not powered to test for these interactions which is probably reflected in the non-significant overall models.

Conclusions

Despite this limitations, we found preliminary evidence that perceived criticism and familial attitudes in individuals with BD and their relatives were associated with an increased risk for depressive recurrences. Specifically, the relatives' self-rated own criticism towards the patient affected outcome in the ST group more that in the CBT group, and an overall negative family climate as perceived by patients predicted outcome regardless of the therapy conditions, when it referred to depressive recurrences. The different results for the one-item measure PCM and the FAS support the idea that these instruments share some variance but do not assess identical constructs. While this was a first step to explore the usefulness of self-ratings of family attitudes and expressed emotion in BD, our results encourage the idea to use such questionnaires that are easy to administer in clinical practice to assess the familial climate (Chambless & Blake, 2009; Masland & Hooley, 2015). These preliminary results also stress the need for future studies to explore in more detail the potential moderating role of expressed emotions in different psychological therapies (Miklowitz & Chambless, 2015) and specifically in different stages of BD.

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References

Basco, M., & Rush, A. (1996). *Cognitive-behavioral treatment of manic depressive disorder.* Guilford.

Bauer, I. E., Hautzinger, M., & Meyer, T. D. (2017). Memory performance predicts recurrence of mania in bipolar disorder following psychotherapy: A preliminary study. *Journal of Psychiatric Research, 84*, 207–213. https://doi.org/10.1016/j.jpsychires.2016.10.008

Bech, P. (2002). The Bech-Rafaelsen Melancholia Scale (MES) in clinical trials of therapies in depressive disorders: A 20-year review of its use as outcome measure. *Acta Psychiatrica Scandinavica, 106*(4), 252–264. https://doi.org/10.1034/j.1600-0447.2002.01404.x

Bech, P., Rafaelsen, O. J., Kramp, P., & Bolwig, T. G. (1978). The mania rating scale: Scale construction and inter-observer agreement. *Neuropharmacology, 17*(6), 430–431. https://doi.org/10.1016/0028-3908(78)90022-9

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*(6), 561–571. https://doi.org/10.1001/archpsyc.1961.01710120031004

Brieger, P., Röttig, S., Röttig, D., Marneros, A., & Priebe, S. (2007). Dimensions underlying outcome criteria in bipolar I disorder. *Journal of Affective Disorders, 99*(1-3), 1–7. https://doi.org/10.1016/j.jad.2006.08.012

Chambless, D. L., & Blake, K. D. (2009). Construct validity of the Perceived Criticism Measure. *Behavior Therapy, 40*(2), 155–163. https://doi.org/10.1016/j.beth.2008.05.005

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* SAGE.

Gitlin, M. J., & Miklowitz, D. J. (2017). The difficult lives of individuals with bipolar disorder: A review of functional outcomes and their implications for treatment. *Journal of Affective Disorders, 209*, 147–154. https://doi.org/10.1016/j.jad.2016.11.021

Grover, S., & Dutt, A. (2011). Perceived burden and quality of life of caregivers in obsessive-compulsive disorder. *Psychiatry and Clinical Neurosciences, 65*(5), 416–422. https://doi.org/10.1111/j.1440-1819.2011.02240.x

Hautzinger, M., Bailer, M., Worall, H., & Keller, F. (1994). *Beck-Depressions-Inventar (BDI).* Huber.

Hooley, J. M. (2007). Expressed Emotion and relapse of psychopathology. *Annual Review of Clinical Psychology, 3*, 329–352. https://doi.org/10.1146/annurev.clinpsy.2.022305.095236

Hooley, J. M., & Gotlib, I. H. (2000). A diathesis-stress conceptualization of expressed emotion and clinical outcome. *Applied & Preventive Psychology, 9*(3), 135–151. https://doi.org/10.1016/S0962-1849(05)80001-0

Hooley, J. M., & Miklowitz, D. J. (2017). Perceived Criticism in the treatment of a high-risk adolescent. *Journal of Clinical Psychology, 73*(5), 570–578. https://doi.org/10.1002/jclp.22454

Hooley, J. M., & Parker, H. A. (2006). Measuring expressed emotion: An evaluation of the shortcuts. *Journal of Family Psychology, 20*(3), 386–396. https://doi.org/10.1037/0893-3200.20.3.386

Hooley, J. M., & Teasdale, J. D. (1989). Predictors of relapse in unipolar depressives: Expressed emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology, 98*(3), 229–235. https://doi.org/10.1037/0021-843X.98.3.229

Johnson, S. L., Cuellar, A. K., & Gershon, A. (2016). The influence of trauma, life events, and social relationships on bipolar depression. *Psychiatria Clinica, 39*(1), 87–94. https://doi.org/10.1016/j.psc.2015.09.003

Kavanagh, D. J. (1992). Recent developments in expressed emotion and schizophrenia. *The British Journal of Psychiatry, 160*(5), 601–620. https://doi.org/10.1192/bjp.160.5.601

Kavanagh, D. J., O'Halloran, P., Manicavasagar, V., Clark, D., Piatkowska, O., Tennant, C., & Rosen, A. (1997). The Family Attitude Scale: Reliability and validity of a new scale for measuring the emotional climate of families. *Psychiatry Research, 70*(3), 185–195. https://doi.org/10.1016/S0165-1781(97)00033-4

Kim, E. Y., & Miklowitz, D. J. (2004). Expressed emotion as a predictor of outcome among bipolar patients undergoing family therapy. *Journal of Affective Disorders, 82*(3), 343–352. https://doi.org/10.1016/j.jad.2004.02.004

Lam, R. W., Michalek, E. E., & Swinson, R. P. (2005). *Assessment scales in depression, mania, and anxiety.* Taylor & Francis, London.

Leff, J. P., & Vaughn, C. E. (1985). *Expressed emotion in families.* Guilford.

Lex, C., Hautzinger, M., & Meyer, T. D. (2019). Symptoms, course of illness, and comorbidity as predictors of expressed emotion in bipolar disorder. *Psychiatry Research, 276*, 12–17. https://doi.org/10.1016/j.psychres.2019.03.049

Masland, S. R., & Hooley, J. M. (2015). Perceived criticism: A research update for clinical practitioners. *Clinical Psychology: Science and Practice, 22*(3), 211–222. https://doi.org/10.1111/cpsp.12110

Meyer, T. D., & Hautzinger, M. (2012). Cognitive behaviour therapy and supportive therapy for bipolar disorders: Relapse rates for treatment period and 2-year follow-up. *Psychological Medicine, 42*(7), 1429–1439. https://doi.org/10.1017/S0033291711002522

Miklowitz, D. J., & Chambless, D. L. (2015). Perceived criticism: Biased patients or hypercritical relatives? Commentary on "Perceived criticism: A research update for clinical practitioners". *Clinical Psychology: Science and Practice, 22*(3), 223–226. https://doi.org/10.1111/cpsp.12108

Miklowitz, D. J., Efthimiou, O., Furukawa, T. A., Scott, J., McLaren, R., Geddes, J. R., & Cipriani, A. (2021). Adjunctive psychotherapy for bipolar disorder: A systematic review and component network meta-analysis. *JAMA Psychiatry, 78*(2), 141–150. https://doi.org/10.1001/jamapsychiatry.2020.2993

Miklowitz, D. J., Goldstein, M. J., Nuechterlein, K. H., Snyder, K. S., & Mintz, J. (1988). Family factors and the course of bipolar affective disorder. *Archives of General Psychiatry, 45*(3), 225–231. https://doi.org/10.1001/archpsyc.1988.01800270033004

Miklowitz, D. J., & Scott, J. (2009). Psychosocial treatments for bipolar disorder: Cost-effectiveness, mediating mechanisms, and future directions. *Bipolar Disorders, 11*(s2), 110–122. https://doi.org/10.1111/j.1399-5618.2009.00715.x

O'Connell, R. A., Mayo, J. A., Flatow, L., Cuthbertson, B., & O'Brien, B. E. (1991). Outcome of bipolar disorder on long-term treatment with lithium. *The British Journal of Psychiatry, 159*(1), 123–129. https://doi.org/10.1192/bjp.159.1.123

Perlis, R. H., Ostacher, M. J., Patel, J. K., Marangell, L. B., Zhang, H., Wisniewski, S. R., Ketter, T. A., Miklowitz, D. J., Otto, M. W., Gyulai, L., Reilly-Harrington, N. A., Nierenberg, A. A., Sachs, G. S., & Thase, M. E. (2006). Predictors of recurrence in bipolar disorder: Primary outcomes from the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD). *The American Journal of Psychiatry, 163*(2), 217–224. https://doi.org/10.1176/appi.ajp.163.2.217

Pourmand, D., Kavanagh, D. J., & Vaughan, K. (2005). Expressed emotion as predictor of relapse in patients with comorbid psychoses and substance use disorder. *The Australian and New Zealand Journal of Psychiatry, 39*(6), 473–478. https://doi.org/10.1080/j.1440-1614.2005.01606.x

Renshaw, K. D. (2007). Perceived criticism only matters when it comes from those you live with. *Journal of Clinical Psychology, 63*(12), 1171–1179. https://doi.org/10.1002/jclp.20421

Rosenfarb, I. S., Miklowitz, D. J., Goldstein, M. J., Harmon, L., Nuechterlein, K. H., & Rea, M. M. (2001). Family transactions and relapse in bipolar disorder. *Family Process, 40*(1), 5–14. https://doi.org/10.1111/j.1545-5300.2001.4010100005.x

Rossi, A., Daneluzzo, E., Arduini, L., Di Domenico, M., Pollice, R., & Petruzzi, C. (2001). A factor analysis of signs and symptoms of the manic episode with Bech-Rafaelsen Mania and Melancholia Scales. *Journal of Affective Disorders, 64*(2-3), 267–270. https://doi.org/10.1016/S0165-0327(00)00228-7

Scott, J., Colom, F., Pope, M., Reinares, M., & Vieta, E. (2012). The prognostic role of perceived criticism, medication adherence and family knowledge in bipolar disorders. *Journal of Affective Disorders, 142*(1-3), 72–76. https://doi.org/10.1016/j.jad.2012.04.005

Shugar, G., Schertzer, S., Toner, B. B., & Di Gasbarro, I. (1992). Development, use, and factor analysis of a self-report inventory for mania. *Comprehensive Psychiatry, 33*(5), 325–331. https://doi.org/10.1016/0010-440X(92)90040-W

Smolka, M., & Stieglitz, R. D. (1999). On the validity of the Bech-Rafaelsen Melancholia Scale (BRMS). *Journal of Affective Disorders, 54*(1-2), 119–128. https://doi.org/10.1016/S0165-0327(98)00150-5

Swartz, H. A., & Swanson, J. (2014). Psychotherapy for bipolar disorder in adults: A review of the evidence. *Focus, 12*(3), 251–266. https://doi.org/10.1176/appi.focus.12.3.251

Tohen, M., Zarate, C. A., Jr., Hennen, J., Khalsa, H. M. K., Strakowski, S. M., Gebre-Medhin, P., Salvatore, P., & Baldessarini, R. J. (2003). The McLean-Harvard first-episode mania study: Prediction of recovery and first recurrence. *The American Journal of Psychiatry, 160*(12), 2099–2107. https://doi.org/10.1176/appi.ajp.160.12.2099

Vaughn, C. E., & Leff, J. P. (1976). The influence of family and social factors on the course of psychiatric illness: A comparison of schizophrenic and depressed neurotic patients. *The British Journal of Psychiatry, 129*(2), 125–137. https://doi.org/10.1192/bjp.129.2.125

Weintraub, M. J., Hall, D. L., Carbonella, J. Y., Weisman de Mamani, A., & Hooley, J. M. (2017). Integrity of literature on expressed emotion and relapse in patients with schizophrenia verified by ap-curve analysis. *Family Process, 56*(2), 436–444. https://doi.org/10.1111/famp.12208

Yan, L. J., Hammen, C., Cohen, A. N., Daley, S. E., & Henry, R. M. (2004). Expressed emotion versus relationship quality variables in the prediction of recurrence in bipolar patients. *Journal of Affective Disorders, 83*(2-3), 199–206. https://doi.org/10.1016/j.jad.2004.08.006

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Sex Differences in the Outcome of Expressive Writing in Parents of Children With Leukaemia

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Abstract

Background: Sex differences are widely reported in clinical psychology but are rarely examined in interventions.

Method: This mixed-method explorative study examined sex differences in 13 mothers and 10 fathers of children in the off-therapy phase of acute lymphoblastic leukaemia. Parents underwent an expressive writing intervention using the guided written disclosure protocol (GWDP).

Results: Mothers had more negative mood profiles than fathers but improved more during the intervention.

Conclusion: Though preliminary, our findings highlight the importance of sex as a potential moderator of intervention and treatment outcome that could be of great clinical significance.

Keywords

sex differences, gender differences, expressive writing therapy, mood states, childhood leukaemia, parental stress

Highlights

- Parents of children in remission from cancer can benefit from expressive writing.
- Expressive writing can improve mood states.
- Mothers may benefit more than fathers.
- More research on gender differences in outcomes is needed.

When a child falls severely ill, it affects the whole family and parental stress levels remain increased even after successful treatment (Hile et al., 2014). How the parents cope with the shared trauma and burden of that illness is essential to the health of the family as a whole (Morris et al., 2012). One study reported that parental stress was the strongest correlate of functional impairment in children at least 2 years following treatment for leukemia/lymphoma (Hile et al., 2014). Consequently, decreasing the stress and symptom levels of parents of children who have undergone treatment for serious illnesses is likely to benefit the whole family. However, parents receive little attention from hospital personnel and healthcare researchers beyond the first initial shock associated with the child's diagnosis and treatment.

Inspired by the field of linguistics, Pennebaker et al. (2010) theorised that words used in a written narrative reflect the writer's state of mind and could be used to track changes in the meaning attributed to an event (Pennebaker et al., 2010; Tausczik & Pennebaker, 2010). Building on these principles, expressive writing was designed to be used as an element in therapy or as an independent intervention to promote meaning-making and integrate traumatic content into a personal narrative (De Luca Picione et al., 2017; De Luca Picione et al., 2018; Martino & Freda, 2016; Martino et al., 2013). One such expressive writing intervention, the *Guided Written Disclosure Protocol* (GWDP) has been used to reduce distress, anxiety, and PTSD symptoms in parents of children with cancer, whereas results for depression have been less promising (Cafaro et al., 2019; Dicé et al., 2018; Duncan & Gidron, 1999; Duncan et al., 1998; Gidron et al., 2002; Martino et al., 2019; Martino et al., 2013). This protocol is designed to help participants build an increasingly complex and coherent narrative by building on themes of meaning-making, insight, emotion-regulation, mastery and self-efficacy (Baikie & Wilhelm, 2005).

