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Culture and gender in trauma research

Applying an intersectional perspective in cultural clinical research

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Abstract

The significance of culture in clinical psychology has grown notably in recent years due to an increased awareness of its impact on mental health. In the field of psychotraumatology, research has evolved significantly, leading to a better understanding of etiology, risk factors, and effective treatments. However, research remains dominated by concepts from WEIRD countries (Western, Educated, Industrialized, Rich, Democratic). While there is some support for the cross-cultural validity of the construct of posttraumatic stress disorder (PTSD), cultural variation in experiencing and expressing symptoms has been observed.

As a result, there is a growing need for more inclusive approaches to trauma research that consider aspects of culture in clinical research. However, investigating these complex relationships presents significant challenges. Despite numerous attempts, reaching a consensus on the definition of culture has proven challenging. While researchers widely acknowledge the complexity of culture in theory, cross-cultural comparisons in practice still rely primarily on simplistic classifications such as race or ethnicity. This reductionist approach not only overlooks substantial variations within ethnic groups but also perpetuates stereotypes, failing to capture the complex dynamics that influence mental health.

This thesis presents findings from three studies that investigate the intersections of cultural and sociodemographic variables in PTSD research. To this aim, two concepts will serve as examples to illustrate how methodological and conceptual considerations about culture can benefit trauma research: 1) causal beliefs about PTSD and 2) acculturation orientation.

Studies 1 and 2 used data from a vignette study conducted via an online survey with 737 participants from Germany, Greece, Ecuador, Mexico, and Russia. The survey included both a structured questionnaire on causal beliefs about PTSD and an open-ended question on possible causes for the problems described in the vignette. Additionally, several sociodemographic and cultural variables were included in the survey.

Study 1 investigated latent classes of causal beliefs about PTSD in participants from Germany, Greece, Russia, Ecuador, and Mexico and cultural and sociodemographic correlates of latent class membership. Three latent classes with differential profiles of causal beliefs about PTSD were identified. Country of residence, gender, and characteristics related to the illness were identified as correlates of class membership.

Study 2 focused on the intersections of gender and culture in causal beliefs about PTSD by combining qualitative and quantitative methods. The results showed that participants held a wide variety of causal beliefs, with most focusing on psychological causes, traumatic experiences, and social causes, often expressing beliefs from more than one domain simultaneously. Differences in causal beliefs were found by country and gender, with female participants being more likely to mention external factors such as the traumatic event or social and societal factors. Exploratory analyses indicated interactions between country and gender.

Study 3 used data from a survey with 101 Arabic-speaking refugee youth aged 14-18 conducted in schools in Berlin. The study included questionnaires about several acculturation variables and mental health. The study investigated associations between cultural orientation and mental health in Arabic-speaking refugee youth. Cultural orientation was generally high towards both the German and the heritage culture, but neither associated with PTSD symptoms nor with

depressive symptoms. However, the number of friends in Germany was negatively associated with the amount of both depressive symptoms and PTSD symptoms, and better German language skills were associated with lower scores of depressive symptoms. Exploratory analyses performed separately for girls and boys indicated that risk and protective factors for mental health symptoms may differ between girls and boys, for example, with language skills and number of friends being related to mental health only for girls but not for boys.

In summary, the results emphasize the need for a nuanced understanding of cultural influences in trauma research. They suggest methodological approaches that consider multiple facets of culture and intersectionality and stress the importance of gender-sensitive approaches in cultural clinical research.

Zusammenfassung in deutscher Sprache

Die Bedeutung von kulturellen Aspekten in der klinischen Psychologie hat in den letzten Jahren deutlich zugenommen, da das Bewusstsein für ihre Auswirkungen auf die psychische Gesundheit gestiegen ist. Im Bereich der Psychotraumatologie hat sich die Forschung erheblich weiterentwickelt und zu einem besseren Verständnis von Ätiologie, Risikofaktoren und wirksamen Behandlungsmöglichkeiten geführt. Die Forschung wird jedoch weiterhin von Konzepten aus sogenannten WEIRD-Ländern (Western, Educated, Industrialized, Rich, Democratic) dominiert. Es gibt zwar einige Belege für die kulturübergreifende Gültigkeit des Konstrukts der posttraumatischen Belastungsstörung (PTBS), aber es wurden auch kulturelle Unterschiede im Erleben und Ausdrucken von Symptomen beobachtet.