One factor that likely affects how parents respond to different interventions is sex, but research remains scarce (Christiansen, 2015, 2017; Ogrodniczuk, 2006). Research on sex differences in the outcomes of different interventions is often limited by small sample sizes (especially few male participants), yet effect sizes are rarely reported. Furthermore, moderation effects are rarely based on a priori hypotheses. Possibly as a consequence of poor statistical power, few studies have reported significant sex differences. Nonetheless, there are indications that women generally benefit more from psychotherapy than men (Christiansen, 2015, 2017; Ogrodniczuk, 2006; Wade et al., 2016), especially interventions focusing on verbal processing of traumatic content (Christiansen, 2017). Little focus has been given to potential sex differences in outcome of expressive writing. One meta-analysis found that percentage of male participants was positively associated with effect size across 13 studies. However, this effect was not found for psychological outcomes. Furthermore, as trauma type was not controlled, it may be that women were more likely to write about more toxic exposures, such as sexual trauma, which is more common among women (Christiansen, 2017). Other studies have generally failed to report sex differences in the effects of expressive writing (Pennebaker & Chung, 2011), though this

may be at least partly due to low statistical power. To the best of our knowledge, no studies have examined whether references to emotion and cognition predict treatment outcome in both men and women.

Knowledge on sex differences in how parents respond to different interventions may help improve outcomes for both individual parents and their family, not least the children whose functioning is often very dependent on the psychological health of their parents (Morris et al., 2012). In the present study we examined how a brief intervention of expressive writing affects the mood states of parents whose children were in the off-therapy ALL phase (i.e. remission of malignant cells; interruption of radio/chemotherapy; ca. 2 years post diagnosis). We chose to focus on this phase because parents whose children were not in remission would likely be too focused on the current threat to their child to fully benefit from the intervention, yet this phase remains an extremely vulnerable period within which families begin to return to "normal" life, yet parents still feel vulnerable and may need help processing the trauma (Martino et al., 2013). The present study was a pilot study implementing an expressive writing protocol in a group of parents in a very sensitive period following a serious threat to their children. The purpose was to examine sex as a moderator of the impact of expressive writing on mood states over time. We expected mothers to benefit more from the intervention than fathers.

Method

Participants

Participants included 10 fathers and 13 mothers whose children were at the beginning of the off-therapy remission phase being treated for acute lymphoblastic leukemia at one of Italy's leading facilities for children with neoplastic illness. The mean age was 41.5 years (SD = 5.01) for fathers and 38.2 years (SD = 5.6) for mothers. The children undergoing treatment were four boys (M = 4.25 years, SD = 0.5) and nine girls (M = 6.77 years, SD = 3.3).

Procedure

The sample was consecutive with parents being identified from medical reports. Recruitment occurred through phone calls or at the hospital. Parents were contacted one day after their child was confirmed to be in remission. Exclusion criteria were ongoing therapy/interventions for symptoms related to dealing with their child's illness. Participation was voluntary and confidential based on informed written consent, and the study was approved by the hospital's ethics committee.

The GWDP protocol was used in the present studies because of the above mentioned positive results in parents of children with cancer. Writing sessions lasted 30 minutes and

were conducted individually in a quiet room of the hospital with only the psychologist researcher present. In the first session parents were asked to describe events as they occurred and developed over time. In the second session (10-15 days later) parents were invited to express the emotions accompanying these same events. In the final session (10-15 days later) parents were instructed to envision their future, compare their present and past feelings, consider the effects the experience has had on them, and describe how they expect to cope with future adversities. Following the intervention parents were assessed for need of continued psychological support. One mother was offered and accepted additional meetings with a psychologist at the hospital.

The study originally included a control group of 23 parents not undergoing a writing intervention who were invited to participate during the subsequent year. However, as the two groups differed significantly on the main outcome measure at T_1, prior to intervention, we unfortunately had to exclude the control group, as it would be impossible to conclude whether any potential differences between the groups were caused by the intervention or by other factors. Out of a total of 20 couples whose children were diagnosed during 2007, seven couples and an additional three fathers declined participation, thus leaving us with 10 parental dyads and three mothers without participating partners. Participants were assessed prior to the intervention (T_1), 10-15 days post-intervention (T_2) and at follow-up (40-45 days post-intervention (T_3).

Measure

The Profile of Mood States (POMS) is a self-report questionnaire assessing specific affective states during the past week (McNair et al., 1971). The test consists of 58 adjectives belonging to six factors: tension–anxiety, depression–dejection, anger–hostility, vigor–activity, fatigue–inertia, and confusion–bewilderment. Items are rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The POMS scale revealed acceptable reliability across all three measurements (Cronbach's $\alpha > .96$) and across five of the six subscales (Cronbach's $\alpha > .81$). Cronbach's α was consistently low for the vigor-activity subscale and an inter-item correlation matrix revealed internal inconsistencies. Thus, this subscale was excluded from all analyses. A measure of change in POMS scores was calculated for later analyses (T3 scores – T1 scores) with negative scores indicating an improvement in mood states.

Data Analyses

The low number of participants ($N = 23$) limited the type and power of statistical analyses. Therefore, the results must be considered preliminary. A significance level of $p < .05$ was used but to better guide future research, high and medium effect sizes are also reported regardless of statistical significance level. A *t*-test was also used to examine sex differences in changes in POMS total and subscale scores between assessments. Effect

sizes were calculated using Cohen's *d* with values of 0.2, 0.5, and 0.8 used as guidelines for small, medium, and large effect sizes, respectively. The main effect of time was examined along with the main effect of sex and the interaction effect between time and sex in a mixed methods within-between subjects ANOVA. Effect sizes were calculated using partial Eta squared (ηp^2) with values of .01, .06, and .14 used as guidelines for small, medium, and large effect sizes, respectively. Due to the way in which data was collected and stored, it was not possible to conduct paired analysis based on parental dyads. Thus, analyses of sex differences fail to take into account that paired parents affect each other and share both the child and the circumstances surrounding that child's illness and treatment.

Results

The mixed methods ANOVA for mothers and fathers across all three measurements is shown in Table 1a, 1b, and 1c. In accordance with the *t*-tests, significant large main effects of sex were found for POMS total score, $F(1, 21) = 7.77$; $p < .05$; $\eta_p^2 = .27$, and all subscale scores, $\eta_p^2 > .20$; $p < .05$), except for depression-dejection ($p = .07$; $\eta_p^2 = .14$; see Table 1a). No significant main effect was found for time on POMS total score despite a relatively large effect size ($\eta_p^2 = .17$; see Table 1b). There was, however, a significant main effect on tension-anxiety (Wilk's lambda = .70, $F(2, 20) = 4.26$, $p < .05$, $\eta_p^2 = .30$). The main effects for time on the remaining subscales were all medium though non-significant ($.08 < \eta_p^2 < .20$). All effect sizes indicated a decrease in POMS levels from pre-treatment to follow-up. Finally, the interaction effects between sex and time were all non-significant, though all except for the depression-dejection subscale had effect sizes that can be considered medium-to-large ($.06 < \eta_p^2 < .17$; please see Table 1c).

Table 1a

ANOVA: Between-Subjects Effect – SEX

POMS subscale	*F*	*p*	PE^2
Total	7.77	< .05	.270
Tension-anxiety	7.52	< .05	.264
Depression-dejection	3.63	.07	.147
Anger-hostility	5.45	< .05	.206
Fatigue-inertia	8.90	< .01	.298
Confusion-bewilderment	21.10	< .001	.501

Note. POMS: Profile of Mood States.

Table 1b

ANOVA: Multivariate Tests – Time

POMS subscale	Wilk's λ	*F*	*p*	PE^2
Total	.828	2.07	ns.	.172
Tension-anxiety	.701	4.26	< .05	.299
Depression-dejection	.915	0.93	ns.	.085
Anger-hostility	.900	1.12	ns.	.100
Fatigue-inertia	.806	2.41	ns.	.194
Confusion-bewilderment	.912	0.96	ns.	.088

Note. POMS: Profile of Mood States.

Table 1c

*ANOVA: Multivariate Tests – Time * SEX*

POMS subscale	Wilk's λ	*F*	*p*	PE^2
Total	.887	1.28	ns.	.113
Tension-anxiety	.835	1.97	ns.	.165
Depression-dejection	.960	0.41	ns.	.040
Anger-hostility	.898	1.14	ns.	.102
Fatigue-inertia	.869	1.50	ns.	.131
Confusion-bewilderment	.934	0.71	ns.	.066

Note. POMS: Profile of Mood States.

Post-hoc *t*-tests examining the moderation effects (please see Table 2) revealed that mothers reported a higher average decrease in POMS scores (M = -20.46, SD = 54.43) compared to fathers (M = -6.20, SD = 8.04) from T_1 to T_3, though the effect size was small and non-significant (Cohen's d = .37). The main decrease in POMS levels in mothers occurred during the intervention (M = -21.54) with little additional change occurring afterwards (M = -1.08; see Table 2). This difference was much smaller in fathers (M = -4.7 vs. M = -1.5). Though independent t-tests examining sex differences in the decrease in POMS scores at each step were non-significant, a large effect size was found comparing the decrease in POMS scores during the intervention (d = .54) but not subsequently (d = .23). These sex differences were not significant for any of the subscales and could only be considered medium for the tension-anxiety subscale (d = 0.70). Most participants (78%) experienced some decrease in their POMS scores over the course of writing. However, 10.0% of fathers and 30.8% of mothers reported some increase in POMS scores from T_1 to T_3.

Table 2

POMS Total and Subscale Scores at Baseline and Over Time

	M (*SD*)					
POMS total score	**All**	***F***	***M***	***t***	***p***	***d***
POMS total scores						
POMS total T_1	52.61 (39.15)	27.80 (25.02)	71.69 (37.86)	3.16	< .05	1.37
POMS total T_2	38.39 (34.41)	23.10 (22.43)	50.15 (38.06)	1.99	.060	0.87
POMS total T_3	38.35 (38.64)	21.60 (20.06)	51.23 (44.97)	2.12	< .05	0.85
Change from T_1 to T_3						
POMS total	-14.26 (41.17)	-6.20 (8.04)	-20.46 (54.43)	0.93	ns.	0.37
Tension-anxiety	-4.91 (8.05)	-2.00 (3.56)	-7.15 (9.84)	1.75	ns.	0.70
Depression-dejection	-3.52 (14.21)	-1.90 (1.79)	-4.77 (19.08)	0.54	ns.	0.21
Anger-hostility	-2.22 (9.26)	-1.00 (2.05)	-3.15 (12.32)	0.62	ns.	0.24
Fatigue-inertia	-2.43 (6.06)	-1.40 (1.35)	-3.23 (8.02)	0.81	ns.	0.32
Confusion-bewilderment	-1.17 (5.16)	0.10 (1.29)	-2.15 (6.72)	1.18	ns.	0.47

Note. F = fathers; M = mothers. *t*, *p*, and Cohen's *d* all relate to sex differences. *POMS* = Profile of Mood State. T_1: prior to therapy; T_2: at the end of therapy: T_3: at follow-up.

Discussion

As the present study was a pilot study, the most relevant finding was that the implementation of the emotional writing procedure in this clinical setting was successful. That significant sex differences were found despite low statistical power highlights the importance of taking sex into account in intervention studies. Several of the non-significant effects could be considered moderate or even strong, indicating that type II error due to small sample size may have disguised further significant findings. Mothers reported significantly more negative mood states than fathers. It is possible that mothers were more negatively affected by their child's illness, as indicated by prior research (Christiansen, 2017; Clarke et al., 2009). Another possibility is that these findings may just reflect sex differences in everyday mood.

Although there was no significant main effect of time, the effect size was quite large for POMS total scores, and medium-to-large effect sizes were found for all five POMS subscales. Without a control group, it is unknown whether the apparent improvements in mood profiles were caused by the intervention or simply by the passing of time. However, mothers showed a much steeper decline in symptom scores from T_1 to T_2 than from T_2 to T_3. This decline was larger in mothers than in fathers during the intervention, whereas there was no difference between the two sexes in changes in mood states occurring from the end of the intervention until follow-up. This may suggest that, at

least in mothers, some of the changes were caused by the writing intervention. Accordingly, although the interaction between time and sex was statistically non-significant, the medium-to-large effect sizes found for both POMS total score and all but one of the subscale scores suggests that future studies may reveal women to benefit more from expressive writing interventions than men. Though preliminary, our findings highlight the importance of including sex as a moderator in treatment studies.

Though not shown here, analyses using the Linguistic Inquiry and Word Count software (LIWC) (Pennebaker et al., 2007; Freitag et al., 2011; Freda & Martino, 2015) found that mothers focused more on affect during writing sessions than fathers, including both positive and negative emotions (analyses may be obtained from corresponding author). This is in accordance with findings from prior studies (Newman et al., 2008; Thomson & Murachver, 2001). Ogrodniczuk (2006) suggested that women's willingness to self-disclose and express emotion make them better patients and help them benefit more from therapy. Perhaps the socialization processes that cause women to share emotional content with others more easily than men make them more prepared to benefit from interventions focusing on emotional processing. Another possibility is that women's stronger inclination to seek treatment (Christiansen, 2015; Ogrodniczuk, 2006) makes them generally more prepared than men to put in the effort needed for it to be successful. Though the present study was not based on a treatment-seeking sample, mothers were more likely than fathers to agree to participate, so a similar phenomenon may be present in this sample. Whereas it is possible that mothers's scores simply declined more because they were higher from the beginning, thus leaving more room for improvement, this would also be the case from the end of treatment to follow-up where no additional change occurred. This may suggest that the decrease was in fact caused by the writing intervention, but due to the unfortunate exclusion of the control group, there is no way of knowing for sure.

Finally, it is important to note that four of the mothers and one father experienced an increase in symptoms over the course of the writing intervention. Thus, whereas mothers on average benefitted more, they also appear more likely to get worse over time. As the POMS measure was not directly linked to the child's illness and only assessed mood states during the past weeks, the increased POMS scores may have been caused by new chronic or temporary stressors, independently of the intervention. However, such findings does serve as a reminder that when evaluating the benefits of any intervention, we must focus both on overall gains and on potential detrimental individual effects.

Sex differences in intervention outcomes is of great importance to both scientists and clinicians, and implementing these into treatment and intervention designs may increase the benefits of these for both men and women presenting with a variety of symptoms, thus reducing the great societal and personal costs associated with ineffective interventions (Christiansen, 2017; Donner & Lowry, 2013). Knowledge about both sex and gender and how they influence intervention outcomes should be implemented in

research on different types of psychotherapy to a much greater degree than what is currently being done (Bekker & van Mens-Verhulst, 2007; Christiansen, 2015; Christiansen & Berke, 2020; Christiansen & Elklit, 2012). Whereas the results of the present study are preliminary and cannot in and of themselves be used as evidence of sex differences in the therapeutic effects of expressive writing and emotional processing in general, it is our great hope that it may increase focus on the importance of considering sex differences in the impact of psychotherapy and psychological interventions. In terms of clinical implications, taking sex differences into account when designing and selecting interventions for parents of critically ill children may help reduce symptom levels for both mothers and fathers and in turn improve quality of life for the whole family.

Strengths and Limitations

Beyond showing the feasibility of such an intervention in a sensible clinical environment, the primary strength of this study is the specific focus on sex as a potential moderator of intervention outcome. However, the fact that the study was not originally designed with this in mind, thus failing to ensure sufficient power for detecting significant effects, severely limits the conclusions. The exclusion of the control group due to significant pre-treatment differences in POMS scores severely limits the results, as we were not able to conclude whether the reductions in POMS scores over time were in fact caused by the intervention. Further, low sample size of this pilot trial only allows cautious interpretation of results. Finally, the inability to match mothers and fathers into parental dyads forced us to treat the two sexes as independent groups, thereby making our results vulnerable to certain biases, such as parents affecting the symptom levels of their partners and both parents being affected by how their child copes with the illness along with other shared circumstances and stressors.

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References

Baikie, K. A., & Wilhelm, K. (2005). Emotional and physical health benefits of expressive writing. *Advances in Psychiatric Treatment, 11*(5), 338–346. https://doi.org/10.1192/apt.11.5.338

Bekker, M. H. J., & van Mens-Verhulst, J. (2007). Anxiety disorders: Sex differences in prevalence, degree, and background, but gender-neutral treatment. *Gender Medicine, 4*(Suppl 2), S178–S193. https://doi.org/10.1016/S1550-8579(07)80057-X

Cafaro, V., Iani, L., Costantini, M., & Di Leo, S. (2019). Promoting post-traumatic growth in cancer patients: A study protocol for a randomized controlled trial of guided written disclosure. *Journal of Health Psychology, 24*(2), 240–253. https://doi.org/10.1177/1359105316676332

Christiansen, D. M. (2015). Examining sex and gender differences in anxiety disorders. In F. Durbano (Ed.), *A fresh look at anxiety disorders* (pp. 17-49). InTech. https://doi.org/10.5772/60662

Christiansen, D. M. (2017). Sex and gender differences in trauma victims presenting for treatment. In M. J. Legato (Ed.), *Principles of gender-specific medicine* (3rd ed., pp. 497-511). Academic Press. https://doi.org/10.1016/B978-0-12-803506-1.00043-7

Christiansen, D. M., & Berke, E. T. (2020). Gender- and sex-based contributors to sex differences in PTSD. *Current Psychiatry Reports, 22*(4), Article 19. https://doi.org/10.1007/s11920-020-1140-y

Christiansen, D. M., & Elklit, A. (2012). Sex differences in PTSD. In E. Ovuga (Ed.), *Post traumatic stress disorders in a global context* (pp. 113-142). InTech. https://doi.org/10.5772/28363

Clarke, N. E., McCarthy, M. C., Downie, P., Ashley, D. M., & Anderson, V. A. (2009). Gender differences in the psychosocial experience of parents of children with cancer: A review of the literature. *Psycho-Oncology, 18*(9), 907–915. https://doi.org/10.1002/pon.1515

De Luca Picione, R., Martino, M. L., & Freda, M. F. (2017). Understanding cancer patients' narratives: Meaning-making process, temporality, and modal articulation. *Journal of Constructivist Psychology, 30*(4), 339–359. https://doi.org/10.1080/10720537.2016.1227738

De Luca Picione, R., Martino, M. L., & Freda, M. F. (2018). Modal articulation: The psychological and semiotic functions of modalities in the sensemaking process. *Theory & Psychology, 28*(1), 84–103. https://doi.org/10.1177/0959354317743580

Dicé, F., Auricchio, M., Boursier, V., De Luca Picione, R., Santamaria, F., Salerno, M., Valerio, P., & Freda, M. F. (2018). Lo Scaffolding psicologico per la presa in carico delle condizioni Intersex/DSD. I Setting di Ascolto Congiunto [Psychological Scaffolding as taking charge of intersex condition: Joint listening setting]. *Psicologia Della Salute,* 1, 129–145. https://doi.org/10.3280/PDS2018-001008

Donner, N. C., & Lowry, C. A. (2013). Sex differences in anxiety and emotional behavior. *Pflügers Archiv, 465*(5), 601–626. https://doi.org/10.1007/s00424-013-1271-7

Duncan, E., & Gidron, Y. (1999). Written emotional expression and health: Evidence for a new guided-disclosure technique. *Proceedings of the British Psychological Society, 7*(1), 29.

Duncan, E., Gidron, Y., Biderman, A., & Shvartzman, P. (1998). *Rationale and development of a guided written disclosure paradigm.* British Psychological Society, Division of Health Psychology.

Freda, M. F., & Martino, M. L. (2015). Health and writing: Meaning-making processes in the narratives of parents of children with leukemia. *Qualitative Health Research, 25*(3), 348–359. https://doi.org/10.1177/1049732314551059

Freitag, S., Grimm, A., & Schmidt, S. (2011). Talking about traumatic events: A cross-cultural investigation. *Europe's Journal of Psychology, 7*(1), 40–61. https://doi.org/10.5964/ejop.v7i1.104

Gidron, Y., Duncan, E., Lazar, A., Biderman, A., Tandeter, H., & Shvartzman, P. (2002). Effects of guided written disclosure of stressful experiences on clinic visits and symptoms in frequent clinic attenders. *Family Practice, 19*(2), 161–166. https://doi.org/10.1093/fampra/19.2.161

Hile, S., Erickson, S. J., Agee, B., & Annett, R. D. (2014). Parental stress predicts functional outcome in pediatric cancer survivors. *Psycho-Oncology, 23*(10), 1157–1164. https://doi.org/10.1002/pon.3543

Martino, M. L., De Luca Picione, R., Lemmo, D., Boursier, V., & Freda, M. F. (2019). Meaning-making trajectories of resilience in narratives of adolescents with multiple sclerosis. *Mediterranean Journal of Clinical Psychology, 7*(2), 1–25. https://doi.org/10.6092/2282-1619/2019.7.2049

Martino, M. L., & Freda, M. F. (2016). Meaning-making process related to temporality during breast cancer traumatic experience: The clinical use of narrative to promote a new continuity of life. *Europe's Journal of Psychology, 12*(4), 622–634. https://doi.org/10.5964/ejop.v12i4.1150

Martino, M. L., Freda, M. F., & Camera, F. (2013). Effects of Guided Written Disclosure Protocol on mood states and psychological symptoms among parents of off-therapy acute lymphoblastic leukemia children. *Journal of Health Psychology, 18*(6), 727–736. https://doi.org/10.1177/1359105312462434

McNair, D. M., Lorr, M., & Droppleman, L. F. (1971). *Manual for the Profile of Mood States (POMS).* Educational and Industrial Testing Service.

Morris, A., Gabert-Quillen, C., & Delahanty, D. (2012). The association between parent PTSD/depression symptoms and child PTSD symptoms: A meta-analysis. *Journal of Pediatric Psychology, 37*(10), 1076–1088. https://doi.org/10.1093/jpepsy/jss091

Newman, M. L., Groom, C. J., Handelman, L. D., & Pennebaker, J. W. (2008). Gender differences in language use: An analysis of 14,000 text samples. *Discourse Processes, 45*(3), 211–236. https://doi.org/10.1080/01638530802073712

Ogrodniczuk, J. S. (2006). Men, women, and their outcome in psychotherapy. *Psychotherapy Research, 16*(4), 453–462. https://doi.org/10.1080/10503300600590702

Pennebaker, J. W., Booth, R. J., & Francis, M. E. (2007). *Linguistic Inquiry and Word Count: LIWC 2007* [Computer software]. Austin, TX, USA: LIWC.

Pennebaker, J. W., & Chung, C. K. (2011). Expressive writing: Connections to physical and mental health. In H. S. Friedman (Ed.), *Oxford handbook of health psychology* (pp. 417-427). Oxford University Press.

Pennebaker, J. W., Facchin, F., & Margola, D. (2010). What our words say about us: The effects of writing and language. In V. Cigoli & M. Gennari (Eds.), *Close relationship and community psychology: An international perspective* (pp. 103-117). FrancoAngeli.

Tausczik, Y. R., & Pennebaker, J. W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology, 29*(1), 24–54. https://doi.org/10.1177/0261927X09351676

Thomson, R., & Murachver, T. (2001). Predicting gender from electronic discourse. *British Journal of Social Psychology, 40*(2), 193–208. https://doi.org/10.1348/014466601164812

Wade, D., Varker, T., Kartal, D., Hetrick, S., O'Donnell, M., & Forbes, D. (2016). Gender difference in outcomes following trauma-focused interventions for posttraumatic stress disorder: Systematic review and meta-analysis. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*(3), 356–364. https://doi.org/10.1037/tra0000110

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Coping in the Emergency Medical Services: Associations With the Personnel's Stress, Self-Efficacy, Job Satisfaction, and Health

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Supplementary Materials: Materials [see Index of Supplementary Materials]

Abstract

Background: Emergency Medical Services personnel (EMSP) are recurrently exposed to chronic and traumatic stressors in their occupation. Effective coping with occupational stressors plays a key role in enabling their health and overall well-being. In this study, we examined the habitual use of coping strategies in EMSP and analyzed associations of coping with the personnel's health and well-being.

Method: A total of N = 106 German Red Cross EMSP participated in a cross-sectional survey involving standardized questionnaires to report habitual use of different coping strategies (using the Brief-COPE), their work-related stress, work-related self-efficacy, job satisfaction, as well as mental and physical stress symptoms.

Results: A confirmatory factor analysis corroborated seven coping factors which have been identified in a previous study among Italian emergency workers. Correlation analyses indicated the coping factor "self-criticism" is associated with more work-related stress, lower job satisfaction, and higher depressive, posttraumatic, and physical stress symptoms. Although commonly viewed as adaptive coping, the coping factors "support/venting", "active coping/planning", "humor", "religion", and "positive reappraisal" were not related to health and well-being in EMSP.

Exploratory correlation analyses suggested that only "acceptance" was linked to better well-being and self-efficacy in EMSP.

Conclusion: Our results emphasize the need for in-depth investigation of adaptive coping in EMSP to advance occupation-specific prevention measures.

Keywords

Emergency Medical Services, coping strategies, stress, job satisfaction, work-related self-efficacy

Highlights

- Previously reported seven factor structure of BriefCOPE was confirmed in German EMS personnel.
- Adaptive coping factors (e.g., support/venting) are not linked to better health and well-being.
- Self-criticism correlates with lower job satisfaction, higher stress, and more stress symptoms.
- Acceptance is associated with less stress symptoms and higher self-efficacy.

Emergency Medical Services personnel (EMSP) are recurrently confronted with traumatic events during medical rescue missions and undergo adverse working conditions such as shiftwork, time pressure, insufficient sleep, and social conflicts (Donnelly & Siebert, 2009; Karutz et al., 2013; Sterud et al., 2006). These factors pose a high emotional stress on EMSP (Johnson et al., 2005; Karrasch et al., 2020; Schmid et al., 2008), which can compromise their job satisfaction (Boudreaux et al., 1997; Portero de la Cruz et al., 2020; Sterud et al., 2011) and may trigger mental health problems, including depression, posttraumatic stress disorder (PTSD), and alcohol abuse (Berger et al., 2012; Kleim & Westphal, 2011; Petrie et al., 2018; Sterud et al., 2006; S. L. Wagner et al., 2020) as well as physical health problems (Aasa et al., 2005; Bentley & Levine, 2016; Friedenberg et al., 2022; Hegg-Deloye et al., 2014).

To maintain their health and work capacity, EMSP are required to employ effective strategies to cope with chronic stress and recurrent exposure to traumatic events on duty (Arble & Arnetz, 2017; Karrasch et al., 2020). *Coping* is defined as a person's effort to deal with external or internal demands that are perceived as stressful or possibly exceed the individual's resources (Lazarus & Folkman, 1984). Research has described various strategies to cope with stress. Some of them such as social support seeking, acceptance, and positive reappraisal are viewed as adaptive in reducing stress and benefiting health and well-being (Holton et al., 2016; Moritz et al., 2016). Conversely, strategies involving self-criticism, denial, dissociation, and avoidance are viewed as maladaptive for stress management and can lead to impaired health and well-being (Holton et al., 2016; Prati & Pietrantoni, 2009).

In the context of their work, EMSP and other frontline workers are confronted with high emotional demands and physical stressors due to shift work, time pressure, high responsibility, and recurrent traumatic event exposure. As a result, EMSP may find certain coping strategies not helpful in handling their work-related demands, although in other contexts, the same strategies may be highly adaptive, and vice versa. In this line, growing evidence shows that coping strategies may differ in their actual adaptiveness depending on the context of their application (Cheng et al., 2014; Folkman & Moskowitz, 2004; Levy-Gigi et al., 2016).