Daher besteht ein zunehmender Bedarf an integrativeren Ansätzen, die kulturelle Aspekte in der klinischen Forschung berücksichtigen. Die Erforschung dieser komplexen Zusammenhänge stellt jedoch eine große Herausforderung dar. Trotz zahlreicher Versuche hat es sich als schwierig erwiesen, einen Konsens über die Definition von Kultur zu erzielen. Während Forscher die Komplexität von Kultur in der Theorie weitgehend anerkennen, stützen sich kulturübergreifende Vergleiche in der Praxis immer noch hauptsächlich auf vereinfachende Klassifizierungen wie *race* oder Ethnie. Dieser reduktionistische Ansatz übersieht nicht nur die erheblichen Unterschiede innerhalb ethnischer Gruppen, sondern hält auch Stereotypen aufrecht, da er die komplexe Dynamik, die die psychische Gesundheit beeinflusst, nicht erfasst.

In dieser Arbeit werden die Ergebnisse von drei Studien vorgestellt, die die Intersektionen von kulturellen und soziodemografischen Variablen in der PTBS-Forschung untersuchen. Zu

diesem Zweck sollen zwei Konzepte als Beispiele dafür dienen, wie methodische und konzeptionelle Überlegungen zur Kultur die Traumaforschung bereichern können: 1) Erklärungsmodelle über PTSD und 2) Akkulturationsorientierung.

In den Studien 1 und 2 wurden Daten aus einer Vignettenstudie verwendet, die mittels einer Online-Umfrage mit 737 Teilnehmern aus Deutschland, Griechenland, Ecuador, Mexiko und Russland durchgeführt wurde. Die Umfrage umfasste sowohl einen strukturierten Fragebogen zu Erklärungsmodellen über PTBS als auch eine offene Frage zu möglichen Ursachen für die in der Vignette beschriebenen Probleme. Zusätzlich wurden mehrere soziodemografische und kulturelle Variablen in die Umfrage einbezogen.

Studie 1 untersuchte latente Klassen von Erklärungsmodellen über PTBS bei Teilnehmenden aus Deutschland, Griechenland, Russland, Ecuador und Mexiko sowie kulturelle und soziodemografische Korrelate der Zugehörigkeit zu einer latenten Klasse. Es wurden drei latente Klassen mit unterschiedlichen Profilen von Erklärungsmodellen über PTBS identifiziert. Als Korrelate der Klassenzugehörigkeit wurden das Wohnsitzland, das Geschlecht und mit der Krankheit zusammenhängende Merkmale identifiziert.

Studie 2 konzentrierte sich auf die Intersektionen von Geschlecht und Kultur bei Erklärungsmodellen über PTBS, wobei qualitative und quantitative Methoden kombiniert wurden. Die Ergebnisse zeigten, dass die Teilnehmenden eine große Bandbreite an Erklärungsmodellen berichteten wobei sich die meisten Teilnehmer auf psychologische Ursachen, auf das traumatische Erlebnis und auf soziale Ursachen konzentrierten und oft Erklärungen aus mehr als einem Bereich gleichzeitig äußerten. Unterschiede in den Erklärungsmodellen wurden für die verschiedenen Länder und für Geschlecht festgestellt, wobei weibliche Teilnehmer eher externe Faktoren wie das

traumatische Ereignis oder soziale und gesellschaftliche Faktoren nannten. In explorativen Analysen deuteten sich Interaktionen zwischen Land und Geschlecht an.

In Studie 3 wurden Daten aus einer Studie mit 101 arabischsprachigen jugendlichen Geflüchteten im Alter von 14-18 Jahren verwendet, die in Berliner Schulen durchgeführt wurde. Die Studie umfasste Fragebögen zu verschiedenen Akkulturationsvariablen und zur psychischen Gesundheit. Die Studie untersuchte Zusammenhänge zwischen kultureller Orientierung und psychischer Gesundheit bei arabischsprachigen jugendlichen Geflüchteten. Die kulturelle Orientierung war im Allgemeinen sowohl gegenüber der deutschen als auch der Herkunftskultur hoch, stand jedoch weder mit PTBS-Symptomen noch mit depressiven Symptomen in Zusammenhang. Die Anzahl der Freunde in Deutschland war jedoch negativ mit dem Ausmaß der depressiven Symptome und der PTBS-Symptome verbunden, und bessere Deutschkenntnisse waren mit niedrigeren Werten für depressive Symptome verbunden. Explorative Analysen, die getrennt für Mädchen und Jungen durchgeführt wurden, deuteten darauf hin, dass sich die Risiko- und Schutzfaktoren für psychische Gesundheitssymptome zwischen Mädchen und Jungen unterscheiden können, wobei z. B. Sprachkenntnisse und die Anzahl der Freunde nur bei Mädchen, nicht aber bei Jungen mit der psychischen Gesundheit zusammenhingen.