"Maladaptive" Coping in EMSP

There is consistent evidence that "maladaptive" coping strategies are linked to poorer well-being and health in EMSP. *Self-criticism* is linked to more burnout, compassion fatigue, depression, and PTSD symptoms, and lower compassion satisfaction (Boland et al., 2019; Boudreaux et al., 1997; Cicognani et al., 2009; Kirby et al., 2011; Prati et al., 2011). Furthermore, avoidant coping such as *substance (ab)use* and *denial* was linked to poorer mental health outcomes in the long-term such as elevated PTSD symptoms (Arble & Arnetz, 2017; Cicognani et al., 2009; Kerai et al., 2017; Kirby et al., 2011; LeBlanc et al., 2011; Portero de la Cruz et al., 2020; Regehr et al., 2002). Despite negative consequences, EMSP engage in avoidant coping because these strategies allow to instantly alleviate emotional strain (Levy-Gigi et al., 2016; Regehr et al., 2002). For example, it was shown that EMSP use emotional avoidance after critical mission incidents (Figley, 2008).

"Adaptive" Coping in EMSP

Previous studies reported that coping strategies, which are assumed adaptive in the general population, show inconsistent or even negative associations with the well-being and health of EMSP (Cicognani et al., 2009; Prati et al., 2011; Raynor & Hicks, 2019). Upon exposure to stressful events, EMSP may profit from *social support* to receive emotional support and relief (Alexander & Klein, 2001; ALmutairi & El Mahalli, 2020; Boland et al., 2019; Donnelly & Siebert, 2009). In EMSP, social support has been associated with lower risk of depressive, burnout, and trauma-related symptoms (Boland et al., 2019; Essex & Scott, 2008; Feldman et al., 2021; Fjeldheim et al., 2014; Guilaran et al., 2018; Prati & Pietrantoni, 2010; Wild et al., 2016). However, other studies found that social support did not moderate the negative influence of stressful mission experiences on PTSD symptoms (C.-M. Chang et al., 2008). Higher social support was also linked to burnout and compassion fatigue among EMSP (Cicognani et al., 2009; Prati et al., 2011).

Moreover, EMSP may cope actively with stress through focusing on the next step in planning and actively solving problems (Boland et al., 2019; Regehr et al., 2002). *Active coping/planning* was associated with lower stress levels (Brown et al., 2002; Jamal et al., 2017) and stronger posttraumatic growth (Kirby et al., 2011) in EMSP. However, Folkman

and Moskowitz (2004) theorized that the effectivity of active coping depends on the controllability of stressors. EMSP are regularly confronted with critical mission events and adverse working conditions they cannot fully control. Therefore, active coping may be ineffective or possibly counterproductive in certain situations. Indeed, previous studies linked active coping to higher levels of stress and burnout in emergency workers (Cicognani et al., 2009; Prati et al., 2011).

It is proposed that *humor* enables EMSP to experience critical situations as less serious and threatening (Moran, 2002). Healthcare workers who used humor perceived work-related situations less stressful (Canestrari et al., 2021), and the use of humor was linked to less PTSD symptoms among firefighters (Sliter et al., 2014). However, humor is a very complex construct with various subtypes which may have opposite effects in handling stress (Leist & Müller, 2013; Martin et al., 2003). Indeed, humor was also associated with higher burnout levels in EMSP (Cicognani et al., 2009; Prati et al., 2011).

As an emotion-focused coping strategy, *religion* has been linked to less burnout symptoms (Boland et al., 2019) and higher levels of posttraumatic growth (Ogińska-Bulik & Zadworna-Cieślak, 2018), but also with more burnout symptoms and compassion fatigue in EMSP (Cicognani et al., 2009; Prati et al., 2011). In their concept of posttraumatic growth, Tedeschi and Calhoun (1996) assume increasing spirituality as an adaptive consequence of traumatic experiences. Accordingly, positive associations between stress symptoms and religious coping in EMSP could indicate emerging posttraumatic growth.

Moreover, EMSP reported to manage their work-related stress through *acceptance of negative emotions* as well as *positive reappraisal* (Boland et al., 2019; Kirby et al., 2011). *Acceptance* was consistently linked to increased posttraumatic growth (Kirby et al., 2011; Prati & Pietrantoni, 2009) and milder posttraumatic stress symptoms in EMSP (Zhao et al., 2020). *Positive reappraisal* was associated with more burnout and compassion fatigue symptoms (ALmutairi & El Mahalli, 2020; Cicognani et al., 2009) but was also related with stronger posttraumatic growth (Kirby et al., 2011).

Adaptive Coping and Self-Efficacy

Self-efficacy refers to the deep conviction that one has sufficient resources and abilities to cope successfully with adversity (Bandura, 1997). Self-efficacy determines the individual's approach and self-perception when coping with stressors. Thereby, it influences execution of coping strategies as well as the persistency of coping efforts (Bandura, 1997). As a result, self-efficacious individuals experience job stress less threatening, working conditions more positively, and focus more on available resources (e.g., social support) (Consiglio, Borgogni, Alessandri, & Schaufeli, 2013). Studies in the EMS found that personnel with longer work experience report higher self-efficacy, which contributed to less burnout and compassion fatigue as well as more compassion satisfaction (Cicognani et al., 2009; Groß et al., 2004; Prati et al., 2010). In nurses, the beneficial effect of

self-efficacy on health and well-being was partially mediated through problem-focused coping (Chang & Edwards, 2015).

Present Study

Coping behavior of EMSP may change with increasing professional experience and/or as a function of the recurrent exposure to stress and traumatic events (Essex & Scott, 2008). Through habituating with their work, EMSP will increasingly engage in coping strategies they experience as helpful in alleviating stress in the short-term (Figley, 2008). Resulting coping habits will conceivably differ from those of the general population as well as of occupations with other demands. Therefore, Cicognani et al. (2009) explored specific factors of coping strategies in 764 Italian emergency workers, including EMSP, firefighters, and civil-protection personnel. From the 14 coping strategies assessed with the Brief-COPE, an exploratory factor analysis extracted seven coping factors, i.e., *support/venting*, *active coping*, *positive reappraisal*, *humor*, *religion*, *self-distraction*, and *self-criticism*, which showed complex associations with the personnel's quality of life and mental health.

The coping factor model identified by Cicognani et al. (2009) is yet to be confirmed. With this study, we tested whether Cicognani et al.'s factor model fits the coping behavior of German EMSP. Moreover, we hypothesized "maladaptive" coping (e.g., self-distraction, self-criticism) is linked to higher perceived stress, lower job satisfaction, and more mental and physical stress symptoms. Conversely, we expected "adaptive" coping (e.g., support/venting, active coping, positive reappraisal, humor, religion) to be linked to better health and well-being. Additionally, we hypothesized that EMSP with longer work experience show higher work-related self-efficacy. Higher self-efficacy was expected to correlate with higher job satisfaction, lower work-related stress, and fewer mental and physical symptoms.

Method

Procedure

The authors conducted an in-house training module offered seven times within three months at two ambulance stations of the local German Red Cross (GRC) division. Of the division's 318 employees, 241 attended the training and were invited to participate in this study. Interested EMSP left their email address, and via email they received the link to the study survey. At the beginning of the survey, participants were informed about the study aims and procedures. A total of 115 employees declared their written informed consent and participated in the survey (46.6% response rate) that assessed sociodemographic characteristics (e.g., age, gender) and exposure to traumatic events, personality traits, mental and physical health conditions as well as coping strategies using standardized questionnaires. The survey also assessed other health-relevant factors

such as emotion regulation and sense of coherence that were reported in previous studies (Behnke, Conrad, et al., 2019; Gärtner et al., 2019). The survey took approximately one hour for completion. Participants received no remuneration. The study protocol was approved by the Ulm University ethics committee.

Participants

Regarding the variables investigated in this study, complete data were available from $N = 106$ EMSP (63.2% men), presenting 33.3% of the local GRC divisions' total workforce. Participating EMSP were 18 to 61 years of age, *Mdn* (*IQR*) = 26 (15.8), and their work experience ranged from one month to 35 years, *Mdn* (*IQR*) = 3.3 (10.3) years. Additional sociodemographic characteristics are detailed in Table 1. Study participants corresponded well to the entirety of local EMS employees in terms of sex, stationing, and EMS work experience. Small differences occurred regarding employment type and age.

Measures

Coping strategies were measured with the 28-item German Brief-COPE (Knoll et al., 2005). The Brief-COPE subscales' internal consistency ranged from Cronbach's $\alpha = .43–.89$. As an exception, the subscale *behavioral disengagement* showed an inacceptable internal consistency of $\alpha = -.04$ (see Supplementary Materials, Table X1, for details).

Perceived work-related stress was recorded with an EMS-specific questionnaire (Gärtner et al., 2019). On eight items, participants reported their perceived stress due to alarms, shift work, etc. on a 5-point Likert scale anchored at 0 (*never experienced*) and 4 (*very bothering*). Reponses were aggregated to a sum score (range: 0–32; Cronbach's $\alpha = .77$).

Depressive symptoms were measured with the 9-item German Patient Health Questionnaire scale for depression (PHQ-9; Löwe et al., 2002). Responses are recorded on a four-point Likert scale ranging from 0 (*not at all*) to 3 (*almost every day*) and were aggregated to a sum score (range: 0–27; Cronbach's $\alpha = .83$).

Posttraumatic symptoms were assessed with the German PTSD Checklist for DSM-5 (PCL-5; Krüger-Gottschalk et al., 2017). Participants were requested to recall their most stressful life event. As previously reported, 53% of the EMSP participating in this study encountered their most stressful life events in the line of their duty (Behnke, Rojas, et al., 2019). With eight qualitative items, the PCL-5 evaluates whether the most stressful life event fulfils the DSM-5 criteria of a traumatic event. On 20 items, participants rated the severity of their posttraumatic stress symptoms on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*very strong*). Severity ratings were aggregated to a sum score (range: 0–80, Cronbach's $\alpha = .91$).

Physical ailments were assessed using the 15-item German Patient Health Questionnaire scale for physical symptoms (PHQ-15; Löwe et al., 2002). The item asking for

Table 1

Demographic Sample Characteristics Compared to the Local EMS Personnel

	Study cohort		Local EMS employees		Statistical test		
Demographic Variable	***n***	**%**	***n***	**%**	**Test statistic**	***p***	**Effect size**
Total	106	33.3[#]	318				
Sex					–	.229	-.061
Male	67	63.2	222	69.8			
Female	39	36.8	96	30.2			
Ambulance station					–	1	-.003
Ulm	74	69.8	223	70.1			
Heidenheim	32	30.2	95	29.9			
Employment form					$\chi^2(2) = 11.51$	.003	.165
Salaried	80	75.5	198	62.3			
Voluntary	16	15.1	101	31.8			
In apprentice	10	9.4	19	6.0			
Professional qualification							
EMT–paramedic ("Notfallsanitäter")	64	60.4	–	–			
EMT–basic ("Rettungssanitäter")	32	30.2	–	–			
EMT–paramedic trainee	10	9.4	–	–			
Family status							
Single	50	47.2	–	–			
Divorced	8	7.5	–	–			
Partnership/married	48	45.3	–	–			
	***M* (*SD*)**	***Mdn***	***M* (*SD*)**	***Mdn***			
Age [years]	29.8 (10.9)	26.0	32.1 (11.1)	27.5	$U = 13906$	.007	-.131
EMS working experience [years]	7.5 (8.7)	3.3	5.7 (5.5)	3.8	$U = 16172.5$	.629	-.023

Note. [#]proportion of total staff. Population and sample frequency distributions were compared using Fisher's exact tests and χ^2 tests, where applicable, and φ as effect-size measure. Continuous variables were compared using Mann-Whitney *U*-tests using Cohen's *r* as effect-size measure.

menstrual pain was excluded for reasons of gender comparability. Responses are recorded on a 3-point Likert scale ranging from 0 (*not at all*) to 2 (*very strong*). The sum score of all items represents the severity of physical ailments (range: 0–30, Cronbach's α = .84).

Job satisfaction was evaluated using a subscale of the German Michigan Organizational Assessment Questionnaire (Cammann et al., 1979). On three items, participants rated their job satisfaction on a 4-point Likert-scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Responses were combined as sum score (range: 3–12, Cronbach's $\alpha = .69$).

Work-related self-efficacy was assessed using the two items of the Professional Self-efficacy Expectation Scale with the highest item-total correlation (Schyns & Collani, 2014). Responses were recorded on a 4-point Likert scale ranging from 0 (*not at all*) to 4 (*very strong*) and combined to a sum score (range: 0–8, Cronbach's $\alpha = .67$).

Statistical Analyses

Statistical analyses were performed in R 3.6.2 (R Core Team, 2019). To examine whether the factor structure reported in Cicognani et al. (2009) fits the present data, a confirmatory factor analysis (CFA) was performed using the *lavaan* package (Rosseel, 2012). As a majority of the Brief-COPE items did not follow uni- or multivariate normal distribution (Energy test: $E = 2.44$, $p < .001$), we used pairwise maximum likelihood (PML) estimators as a computationally less intense alternative to full information maximum likelihood (FIML) (Katsikatsou et al., 2012). The absolute χ^2 statistic and its p-value ($p > .05$), the root mean square error of approximation (RMSEA $\leq .06$) and its 90% confidence interval (CI), and robust versions of the standardized root mean square residual (SRMR $\leq .08$), the comparative fit index (CFI $\geq .95$), and the Tucker-Lewis index (TLI $\geq .95$) were used as model fit criteria (Hu & Bentler, 1999). Convergent and discriminant factor validity was examined applying the criteria by Fornell and Larcker (1981), and Bollen's ω (Raykov, 2001) quantified the internal factor consistency. Bivariate correlations were analyzed using nonparametric Spearman correlations because several variables were not normally distributed. p-Values were corrected for multiple testing using the false discovery rate (FDR) (Benjamini & Yekutieli, 2001).

Results

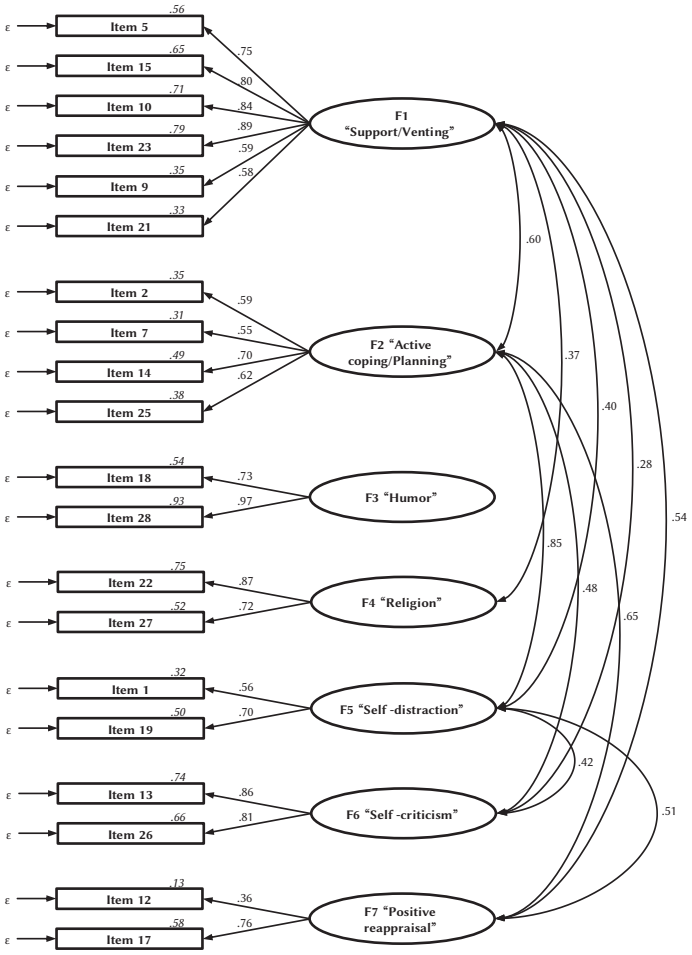
Confirmatory Factor Analyses

All Brief-COPE subscales were non-normal distributed, and some subscales were strongly right-skewed, that is, these strategies were almost never used by our study cohort (Table X1, Supplementary Materials). This was also observed by Cicognani et al. (2009), and in accordance with their procedure, we disregarded the items 3/8 (denial: skew = 2.32), 6/16 (behavioral disengagement: skew = 1.45), and 4/11 (substance use: skew = 2.10) in the CFA. Additionally, the scales self-blame (skew = 1.27) and religion (skew = 1.87) displayed a strong right skew in our sample. We nevertheless retained these items to allow testing the adequacy of Cicognani et al.'s factor model in our data.

The CFA revealed the model by Cicognani et al. (2009) fits our data relatively well: robust-$\chi^2(5.54) = 9.47$, $p = .120$; $CFI_{rob} = .926$; $TLI_{rob} = .911$; $SRMR_{rob} = .069$; RMSEA < .001, 90% CI [.001, .041], $p_{RMSEA} = .988$. The first factor (Figure 1) comprised the six items of the subscales *Emotional support, Instrumental support,* and *Venting* (standardized factor loadings: β = .58–.89, *p*'s < .001) with an internal factor consistency of ω = .89.

Figure 1

Results of the Confirmatory Factor Analysis Examining the Fit of Cicognani et al.'s (2009) Seven-Factor Model of Coping to the Data of this Study



Note. $N = 106$. Values on paths indicate standardized regression coefficients (β) and values on covariance paths indicate significant factor correlations (*r*). Italic values above the items display the explained variance per item (R^2).

The second factor comprised the items of *Active coping* and *Planning* (β = .55–.70, *p*'s < .001; ω = .71). The third factor presented the *Humor* subscale (β = .73–.97, *p*'s < .001; ω = .83), the fourth *Religion* (β = .72–.87, *p*'s < .001; ω = .78), the fifth *Self-distraction* (β = .56–.70, *p*'s < .001; ω = .58), the sixth *Self-criticism* (β = .81–.86, *p*'s < .001; ω = .83), and the seventh *Positive reappraisal* (β = .36–.76, *p*'s < .005; ω = .49).

Examining the factors' convergent and discriminant validity (Table 2) revealed that support/venting, humor, religion, and self-criticism are clearly distinguishable albeit correlated factors. Conversely, the items of active coping/planning share considerable variance with the items of self-distraction and positive reappraisal, indicating that their factors are not clearly separable. As a result, these factors had a low internal factor consistency (see Table 2).

Table 2

Indicators of Internal Factor Consistency ω (at Diagonal), Convergent and Discriminant Validity Along With Factor Correlations

Coping Factor	F1	F2†	F3	F4	F5†	F6	F7†
F1 Support/Venting	**.89**	.60***	-.17	.37***	.40*	.28*	.54***
F2 Active coping/planning		**.71**	-.04	.19	.85***	.48***	.65***
F3 Humor			**.83**	-.16	.22	-.11	.19
F4 Religion				**.78**	.02	.06	.28
F5 Self-distraction					**.58**	.42**	.51**
F6 Self-criticism						**.83**	.16
F7 Positive reappraisal							**.49**
Average variance extracted (AVE)	.576	.380	.709	.650	.420	.705	.354
Maximum shared variance (MSV)	.356	.724	.047	.139	.724	.226	.422

Note. An average variance extracted of AVE > .50 indicates sufficient convergent factor validity (i.e., more than 50% of the items' variances converged on their common factor). Satisfactory discriminant factor validity is assumed when the maximum shared variance MSV < AVE. Factors indicated with † violate aforementioned criteria.

*p < .05. **p < .01. ***p < .001, two-tailed, corrected for multiple testing with FDR.

Correlation of Coping Factors With Well-Being and Health

Correlation analyses (Table 3) indicated that *support/venting* was less used by older EMSP, whereas no associations emerged with other studies variables. *Active coping/planning, religion, self-distraction,* and *positive reappraisal* were not related to any study variable. In trend, EMSP with more work experience also reported more *self-criticism* (p_{FDR} = .102), and frequent use of *self-criticism* was positively associated with higher perceived stress, more mental and physical symptoms, and lower job satisfaction.

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Table 3

Spearman Rank Correlations (N = 106)

Coping Factor	Age	Sex[a]	EMS work experience	PCL-5	PHQ-15	PHQ-9	Perceived Stress	Job Satisfaction[b]	Work-related self-efficacy
F1 Support/Venting	**-.28***	-.07	-.08	.09	-.07	-.15	.07	.17	.14
F2 Active coping/Planning	.05	.05	.05	.23	.05	.02	.16	-.07	.11
F3 Humor	.15	.24	.11	-.01	.08	.09	-.03	.00	**.34***
F4 Religion	-.10	-.10	.00	.26	.04	.00	.13	.10	-.08
F5 Self-distraction	.11	.13	.10	.16	.01	.01	.10	-.05	.26
F6 Self-criticism	.09	-.02	.22	**.49*****	**.32***	**.34***	**.27***	**-.27***	-.22
F7 Positive reappraisal	-.10	-.02	-.10	.17	-.02	-.05	.09	.12	.13
Work-related self-efficacy	.21	**.29***	.18	-.22	-.23	-.26	-.04	.24	

[a]Positive coefficient indicate higher values in men than women. [b]two missing values.
*$p < .050$. ***$p < .001$, two-tailed, corrected for multiple testing with FDR.

These associations were also supported by the zero-order correlations between the Brief-COPE subscales and the study variables (Table X2, Supplementary Materials). Additionally, we observed relevant correlations of the Brief-COPE's acceptance subscale, which has been neglected in the CFA in order to test the factor solution reported by Cicognani et al. (2009). In detail, EMSP in our sample who reported higher *acceptance* showed less stress-related symptoms (PCL-5: r_S = -.21, p_{FDR} = .138; PHQ-15: r_S = -.31, p_{FDR} = .020; PHQ-9: r_S = -.32, p_{FDR} = .018).

Work-Related Self-Efficacy and Coping

Male (p_{FDR} = .037) and older EMSP (p_{FDR} = .102) reported higher work-related self-efficacy, which was associated in trend with higher job satisfaction (p_{FDR} = .081) and less posttraumatic (p_{FDR} = .101), depressive (p_{FDR} = .053), and physical stress symptoms (p_{FDR} = .090, cf. Table 3). Moreover, self-efficacy correlated with a conceivably more adaptive coping behavior, in a way that EMSP with higher self-efficacy were prone to use less *self-criticism* in trend (p_{FDR} = .102) as well as more *humor* (see Table 3) and *acceptance* (r_S = .38, p_{FDR} = .002; Table X2, Supplementary Materials).

Discussion

We investigated habitual coping behavior in a cohort of German EMSP and its relevance for the personnel's health and well-being. Thereby, we replicated the seven-factor structure of Brief-COPE items which has been previously identified by Cicognani et al. (2009) in Italian emergency workers. Among these coping factors, *self-criticism* showed significant associations with stress, job satisfaction, and stress symptoms of EMSP.

Similar to the Italian emergency workers (Cicognani et al., 2009), our cohort of German EMSP rarely engaged in *denial*, *behavioral disengagement*, and *substance (ab)use* when coping with stress. Unlike the Italian sample, however, our cohort of EMSP almost never coped through *religion*. Cross-cultural studies indicate that reliance on religion in coping with adversity and stress varies across countries (Chai et al., 2012; Shirazi et al., 2011). Therefore, differences in the use of coping strategies between our study cohort and that of Cicognani et al. (2009) may result from cultural differences between Italian and German rescue personnel. Future cross-cultural research should compare coping in frontline workers with different cultural and social background.

Consistent with Cicognani et al. (2009), our CFA corroborated a factor unifying items of *support seeking* and *venting*, indicating that EMSP seek the support of others to share their unpleasant emotions and find comfort. Unexpectedly, this factor was not associated with better health or well-being, adding to previous inconsistent findings on the adaptiveness of social support for the well-being of EMSP (Boland et al., 2019; Essex & Scott, 2008; Feldman et al., 2021; Fjeldheim et al., 2014; Kleim & Westphal, 2011; Kshtriya et al.,

2020; Wild et al., 2016). One reason for these heterogeneous findings could be the timing of social support: In their review, Wagner at al. (2016) conclude that pre-trauma social support can enhance resilience against PTSD, while post-trauma social support appears to promote posttraumatic growth. Conceivably, EMSP actively seek social support when feeling particularly stressed, and this adaptive behavior could enable personal growth. Moreover, previous research has differently defined and operationalized social support: While we included support and venting into one factor (cf. Cicognani et al., 2009), other studies focused on received and/or perceived social support by different groups, e.g., family, colleagues (Fjeldheim et al., 2014; Wild et al., 2016).

As previously reported (Essex & Scott, 2008), we found that older EMSP reported less support seeking and a lower tendency to communicate their feelings. Senior EMSP with many years of work experience are likely to have encountered more traumatic mission events, and studies showed that after highly aversive missions, a relevant proportion of EMSP refrains from talking to their colleagues to avoid showing personal weakness, possible consequences of perceived mistakes, and "unnecessarily" raising their colleagues' emotional burden (Häller et al., 2009; Richter, 2014). This behavior could lead to social distancing and isolation in the long-term. However, in Western societies, there is a general trend toward decreasing social support networks across the lifespan (Nicolaisen & Thorsen, 2017), and social isolation particularly affects men (e.g., Gurung, Taylor, & Seeman, 2003; Walen & Lachman, 2000). In our cohort, the correlation of higher age and work experience with decreased social support/venting could be specifically pronounced, as the EMS has been primarily a "male profession", and our study participants with longer work experience were almost exclusively men. Preventive measures to maintain EMSPs' health could aim to impart social and emotional competencies among colleagues and supervisors, establish an institutional support culture, and develop structured professional counselling interventions for personnel (Wild et al., 2020).

In this sample, using *humor* as a coping strategy was not associated with well-being and health. Previous evidence on humor in helping profession is mixed. Some studies showed, humor allowed perceiving work less stressful (Canestrari et al., 2021) and was linked to fewer PTSD symptoms (Sliter et al., 2014). Other studies linked humor to higher burnout symptoms (Cicognani et al., 2009; Prati et al., 2011). This inconsistency may originate from different styles of humor which may exert opposite effects in stress coping (Leist & Müller, 2013). Black or "gallows" humor presents a form of emotional avoidance that can help EMSP to quickly distance from adverse experiences (Moran, 2002). However, in the long-term, black humor may establish cynicism towards their patients in EMSP, and this attitude might compromise the emotional support they receive from their family and friends (Rowe & Regehr, 2010). In this study and previous studies (Cicognani et al., 2009; Prati et al., 2011), humor was assessed with two items, thus not allowing to differentiate humor styles. Future studies are required to investigate the

role of humor styles more comprehensively to understand its effect on the health and well-being of EMSP.

In our study, the factors *active coping/planning* and *positive reappraisal* were unrelated to EMSPs' well-being and health, whereas previous studies linked *active coping* to reduced stress (Brown et al., 2002; Jamal et al., 2017; Prati et al., 2011) and fewer stress symptoms (Kirby et al., 2011). Moreover, the inclination to find positive reinterpretations of adverse experiences has been linked to stronger posttraumatic growth (Kirby et al., 2011). In our study, however, the factors overlapped with the EMSPs' engagement in *self-distraction*. This suggests that EMSP tend to actively engage in compensatory activities and denying stress through positive reinterpretations *in order to* distract themselves from work-related stress.

Unlike the classical view of active coping and positive reappraisal as adaptive stress coping, in EMSP, such attempts rather reflect a *distraction* tendency to achieve short-term stress relief. In par with this, Levy-Gigi et al. (2016) reported firefighters engage in distractive strategies to achieve immediate stress relief, although such distractive coping attempts exert counterproductive effects on the regulation of stress in the long-run (Cicognani et al., 2009; Kirby et al., 2011; LeBlanc et al., 2011). However, in our study, using these strategies seemed to have no implications for the EMSPs' health status and well-being. Additional research is required to better distinguish the short- or long-term motives of frontline workers to engage in distractive coping strategies.

In addition, active coping aims to overcome a stressful situation through planning and problem solving. Thus, the actual effectiveness of this strategy depends on whether stressors are actually controllable and changeable (Folkman & Moskowitz, 2004). As EMSP regularly face adverse situations which they may not be able to control or change, it could be that attempting to actively change uncontrollable problems has no (Gärtner et al., 2019) or even opposite implications for the well-being of EMSP (Cicognani et al., 2009; Prati et al., 2011). Persistent attempts to find solutions for uncontrollable adversity might even initiate rumination (Ayduk & Kross, 2010), which is a major risk factor for developing PTSD, depression, and burnout in EMSP and firefighters (e.g., Bryant & Guthrie, 2007; Gärtner et al., 2019; Wild et al., 2016).