Zusammenfassend unterstreichen die Ergebnisse die Notwendigkeit eines differenzierten Verständnisses der kulturellen Einflüsse in der Traumaforschung. Sie schlagen methodische Ansätze vor, die mehrere Facetten von Kultur und Intersektionalität berücksichtigen, und betonen insbesondere die Bedeutung geschlechtersensibler Ansätze in der kulturellen klinischen Forschung.

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“Culture does not make people. People make culture.”

— Chimamanda Ngozi Adichie, *We should all be feminists*

Chapter 1

Theoretical Background

1.1 Introduction

The significance of culture in clinical psychology has grown notably in recent years, reflecting an increased awareness of the impact of cultural factors on mental health (Maercker, 2019; Vaughn, 2019). This becomes particularly evident in dealing with the impacts of psychological trauma, which has become a major global mental health challenge (Mew et al., 2022; Schnyder et al., 2017). Recent prevalence rates indicate that approximately 70% of the world's population is affected by at least one traumatic event at some point in their lives (Benjet et al., 2016; Kessler et al., 2017), with severe consequences for mental health. In particular, residents of low- and middle-income countries are at risk of developing mental health problems due to their increased exposure to violent conflict and extreme weather events, but also due to reduced access to resources and mental health services compared to high-income countries (Ferrari et al., 2013; Hoppen et al., 2021; Rataj et al., 2016). Furthermore, increasing numbers of refugee movements and voluntary migration have resulted in a culturally diverse client population in high-income countries (Jarvis & Kirmayer, 2023; UNHCR, 2023). In contrast, only a minority of studies in the field of traumatic stress research are conducted in low- or middle-income countries, and minority populations are often underrepresented in research (Fodor et al., 2014; Rataj et al., 2016). As a result, there is a growing need for more inclusive approaches to trauma research that consider aspects of culture in clinical research. However, investigating these complex relationships presents significant challenges.

This dissertation seeks to propose strategies for addressing the complexities inherent in exploring cultural factors in the context of traumatic stress. To this aim, the results of three empirical studies will be presented as examples to illustrate how methodological and conceptual

considerations about culture can benefit trauma research. Study 1 identifies latent classes of causal beliefs about PTSD in participants from Germany, Greece, Russia, Ecuador, and Mexico and investigates cultural and sociodemographic correlates of latent class membership. Study 2 examines intersections of gender and culture in causal beliefs about PTSD using qualitative data from the same survey. Study 3 examines the relationship between acculturation and mental health in refugee youth.

In the first chapter, I will first introduce the concept of culture and the methodological challenges that come with including culture in clinical research (chapter 1.1) and, more specifically, in the context of traumatic stress research (1.2). Afterwards, I will introduce the two concepts that lay the groundwork for the three empirical studies. First, I will introduce the concept of causal beliefs about PTSD (chapter 1.3), which is the basis for Study 1 and Study 2. Second, I will introduce the concept of acculturation in refugee youth exposed to trauma (chapter 1.4), which is the basis for study 3. The chapter will conclude with a short overview of the three studies presented in this thesis and the respective research questions (chapter 1.5). Subsequently, the three studies will be presented (chapters 2-4), followed by a generalized discussion of the findings and potential implications for future research and practice (chapter 5).

1.2 What is culture?

Despite many attempts, reaching a consensus on the definition of *culture* has proven challenging. In fact, as Kagawa-Singer et al. (2016) point out that "there is rarely a concept used in mental health research that is so poorly defined and untested as the concept of culture." Particularly in the field of (mental) health research, the concept of culture is often inadequately conceptualized and inconsistently applied (Hruschka, 2009). Commonly, c*ulture* refers to the shared patterns of beliefs, values, customs, and behaviors that characterize a social group. However, the conceptualization of culture has evolved significantly over time. Early definitions of culture stated that cultures exhibit stable and enduring traits, reflecting a consistent set of values and norms over time (Benedict, 1934; Tylor, 1871). This perspective implied a relatively unchanging and static nature of culture, emphasizing its stability rather than its dynamism or adaptability, and tended to oversimplify cultural identities and reinforce stereotypes (Kirmayer, 2013; Schouler-Ocak et al., 2019). Contemporary definitions acknowledge that culture is dynamic, fluid, adaptable, and shaped by interactions between different groups (Heim et al., 2022; Kirmayer, 2013; Maercker, 2019).