Correspondingly, our results indicate that engaging in *self-critical* reflections about one's actions and feelings is associated with poorer health and well-being in EMSP. This result corroborates previous studies implicating self-criticism as a maladaptive coping strategy (Boland et al., 2019; Boudreaux et al., 1997; Cicognani et al., 2009; Kirby et al., 2011; Prati et al., 2011). Self-criticism involves repetitive negative evaluations of one's own abilities and decisions. In this sense, it is closely related to rumination as the tendency to repeatedly focus mentally on negative emotional experiences as well as their causes and consequences (James et al., 2015). Longitudinal studies are warranted to assess self-criticism and rumination in the prospect of health and well-being in EMSP.

Beyond the coping factors reported by Cicognani et al. (2009), the BriefCOPE subscale *acceptance* was linked to higher self-efficacy and better well-being in EMSP. This result suits previous findings and meta-analyses which established acceptance as highly adaptive in retaining health upon adverse experiences (Aldao et al., 2010; Kirby et al., 2011; Schäfer et al., 2017; Zhao et al., 2020). Acceptance-related elements are featured in several evidence-based therapeutic approaches (e.g., Mentalization-based therapy, Bateman & Fonagy, 2012; Acceptance and commitment therapy, Hayes, 2016), and initial research on stress-preventive trainings in EMSP indicates that imparting strategies to differentiate, name, and accept unpleasant feelings can decrease symptoms of burnout and emotional exhaustion (Buruck & Dörfel, 2018).

Bandura (1997) theorized self-efficacy enhances stress resilience through influencing which and how persistently coping strategies are executed upon stress. Accordingly, self-efficacy was positively linked to problem-focused and active coping and negatively linked to emotion-focused coping in nurses (Chang & Edwards, 2015). Our findings partially corroborate this perspective, as we found EMSP with higher self-efficacy to use less *self-criticism* when coping with stress. However, self-efficacy was not linked to strategies such as *coping/planning* or *support/venting*. Instead, it was linked to *acceptance* and *humor* presenting rather emotion-focused coping strategies. Moreover, in line with previous studies in the EMS (Behnke, Conrad, et al., 2019; Cicognani et al., 2009; Groß et al., 2004; Prati et al., 2010, 2011), personnel with longer work experience reported higher self-efficacy, and higher self-efficacy was associated with higher job satisfaction and fewer physical and depressive symptoms in trend. Future research could aim to comprehensively examine the nature and relationship of self-efficacy, acceptance, humor, and self-criticism/rumination with health and well-being in frontline workers.

Limitations and Future Directions

Studies did not conclude on a unique hierarchical structure of the coping strategies assessed with the Brief-COPE (Hanfstingl et al., 2021; Solberg et al., 2021). Therefore, we decided to test the adequacy of the factor solution explored by Cicognani et al. (2009) and were able to replicate the factor structure. However, additional reliability analyses showed that some of the extracted factors overlap, which compromises their factor reliability. Our sample size is rather small for conducting CFA, and future studies should aim to recruit larger samples. Moreover, simulation studies demonstrated that drawing reliable conclusions about model-to-data fit in CFA is not trivial, as Hu and Bentler's (1999) criteria may lead to unreliable results (Beierl et al., 2018; Heene et al., 2011).

Compared to previous studies in the EMS, the response rate in our study (46.6%) is in the upper range (Brown et al., 2002; Fritz & Sonnentag, 2005). Nevertheless, generalizability of our findings is limited by convenience sampling. Results may be biased by differences between study participants and non-participants; i.e., EMSP with more stress symptoms and/or socially inappropriate coping behaviors (e.g., substance abuse) were

perhaps unmotivated or avoided participation (*non-response bias*; Bortz & Döring, 2004). EMSP who were unable to work or had changed their profession due to severe stress-related health problems could not be included in the study. This may lead to biased results, as highly stressed personnel might use less effective coping strategies (*healthy-worker effect*; Costa, 2003). Future studies should compare coping habits of EMSP capable to work and those with work-related health problems.

Limitations in validity could result from *retrospective recall errors* (Jonkisz et al., 2012). That is, EMSP remembered stressful events but did not associate them with specific coping strategies, or they are completely unaware of using certain strategies. Moreover, the study's cross-sectional correlative design does not allow causal or predictive conclusions. Longitudinal research is required to better characterize the interplay of coping, stress exposure, and well-being through high-frequency measurements, for example, on a daily basis using mobile phone applications. Such "ecological momentary assessments" enable identifying coping behaviors with prospective relevance in handling daily occupational stressors and traumatic mission events in the EMS.

Conclusions

Effective coping with occupational stressors is pivotal for retaining health and well-being in emergency workers. With this cross-sectional study in German EMSP, we confirmed seven coping factors that were previously identified by Cicognani et al. (2009) in Italian emergency workers. Among these coping factors, only *self-criticism* was significantly associated with the EMSPs' work-related stress, job satisfaction, and well-being. Additionally, exploratory correlations indicated that using *acceptance* was potentially beneficial for the self-efficacy and well-being of EMSP. Our findings implicate investigating the use and relevance of self-criticism and acceptance in prospective longitudinal designs. Determining the relevance of certain coping strategies regarding health and well-being is key to developing occupation-tailored preventive interventions.

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Author Contributions: RR, AB, and ITK developed the study concept. RR and AB conducted the study setup and data collection. AB and MH performed the statistical analysis. RR, MH, SW, and AB drafted the paper under supervision of ITK. All authors contributed to the interpretation of data, critically revised the manuscript, and approved the final version of the paper for submission.

Data Availability: The datasets for this manuscript are not publicly available because we do not have the consent of the ethics committee or our participants to grant any form of access to or insight in all or parts of the collected data.

Supplementary Materials

Supplementary tables presenting: Descriptive statistics, internal consistencies, and univariate normality assessment of Brief-COPE subscales (Table X1), and Spearman correlations between Brief-COPE subscales and the other study variables (Table X2) (for access see Index of Supplementary Materials below).

Index of Supplementary Materials

Rojas, R., Hickmann, M., Wolf, S., Kolassa, I.-T., & Behnke, A. (2022). *Supplementary materials to "Coping in the Emergency Medical Services: Associations with the personnel's stress, self-efficacy, job satisfaction, and health"* [Additional information]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.5585

References

Aasa, U., Brulin, C., Angquist, K.-A., & Barnekow-Bergkvist, M. (2005). Work-related psychosocial factors, worry about work conditions and health complaints among female and male ambulance personnel. *Scandinavian Journal of Caring Sciences, 19*(3), 251–258. https://doi.org/10.1111/j.1471-6712.2005.00333.x

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

Alexander, D. A., & Klein, S. (2001). Ambulance personnel and critical incidents: Impact of accident and emergency work on mental health and emotional well-being. *The British Journal of Psychiatry, 178*(1), 76–81. https://doi.org/10.1192/bjp.178.1.76

ALmutairi, M. N., & El Mahalli, A. A. (2020). Burnout and coping methods among emergency medical services professionals. *Journal of Multidisciplinary Healthcare, 13*, 271–279. https://doi.org/10.2147/JMDH.S244303

Arble, E., & Arnetz, B. B. (2017). A model of first-responder coping: An approach/avoidance bifurcation. *Stress and Health, 33*(3), 223–232. https://doi.org/10.1002/smi.2692

Ayduk, Ö., & Kross, E. (2010). Analyzing negative experiences without ruminating: The role of self-distancing in enabling adaptive self-reflection. *Social and Personality Psychology Compass, 4*(10), 841–854. https://doi.org/10.1111/j.1751-9004.2010.00301.x

Bandura, A. (1997). *Self efficacy: The exercise of control.* W. H. Freeman.

Bateman, A. W., & Fonagy, P. (2012). *Handbook of mentalizing in mental health practice.* American Psychiatric Association Publishing.

Behnke, A., Conrad, D., Kolassa, I.-T., & Rojas, R. (2019). Higher sense of coherence is associated with better mental and physical health in emergency medical services: Results from investigations on the revised sense of coherence scale (SOC-R) in rescue workers. *European Journal of Psychotraumatology, 10*(1), Article 1606628. https://doi.org/10.1080/20008198.2019.1606628

Behnke, A., Rojas, R., Karrasch, S., Hitzler, M., & Kolassa, I.-T. (2019). Deconstructing traumatic mission experiences: Identifying critical incidents and their relevance for the mental and physical health among emergency medical service personnel. *Frontiers in Psychology, 10*, Article 2305. https://doi.org/10.3389/fpsyg.2019.02305

Beierl, E. T., Bühner, M., & Heene, M. (2018). Is that measure really one-dimensional? Nuisance parameters can mask severe model misspecification when assessing factorial validity. *Methodology, 14*(4), 188–196. https://doi.org/10.1027/1614-2241/a000158

Benjamini, Y., & Yekutieli, D. (2001). The control of the false discovery rate in multiple testing under dependency. *Annals of Statistics, 29*(4), 1165–1188. https://doi.org/10.1214/aos/1013699998

Bentley, M. A., & Levine, R. (2016). A national assessment of the health and safety of emergency medical services professionals. *Prehospital and Disaster Medicine, 31*(S1), S96–S104. https://doi.org/10.1017/S1049023X16001102

Berger, W., Coutinho, E. S. F., Figueira, I., Marques-Portella, C., Luz, M. P., Neylan, T. C., Marmar, C. R., & Mendlowicz, M. V. (2012). Rescuers at risk: A systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. *Social Psychiatry and Psychiatric Epidemiology, 47*(6), 1001–1011. https://doi.org/10.1007/s00127-011-0408-2

Boland, L. L., Mink, P. J., Kamrud, J. W., Jeruzal, J. N., & Stevens, A. C. (2019). Social support outside the workplace, coping styles, and burnout in a cohort of EMS providers from Minnesota. *Workplace Health & Safety, 67*(8), 414–422. https://doi.org/10.1177/2165079919829154

Bortz, J., & Döring, N. (2004). *Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler* (4., überarb. Aufl.). Springer.

Boudreaux, E., Mandry, C., & Brantley, P. J. (1997). Stress, job satisfaction, coping, and psychological distress among emergency medical technicians. *Prehospital and Disaster Medicine, 12*(4), 9–16. https://doi.org/10.1017/S1049023X00037742

Brown, J., Mulhern, G., & Joseph, S. (2002). Incident-related stressors, locus of control, coping, and psychological distress among firefighters in Northern Ireland. *Journal of Traumatic Stress, 15*(2), 161–168. https://doi.org/10.1023/A:1014816309959

Bryant, R. A., & Guthrie, R. M. (2007). Maladaptive self-appraisals before trauma exposure predict posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 75*(5), 812–815. https://doi.org/10.1037/0022-006X.75.5.812

Buruck, G., & Dörfel, D. (2018). *iga.Report 37. Emotionsregulation in der Arbeit am Beispiel Rettungsdienst*. https://www.iga-info.de/veroeffentlichungen/igareporte/igareport-37/

Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (1979). *The Michigan Organizational Assessment Questionnaire*. Unpublished manuscript.

Canestrari, C., Bongelli, R., Fermani, A., Riccioni, I., Bertolazzi, A., Muzi, M., & Burro, R. (2021). Coronavirus disease stress among Italian healthcare workers: The role of coping humor. *Frontiers in Psychology, 11*, Article 601574. https://doi.org/10.3389/fpsyg.2020.601574

Chai, P. P. M., Krägeloh, C. U., Shepherd, D., & Billington, R. (2012). Stress and quality of life in international and domestic university students: Cultural differences in the use of religious coping. *Mental Health, Religion & Culture, 15*(3), 265–277. https://doi.org/10.1080/13674676.2011.571665

Chang, C.-M., Lee, L.-C., Connor, K. M., Davidson, J. R. T., & Lai, T.-J. (2008). Modification effects of coping on post-traumatic morbidity among earthquake rescuers. *Psychiatry Research, 158*(2), 164–171. https://doi.org/10.1016/j.psychres.2006.07.015

Chang, Y., & Edwards, J. K. (2015). Examining the relationships among self-efficacy, coping, and job satisfaction using social career cognitive theory: An SEM analysis. *Journal of Career Assessment, 23*(1), 35–47. https://doi.org/10.1177/1069072714523083

Cheng, C., Lau, H.-P. B., & Chan, M.-P. S. (2014). Coping flexibility and psychological adjustment to stressful life changes: A meta-analytic review. *Psychological Bulletin, 140*(6), 1582–1607. https://doi.org/10.1037/a0037913

Cicognani, E., Pietrantoni, L., Palestini, L., & Prati, G. (2009). Emergency workers' quality of life: The protective role of sense of community, efficacy beliefs and coping strategies. *Social Indicators Research, 94*(3), 449–463. https://doi.org/10.1007/s11205-009-9441-x

Consiglio, C., Borgogni, L., Alessandri, G., & Schaufeli, W. B. (2013). Does self-efficacy matter for burnout and sickness absenteeism? The mediating role of demands and resources at the individual and team levels. *Work and Stress, 27*(1), 22–42. https://doi.org/10.1080/02678373.2013.769325

Costa, G. (2003). Factors influencing health of workers and tolerance to shift work. *Theoretical Issues in Ergonomics Science, 4*(3–4), 263–288. https://doi.org/10.1080/14639220210158880

Donnelly, E., & Siebert, D. (2009). Occupational risk factors in the emergency medical services. *Prehospital and Disaster Medicine, 24*(5), 422–429. https://doi.org/10.1017/S1049023X00007251

Essex, B., & Scott, L. B. (2008). Chronic stress and associated coping strategies among volunteer EMS personnel. *Prehospital Emergency Care, 12*(1), 69–75. https://doi.org/10.1080/10903120701707955

Feldman, T. R., Carlson, C. L., Rice, L. K., Kruse, M. I., Beevers, C. G., Telch, M. J., & Josephs, R. A. (2021). Factors predicting the development of psychopathology among first responders: A prospective, longitudinal study. *Psychological Trauma: Theory, Research, Practice, and Policy, 13*(1), 75–83. https://doi.org/10.1037/tra0000957

Figley, C. E. (2008). *Dissociation*. Paper presented at the meeting of the 115th American Psychological Association convention, Boston, MA, USA.