For this dissertation, the definition suggested by *The Lancet Commission on Culture and Health* is used (Napier et al., 2014). They define culture as 'a set of practices and behaviors defined by customs, habits, language, and geography that groups of individuals share.' They clarify that 'culture does not equate solely with ethnic identity, nor does it merely refer to groups of people who share the same racial heritage' (Napier et al., 2014, p. 1609). In this definition, culture is conceptualized as an adaptive system that provides contextualization within the geographical, historical, social, and political realities of diverse communities. As such, culture can influence the

psychological processes of individuals, including perceptions, emotions, and behaviors. Including individual characteristics, such as demographic (e.g., age, gender) and geographic (e.g., region or country) characteristics, but also attitudes, beliefs, and values in the research process can help to better understand the mechanisms behind cultural differences and influences on mental health (Napier et al., 2014). However, this comes with considerable methodological challenges for clinical research.

1.2.1 Methodological challenges in cultural clinical research

While in theory, the complexity of culture is widely acknowledged by researchers, in practice, cross-cultural comparisons are still primarily based on simple classifications such as race or ethnicity (Maercker, 2019). This reductionist approach not only overlooks substantial variations within ethnic groups but also perpetuates stereotypes and fails to capture the complex dynamics influencing mental health (Kirmayer & Ban, 2013; Maercker, 2019). In the past decades, significant strides have been made to establish rigorous theoretical and methodological approaches in the field of cultural clinical psychology (Heim & Knaevelsrud, 2021; Kirmayer, 2013; Maercker et al., 2019). Theoretical frameworks have evolved to encompass a more nuanced understanding of the role of culture in shaping psychological processes and outcomes (Grzanka, 2020; Kagawa-Singer et al., 2014; Wilson et al., 2019). Established methodological approaches have been challenged and developed further, with researchers advocating for more culturally informed research designs and assessment tools that capture the complexity of cultural influences on mental health (De Jong & Van Ommeren, 2002; Heim & Knaevelsrud, 2021; Heim & Kohrt, 2019; Kaiser & Jo Weaver, 2019; Maercker, 2019). In the following, three central concepts will be introduced that have gained importance in the field in recent

years regarding theoretical frameworks and methodological considerations: A multidimensional conceptualization of culture, the idea of intersectionality, and the concurrent consideration of emic and etic approaches.

1.2.2 Multidimensional conceptualizations of culture

Definitions of culture that solely refer to ethnicity or race are insufficient, and research that largely relies on simple group comparisons has limited value for clinical practice. However, considering the complex layers of culture is inherently challenging. The definition suggested by Napier et al. (2014) acknowledges the possibility of multiple (cultural) identities within one person. Globalization, greater mobility, and technical advances have consistently increased racial, ethnic, and cultural diversity in the last decades (Kluver & Fu, 2008; Raikhan et al., 2014). More and more people embrace hybrid racial or ethnic identities (Sanchez et al., 2009; Shih & Sanchez, 2009). At the same time, people with multiple racial or ethnic identities also report more flexible understandings of race/ethnicity that often change due to the social context (Rockquemore et al., 2009). Furthermore, in addition to national, racial, or ethnic identities, individuals can occupy multiple other forms of identity at once. Depending on context, they may shift which form of identity is most important to them (DelVecchio Good & Hannah, 2015). These identities may, for example, include education, disability, or sexual orientation. In particular social settings, some forms of identity, including race or ethnicity, may become less salient in favor of other forms of identity, such as sexual orientation, and therefore lose significance (Hannah, 2011). A better understanding of the interplay of these factors is essential for inclusive and rigorous mental health research with individuals from diverse backgrounds and for developing culturally sensitive interventions that are effective and relevant for diverse populations (Chao & Moon, 2005; Heim

et al., 2019; Hruschka, 2009; Kagawa-Singer, 2012). To recognize the interconnectedness of various social identities, the framework of intersectionality has been suggested.