Fjeldheim, C. B., Nöthling, J., Pretorius, K., Basson, M., Ganasen, K., Heneke, R., Cloete, K. J., & Seedat, S. (2014). Trauma exposure, posttraumatic stress disorder and the effect of explanatory variables in paramedic trainees. *BMC Emergency Medicine, 14*(1), Article 11. https://doi.org/10.1186/1471-227X-14-11

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology, 55*(1), 745–774. https://doi.org/10.1146/annurev.psych.55.090902.141456

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Friedenberg, R., Kalichman, L., Ezra, D., Wacht, O., & Alperovitch-Najenson, D. (2022). Work-related musculoskeletal disorders and injuries among emergency medical technicians and paramedics: A comprehensive narrative review. *Archives of Environmental & Occupational Health, 77*(1), 9–17. https://doi.org/10.1080/19338244.2020.1832038

Fritz, C., & Sonnentag, S. (2005). Recovery, health, and job performance: Effects of weekend experiences. *Journal of Occupational Health Psychology, 10*(3), 187–199. https://doi.org/10.1037/1076-8998.10.3.187

Gärtner, A., Behnke, A., Conrad, D., Kolassa, I.-T., & Rojas, R. (2019). Emotion regulation in rescue workers: Differential relationship with perceived work-related stress and stress-related symptoms. *Frontiers in Psychology, 9*, Article 2744. https://doi.org/10.3389/fpsyg.2018.02744

Groß, C., Joraschky, P., Gruss, B., Mück-Weymann, M., & Pöhlmann, K. (2004). Belastung und Bewältigung im Rettungsdienst – Protektive Faktoren für Stressbewältigung und Burnout-Prävention. *PPmP – Psychotherapie · Psychosomatik · Medizinische Psychologie, 54*(2), Abstract P3570. https://doi.org/10.1055/s-2004-819799

Guilaran, J., de Terte, I., Kaniasty, K., & Stephens, C. (2018). Psychological outcomes in disaster responders: A systematic review and meta-analysis on the effect of social support. *International Journal of Disaster Risk Science, 9*(3), 344–358. https://doi.org/10.1007/s13753-018-0184-7

Gurung, R. A. R., Taylor, S. E., & Seeman, T. E. (2003). Accounting for changes in social support among married older adults: Insights from the MacArthur studies of successful aging. *Psychology and Aging, 18*(3), 487–496. https://doi.org/10.1037/0882-7974.18.3.487

Häller, P., Michael, T., & Balmer Köchlin, K. (2009). Posttraumatische Belastungsstörung (PTBS) bei Rettungssanitätern: PTBS, komorbide Beschwerden und Inanspruchnahme psychologischer Hilfe von Rettungssanitätern. *Verhaltenstherapie & Verhaltensmedizin, 30*, 403–417.

Hanfstingl, B., Gnambs, T., Fazekas, C., Gölly, K. I., Matzer, F., & Tikvić, M. (2021). The dimensionality of the Brief COPE before and during the COVID-19 pandemic. *Assessment.* Article 107319112110524. Advance online publication. https://doi.org/10.1177/10731911211052483

Hayes, S. C. (2016). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies – Republished article. *Behavior Therapy, 47*(6), 869–885. https://doi.org/10.1016/j.beth.2016.11.006

Heene, M., Hilbert, S., Draxler, C., Ziegler, M., & Bühner, M. (2011). Masking misfit in confirmatory factor analysis by increasing unique variances: A cautionary note on the usefulness of cutoff values of fit indices. *Psychological Methods, 16*(3), 319–336. https://doi.org/10.1037/a0024917

Hegg-Deloye, S., Brassard, P., Jauvin, N., Prairie, J., Larouche, D., Poirier, P., Tremblay, A., & Corbeil, P. (2014). Current state of knowledge of post-traumatic stress, sleeping problems, obesity and cardiovascular disease in paramedics. *Emergency Medicine Journal, 31*(3), 242–247. https://doi.org/10.1136/emermed-2012-201672

Holton, M. K., Barry, A. E., & Chaney, J. D. (2016). Employee stress management: An examination of adaptive and maladaptive coping strategies on employee health. *Work, 53*(2), 299–305. https://doi.org/10.3233/WOR-152145

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Jamal, Y., Zahra, S. T., Yaseen, F., & Nasreen, M. (2017). Coping strategies and hardiness as predictors of stress among rescue workers. *Pakistan Journal of Psychological Research, 32*, 141–154.

James, K., Verplanken, B., & Rimes, K. A. (2015). Self-criticism as a mediator in the relationship between unhealthy perfectionism and distress. *Personality and Individual Differences, 79*, 123–128. https://doi.org/10.1016/j.paid.2015.01.030

Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology, 20*(2), 178–187. https://doi.org/10.1108/02683940510579803

Jonkisz, E., Moosbrugger, H., & Brandt, H. (2012). Planung und Entwicklung von Tests und Fragebogen. In H. Moosbrugger & A. Kelava (Hrsg.), *Testtheorie und Fragebogenkonstruktion* (S. 27–74). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-20072-4_3

Karrasch, S., Hitzler, M., Behnke, A., Tumani, V., Kolassa, I.-T., & Rojas, R. (2020). Chronic and traumatic stress among Emergency Medical Services personnel. *Zeitschrift für Klinische Psychologie und Psychotherapie, 49*(4), 204–217. https://doi.org/10.1026/1616-3443/a000600

Karutz, H., Overhagen, M., & Stum, J. (2013). Psychische Belastungen im Wachalltag von Rettungsdienstmitarbeitern und Feuerwehrleuten. *Prävention und Gesundheitsförderung, 8*(3), 204–211. https://doi.org/10.1007/s11553-012-0373-y

Katsikatsou, M., Moustaki, I., Yang-Wallentin, F., & Jöreskog, K. G. (2012). Pairwise likelihood estimation for factor analysis models with ordinal data. *Computational Statistics & Data Analysis, 56*(12), 4243–4258. https://doi.org/10.1016/j.csda.2012.04.010

Kerai, S. M., Khan, U. R., Islam, M., Asad, N., Razzak, J., & Pasha, O. (2017). Post-traumatic stress disorder and its predictors in emergency medical service personnel: A cross-sectional study from Karachi, Pakistan. *BMC Emergency Medicine, 17*(1), Article 26. https://doi.org/10.1186/s12873-017-0140-7

Kirby, R., Shakespeare-Finch, J., & Palk, G. (2011). Adaptive and maladaptive coping strategies predict posttrauma outcomes in ambulance personnel. *Traumatology, 17*(4), 25–34. https://doi.org/10.1177/1534765610395623

Kleim, B., & Westphal, M. (2011). Mental health in first responders: A review and recommendation for prevention and intervention strategies. *Traumatology, 17*(4), 17–24. https://doi.org/10.1177/1534765611429079

Knoll, N., Rieckmann, N., & Schwarzer, R. (2005). Coping as a mediator between personality and stress outcomes: A longitudinal study with cataract surgery patients. *European Journal of Personality, 19*(3), 229–247. https://doi.org/10.1002/per.546

Krüger-Gottschalk, A., Knaevelsrud, C., Rau, H., Dyer, A., Schäfer, I., Schellong, J., & Ehring, T. (2017). The German version of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Psychometric properties and diagnostic utility. *BMC Psychiatry, 17*(1), Article 379. https://doi.org/10.1186/s12888-017-1541-6

Kshtriya, S., Kobezak, H. M., Popok, P., Lawrence, J., & Lowe, S. R. (2020). Social support as a mediator of occupational stressors and mental health outcomes in first responders. *Journal of Community Psychology, 48*(7), 2252–2263. https://doi.org/10.1002/jcop.22403

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.

LeBlanc, V. R., Regehr, C., Birze, A., King, K., Scott, A. K., MacDonald, R., & Tavares, W. (2011). The association between posttraumatic stress, coping, and acute stress responses in paramedics. *Traumatology, 17*(4), 10–16. https://doi.org/10.1177/1534765611429078

Leist, A. K., & Müller, D. (2013). Humor types show different patterns of self-regulation, self-esteem, and well-being. *Journal of Happiness Studies, 14*(2), 551–569. https://doi.org/10.1007/s10902-012-9342-6

Levy-Gigi, E., Bonanno, G. A., Shapiro, A. R., Richter-Levin, G., Kéri, S., & Sheppes, G. (2016). Emotion regulatory flexibility sheds light on the elusive relationship between repeated traumatic exposure and posttraumatic stress disorder symptoms. *Clinical Psychological Science, 4*(1), 28–39. https://doi.org/10.1177/2167702615577783

Löwe, B., Spitzer, R., Zipfel, S., & Herzog, W. (2002). *Gesundheitsfragebogen für Patienten (PHQ-D). Komplettversion und Kurzform. Testmappe mit Manual, Fragebögen, Schablonen.* Pfizer.

Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality, 37*(1), 48–75. https://doi.org/10.1016/S0092-6566(02)00534-2

Moran, C. C. (2002). Humor as a moderator of compassion fatigue. In C. R. Figley (Ed.), *Treating compassion fatigue* (Psychosocial Stress Series, No. 24., pp. 139–154). Brunner-Routledge.

Moritz, S., Jahns, A. K., Schröder, J., Berger, T., Lincoln, T. M., Klein, J. P., & Göritz, A. S. (2016). More adaptive versus less maladaptive coping: What is more predictive of symptom severity? Development of a new scale to investigate coping profiles across different psychopathological syndromes. *Journal of Affective Disorders, 191*, 300–307. https://doi.org/10.1016/j.jad.2015.11.027

Nicolaisen, M., & Thorsen, K. (2017). What are friends for? Friendships and loneliness over the lifespan – from 18 to 79 years. *International Journal of Aging & Human Development, 84*(2), 126–158. https://doi.org/10.1177/0091415016655166

Ogińska-Bulik, N., & Zadworna-Cieślak, M. (2018). The role of resiliency and coping strategies in occurrence of positive changes in medical rescue workers. *International Emergency Nursing, 39*, 40–45. https://doi.org/10.1016/j.ienj.2018.02.004

Petrie, K., Milligan-Saville, J., Gayed, A., Deady, M., Phelps, A., Dell, L., Forbes, D., Bryant, R., Calvo, R., Glozier, N., & Harvey, S. (2018). Prevalence of PTSD and common mental disorders amongst ambulance personnel: A systematic review and meta-analysis. *Social Psychiatry and Psychiatric Epidemiology, 53*, 897–909. https://doi.org/10.1007/s00127-018-1539-5

Portero de la Cruz, S., Cebrino, J., Herruzo, J., & Vaquero-Abellán, M. (2020). A multicenter study into burnout, perceived stress, job satisfaction, coping strategies, and general health among emergency department nursing staff. *Journal of Clinical Medicine, 9*(4), Article 1007. https://doi.org/10.3390/jcm9041007

Prati, G., & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma, 14*(5), 364–388. https://doi.org/10.1080/15325020902724271

Prati, G., & Pietrantoni, L. (2010). The relation of perceived and received social support to mental health among first responders: A meta-analytic review. *Journal of Community Psychology, 38*(3), 403–417. https://doi.org/10.1002/jcop.20371

Prati, G., Pietrantoni, L., & Cicognani, E. (2010). Self-efficacy moderates the relationship between stress appraisal and quality of life among rescue workers. *Anxiety, Stress, and Coping, 23*(4), 463–470. https://doi.org/10.1080/10615800903431699

Prati, G., Pietrantoni, L., & Cicognani, E. (2011). Coping strategies and collective efficacy as mediators between stress appraisal and quality of life among rescue workers. *International Journal of Stress Management, 18*(2), 181–195. https://doi.org/10.1037/a0021298

Raykov, T. (2001). Estimation of congeneric scale reliability using covariance structure analysis with nonlinear constraints. *British Journal of Mathematical & Statistical Psychology, 54*(2), 315–323. https://doi.org/10.1348/000711001159582

Raynor, D., & Hicks, R. (2019). Empathy and coping as predictors of professional quality of life in Australian Registered Migration Agents (RMAs). *Psychiatry, Psychology and Law, 26*(4), 530–540. https://doi.org/10.1080/13218719.2018.1507846

R Core Team. (2019). *R: A language and environment for statistical computing* (3.6.2) [Computer software]. R Foundation for Statistical Computing. https://www.R-project.org/

Regehr, C., Goldberg, G., & Hughes, J. (2002). Exposure to human tragedy, empathy, and trauma in ambulance paramedics. *The American Journal of Orthopsychiatry, 72*(4), 505–513. https://doi.org/10.1037/0002-9432.72.4.505

Richter, S. (2014). *Stressbelastung und Stressbewältigung bei haupt- und ehrenamtlichen Einsatzkräften in Rheinland-Pfalz* [Doctoral dissertation, Universität der Bundeswehr]. https://d-nb.info/1069557307/34

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Rowe, A., & Regehr, C. (2010). Whatever gets you through today: An examination of cynical humor among emergency service professionals. *Journal of Loss and Trauma, 15*(5), 448–464. https://doi.org/10.1080/15325024.2010.507661

Schäfer, J. Ö., Naumann, E., Holmes, E. A., Tuschen-Caffier, B., & Samson, A. C. (2017). Emotion regulation strategies in depressive and anxiety symptoms in youth: A meta-analytic review. *Journal of Youth and Adolescence, 46*(2), 261–276. https://doi.org/10.1007/s10964-016-0585-0

Schmid, K., Riehm, Y., Rossbach, B., Letzel, S., Drexler, H., & Mück-Weymann, M. (2008). Influence of rescue service personnel's shift work on psycho-physical parameters. *Psychotherapie, Psychosomatik, Medizinische Psychologie, 58*(11), 416–422. https://doi.org/10.1055/s-2007-986291

Schyns, B., & Collani, G. (2014). Berufliche Selbstwirksamkeitserwartung. *Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS).* https://doi.org/10.6102/ZIS16

Shirazi, M., Khan, M. A., & Khan, R. A. (2011). Coping strategies: A cross-cultural study.. *Romanian Journal of Psychology, Psychotherapy and Neuroscience, 1*(2), 284–302.

Sliter, M., Kale, A., & Yuan, Z. (2014). Is humor the best medicine? The buffering effect of coping humor on traumatic stressors in firefighters. *Journal of Organizational Behavior, 35*(2), 257–272. https://doi.org/10.1002/job.1868

Solberg, M. A., Gridley, M. K., & Peters, R. M. (2021). The factor structure of the Brief Cope: A systematic review. *Western Journal of Nursing Research.* Article 019394592110120. Advance online publication. https://doi.org/10.1177/01939459211012044

Sterud, T., Ekeberg, Ø., & Hem, E. (2006). Health status in the ambulance services: A systematic review. *BMC Health Services Research, 6*, Article 82. https://doi.org/10.1186/1472-6963-6-82

Sterud, T., Hem, E., Lau, B., & Ekeberg, Ø. (2011). A comparison of general and ambulance specific stressors: Predictors of job satisfaction and health problems in a nationwide one-year follow-up study of Norwegian ambulance personnel. *Journal of Occupational Medicine and Toxicology, 6*(1), Article 10. https://doi.org/10.1186/1745-6673-6-10

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455–471. https://doi.org/10.1002/jts.2490090305

Wagner, A. C., Monson, C. M., & Hart, T. L. (2016). Understanding social factors in the context of trauma: Implications for measurement and intervention. *Journal of Aggression, Maltreatment & Trauma, 25*(8), 831–853. https://doi.org/10.1080/10926771.2016.1152341

Wagner, S. L., White, N., Regehr, C., White, M., Alden, L. E., Buys, N., Carey, M. G., Corneil, W., Fyfe, T., Matthews, L. R., Randall, C., Krutop, E., & Fraess-Phillips, A. (2020). Ambulance personnel: Systematic review of mental health symptoms. *Traumatology, 26*(4), 370–387. https://doi.org/10.1037/trm0000251

Walen, H. R., & Lachman, M. E. (2000). Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood. *Journal of Social and Personal Relationships, 17*(1), 5–30. https://doi.org/10.1177/0265407500171001

Wild, J., Greenberg, N., Moulds, M. L., Sharp, M.-L., Fear, N., Harvey, S., Wessely, S., & Bryant, R. A. (2020). Pre-incident training to build resilience in first responders: Recommendations on what to and what not to do. *Psychiatry, 83*(2), 128–142. https://doi.org/10.1080/00332747.2020.1750215

Wild, J., Smith, K. V., Thompson, E., Béar, F., Lommen, M. J. J., & Ehlers, A. (2016). A prospective study of pre-trauma risk factors for post-traumatic stress disorder and depression. *Psychological Medicine, 46*(12), 2571–2582. https://doi.org/10.1017/S0033291716000532

Zhao, Y., An, Y., Sun, X., & Liu, J. (2020). Self-acceptance, post-traumatic stress disorder, post-traumatic growth, and the role of social support in Chinese rescue workers. *Journal of Loss and Trauma, 25*(3), 264–277. https://doi.org/10.1080/15325024.2019.1672935

Clinical Psychology in Europe

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Letter to the Editor, Commentary

Ambassadors of Clinical Psychology and Psychological Treatment

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The European Association of Clinical Psychology and Psychological Treatment (EACLIPT) board has decided to nominate Ambassadors of Clinical Psychology and Psychological Treatment. Ambassadors are selected according to their achievements for our field, but also according to the perspectives for further fostering the visibility and impact of clinical psychology. The typical profile of our ambassadors is the high quality of translational research. Ambassadors commit to show their support for the association and its mission.

We are proud that two extremely well-known colleagues confirmed to become ambassadors for EACLIPT: Paul Emmelkamp and Peter Fonagy, and they will be introduced in this issue. We are extending this list and will announce it in future issues of CPE, and we promise to consider gender and diversity issues. Congratulations to Paul Emmelkamp and to Peter Fonagy, and to all of us because we have tremendous personalities in our group.

Claudi Bockting *(President of EACLIPT)*
Winfried Rief *(Editor of CPE)*

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Clinical Psychology in Europe

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Letter to the Editor, Commentary

Paul Emmelkamp Becomes "Ambassador of Clinical Psychology and Psychological Treatment"

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Paul Emmelkamp is a scientist-practitioner *pur sang*. From the start of his career on, he has put an emphasis on the importance of integrating science and clinical practice, providing many important contributions to Clinical Psychology and Psychological Treatment in Europe and beyond.

In 1975, Paul obtained his PhD on 'The behavioural treatment of agoraphobia' from the University of Utrecht, where he had previously studied and completed his postdoctoral training in psychotherapy. He then moved to the University of Groningen, starting as an Assistant Professor and being appointed as a Full Professor in Clinical Psychology and Psychotherapy in 1986. Since 1996, he has been based as a University of Professor of Clinical Psychology at the University of Amsterdam. In 2006, Paul received the very prestigious appointment as Academy Professor of the Royal Academy of Arts and Sciences (KNAW). From 2013 to 2016, he then served as the Rector of the Netherlands Institute for Advanced Studies (NIAS). He is currently a fellow at the Institute for Advanced Studies in Paris.

Paul Emmelkamp (2018)
(Source: Paul Emmelkamp's own private collection)

The main focus of Paul's research is to investigate the efficacy and effectiveness of psychological interventions, especially using randomized controlled trial methodology. Since the earlier 70s, he has published more 70 randomized controlled trials together with a large number of national and international collaborators. Since his early studies on agoraphobia, he has extended his work to cover other anxiety disorders, obsessive compulsive disorder, post-traumatic stress disorder, depression, burn-out, addiction, personality disorders, perpetrators of sexual violence, and childhood ADHD and behavioral problems. His work is not limited to studies on adult populations, but also includes studies on children, adolescents and the elderly. Having collaborated closely with him at different time points in his career (MN from 1996-2005; TE from 2007 – 2012), we would like to share some impressions of Paul Emmelkamp as a scientist-practitioner that we think make him an excellent ambassador for EACLIPT.

Readers may wonder what motivates a researcher to focus especially on one of the most challenging and time-consuming type of research in clinical psychology, i.e. mainly conducting clinical trials. In our impression, Paul's motivation has always been to conduct research that matters, that has a real impact on clinical practice. In particular, he is driven to develop and test treatments that can work for many different patients, not just for the highly motivated "YAVIS" (young, attractive, verbal, intelligent, and successful) patients or students with elevated levels of psychopathology, but in particular for those who typically get referred to mental health institutions, often with a variety of comorbidity and a long duration of mental health problems. When embarking on his career, he perceived psychotherapy as too elitist, and it has always been his mission to have psychotherapy available for all in need, including "the man in the street". Therefore, Paul has conducted many RCTs with "real-life" patients recruited within routine mental health settings, while at the same time ensuring rigorous methodology and the use of well-described treatment manuals.

To study the effectiveness of treatments, Paul made important contributions to manualizing treatments. He was the first in the Netherlands to break down treatments to manuals that were transparent and transferrable. The first aim was scientific: to define and consolidate the content of the treatments, so that therapists would adhere to the same set of interventions, and that patient would receive a similar treatment in one treatment condition in a trial. The side-effect of this has had a large impact on the field: once treatments were proven effective, they were transparently described, suitable for transfer to new therapists, and available for implementation. Paul has contributed to the dissemination of many of such manuals.

For Paul, the most important quest is to establish scientific evidence of the effectiveness of treatments, so that individuals with mental health problems can receive those treatments that have been proven effective. Even though he has mainly conducted studies on cognitive behavioral therapy, he is not necessarily identified with this specific treatment orientation. "I am fine with anything, as long as it works" (interview at the

Dutch radio series Noorderlicht in 2003). He keeps looking for the evidence (and also for the non-evidence, as illustrated by the book "Failures in behavior therapy" co-edited with Edna Foa in 1983). As such, he likes to remain critical of the advances that have been made, to keep questioning things that seem "self-evident" without the data behind them, and to remain looking for further evidence. He is also not shy of – and even enjoys – raising controversial issues, playing the devil's advocate, or pointing out that the emperor may actually not be clothed. If you are looking for a stimulating and controversial discussion about the state of clinical psychology, invite Paul to talk e.g. about the role of experimental psychopathology in clinical innovation, the use of non-clinical or analogue samples in clinical research, the ubiquitous claim of "novelty" in psychological interventions, or the rise of trademarked interventions. You may not necessarily agree with him on all these issues, but will certainly have a good and stimulating time!

On the other hand, when a new promising treatment or treatment format is developed, Paul may be among the first to start a trial investigating its efficacy. For example, he was one of the first to investigate e-health interventions and virtual reality therapy. He conducted trials investigating ACT or EMDR when many CBT-oriented researchers in Europe were still quite skeptical about these approaches. In addition, he has investigated interventions for mental health conditions that seem hard to implement, like interventions for sexual offenders in the context of a forensic clinic.

As a supervisor, Paul is and has been an inspiration to many, and has motivated many to continue in his tradition of studying treatment effectiveness. He has supervised 45 PhD students as well as numerous master students, bachelor students, and clinicians. He is a co-founder of the Research School "Experimental Psychopathology" (EPP), a graduate school and research network uniting EPP researchers from various universities in the Netherlands and Flanders, and was the Chair from its foundation in 1995 until 2014. The research school has contributed to the development of a strong and active research network. From the very beginning of his career, he has been building a strong network with colleagues across Europe and beyond, starting with a seminal collaboration with Edna Foa and Isaac Marks in the 70s. Similarly, he has also always been open to collaboration coming from outside of academia. When we were working with Paul in Groningen (MN) and Amsterdam (TE), most projects we collaborated on had actually been initiated by practitioners who wanted to answer a research question of relevance for their respective settings. Topics ranged from evaluating treatments for PTSD in adults or for oppositional behavior in children in routine clinical settings to studying psychological consequences of a severe earthquake on emergency personnel in Pakistan. His current fellowship in Paris focuses on mental health interventions for refugees, a very timely and societal relevant topic.

The networking and intensive collaboration that is characteristic of his research has certainly been facilitated by the fact that Paul is a very approachable, open, and warm person, with a brilliant sense of humor, and an open door. In addition, Paul has always

been the opposite of a remote researcher in the ivory tower. Instead, he has continued seeing patients as a therapist throughout his career, has trained and supervised generations of students and therapists in conducting psychological treatment. He has also provided service to many different institutions, nationally as well as internationally, as a committee member, advisor, or board member, e.g., hosting the EABCT conference as president in the Netherlands (1987 and 2014), and serving as president of the president of the *International Federation for Psychotherapy* from 2014-2018. Last but not least, he is the founder of Clinical Psychology & Psychotherapy and has been its Editor since 1993.

We are confident Paul Emmelkamp will prove being a wonderful ambassador for EACLIPT.

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Clinical Psychology in Europe

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Letter to the Editor, Commentary

Title of "Ambassador of Clinical Psychology and Psychological Treatment" Awarded to Peter Fonagy

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Professor Peter Fonagy (OBE) leads a career in clinical psychology that epitomizes an integrative approach to the psychological care for children, adolescents and adults, with a continued determination to alleviate mental pain in those suffering from often chronic psychological distress. Driven by the ambition of increasing access to quality care for the vulnerable, he has occupied a number of key national leadership positions in the UK, including Chair of the Outcomes Measurement Reference Group at the Department of Health, Chair of two NICE Guideline Development Groups, Chair of the Strategy Group for National Occupational Standards for Psychological Therapies and co-chaired the Department of Health's Expert Reference Group on Vulnerable Children.

Peter Fonagy (2013)

His clinical interests centre on issues of early attachment relationships, resilience, social cognition, borderline personality disorder and violence. Drawing from psychoanalysis, developmental psychology, attachment theory as well as cognitive and affective neuroscience, Peter Fonagy puts forward a clinical approach based on evidence as well as best practice, closely articulated to the most recent developments in research on psychopathology and psychotherapy. A major focus of his contribution has been an innovative research-based psychodynamic therapeutic approach, mentalization-based treatment, which was developed in collaboration with a number of clinical sites in the UK and USA. He has

published over 500 scientific papers, 260 chapters and has authored or co-authored 19 books. Embracing communication and collaboration over competition and hostility between different theoretical frameworks in psychotherapy, his most popular books include "What Works for Whom" and "Affect regulation, mentalization and the development of the self", which collectively have attracted over ten thousand citations.

His recognition as a scientist include Fellow of the British Academy, the Academy of Medical Sciences, the Academy of Social Sciences and the American Association for Psychological Science, and he was elected to Honorary Fellowship by the American College of Psychiatrists. He has received Lifetime Achievement Awards from several national and international professional associations including the British Psychological Society, the International Society for the Study of Personality Disorder, the British and Irish Group for the Study of Personality Disorder, the World Association for Infant Mental Health and was in 2015 the first UK recipient of the Wiley Prize of the British Academy for Outstanding Achievements in Psychology by an international scholar.

Peter Fonagy's academic achievements are recognized not only in the UK and in Europe, but also at the international level. He is currently Head of the Division of Psychology and Language Sciences at University College London; Chief Executive of the Anna Freud National Centre for Children and Families, London; Consultant to the Child and Family Programme at the Menninger Department of Psychiatry and Behavioural Sciences at Baylor College of Medicine; and holds visiting professorships at Yale and Harvard Medical Schools.

Most importantly perhaps, Peter Fonagy's work influences hundreds of clinical psychologists across many different theoretical approaches to reflect on the common factors leading to salutogenesis, that is, the psychological mechanisms which sustain mental health in the face of the regular and more impactful challenges individuals face across the lifespan. Beyond individual and group psychotherapy, Peter Fonagy advocates for a social and political approach to mental health, and his work underlines the responsibilities we carry as families, communities and political entities to strive to care for each other and be kind to one another. Profound humanism can be experienced from Peter Fonagy's approach to clinical psychology. He has agreed to share and defend these values as a dedicated ambassador to the European Association for Clinical Psychology and Allied Disciplines.

Details on his life and professional trajectories in the media

- https://www.theguardian.com/society/2019/apr/27/peter-fonagy-refugee-child-psychologist-anna-freud-centre
- https://www.bbc.co.uk/sounds/play/m000dpj2

Citation from an interview with E. L. Jurist (2010, p. 7)

> **P. F.:** *(…) when we understand the mechanism of a disorder at the level of biology, at the level of neuroscience, we will also understand (…) that the only way to alter those things will be psychological. They will be much more targeted, better targeted, but they will be psychological interventions.*
>
> **E. L. J.:** *So there's something ineradicable about the role of psychology.*
>
> **P. F.:** *We are here for the duration.*

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References

Jurist, E. L. (2010). Elliot Jurist interviews Peter Fonagy. *Psychoanalytic Psychology, 27*(1), 2–7. https://doi.org/10.1037/a0018636