1.2.3 The framework of intersectionality

The framework of intersectionality recognizes the interconnectedness of various social identities, such as gender, race, ethnicity, and socioeconomic status, and their impact on mental health outcomes. It thereby moves beyond the consideration of multiple aspects of culture. It highlights how multiple cultural dimensions intersect to influence the experience of a person (Cole, 2009; Maercker, 2019). When first introduced, intersectionality addressed the unique position of black women in relation to both black men and white women (Crenshaw, 1991). Since then, the concept has been expanded to address a range of social identities related to social inequality and power relations (Grzanka, 2020). According to this framework, multiple social categories (e.g., gender, ethnicity, race) intersect at the individual experience of a person, potentially leading to specific power differentials that can be characterized by multiple factors of marginalization (Collins & Bilge, 2020; Crenshaw, 1991). Applying this framework to the context of mental health means identifying intersections of various social identities and determining their relation to mental health and well-being (Guruge & Khanlou, 2004).

1.2.4 Emic and etic approaches

Another suggestion that has been made is addressing these challenges by adopting both insider and outsider viewpoints, commonly known as the combination of the etic and emic perspective (Pike, 1967).

The *etic approach* adopts an outsider viewpoint, utilizing standardized constructs and measures applied uniformly across different cultural groups (Karasz & Singelis, 2009). This approach allows for quantitative comparisons of results across cultures. One example of the etic approach are extensive epidemiological studies, for example, the World Mental Health Surveys (Koenen et al., 2017). Studies like this allow researchers to compare prevalence rates across countries based on the same predefined criteria.

Conversely, the *emic approach* adopts an insider perspective, using qualitative methods to describe the views, thoughts, or behaviors of a specific cultural group without predefined concepts (Karasz & Singelis, 2009). Emic research focuses on collecting and describing more subjective experiences of traumatic stress, encompassing, for example, explanatory models or cultural concepts of distress (Kaiser & Jo Weaver, 2019; Kleinman et al., 1978).

In the research process, these approaches often seem contradictory at first glance, as each comes with particular strengths and limitations. However, in well-designed cross-cultural studies, the two perspectives can complement each other (Niblo & Jackson, 2004). Etic research allows direct comparisons and highlights cultural similarities and variations, while emic research can reveal more detailed and culturally rich information that aids in understanding these variations (Heim et al., 2022).

In conclusion, while acknowledging the complexity of culture is paramount, current cross-cultural research often relies on simplistic classifications like race or ethnicity. In recent years, several new theoretical frameworks and methodological approaches have been suggested to enhance rigor in research. These include multidimensional conceptualizations of culture, the framework of intersectionality, and the combination of etic and emic approaches. When navigating

the complexities of cultural diversity, it is imperative to critically examine past approaches and embrace innovative strategies for more inclusive and culturally responsive research and practice.

1.3 Cultural dimensions of traumatic stress research

Disasters and accidents have been an integral part of the human experience throughout history. Natural disasters such as earthquakes, floods, and hurricanes, as well as man-made trauma such as armed conflict, have constantly threatened individuals. However, it was not until the aftermath of World War I and II and the Vietnam War, when a significant number of soldiers returned home with severe difficulties in readjusting to everyday life, that society began to recognize the profound impact of trauma (Crocq & Crocq, 2022). These veterans suffered from flashbacks, anxiety, and a sense of disconnection from the world they once knew, but effective treatments for the condition were lacking at the time (Schmiedebach, 2019). In 1980, the medical significance of trauma-related consequences was acknowledged, and post-traumatic stress disorder (PTSD) was formally recognized as a mental disorder in the American Psychiatric Association's DSM-III diagnostic manual (American Psychiatric Association, APA, 1980). Since, the field has evolved and expanded its scope to encompass not only the effects of war but also the effects of natural disasters, accidents, and interpersonal violence, and options for preventing and treating the consequences of trauma have greatly improved (Schmiedebach, 2019). However, not everyone benefits equally from the advances in the field of psychotraumatology.

1.3.1 How global is traumatic stress research?

While residents of low- and middle-income countries are particularly at risk of developing trauma-related mental health problems (Doherty & Clayton, 2011; Ferrari et al., 2013; Hayes et

al., 2018; Hoppen et al., 2021; Rataj et al., 2016), research on reactions to traumatic stress is still predominantly based on data stemming from (Western) high-income countries (Fodor et al., 2014). Most trauma-related research is conducted on populations from so-called *WEIRD* societies, populations that are generally Western, Educated, Industrialized, Rich, and Democratic (Fodor et al., 2014; Henrich et al., 2010). More importantly, these populations may be exceptionally poor representatives of the rest of the world (Henrich et al., 2010). This results in evidence that is predominately derived from Western, English-speaking patients, and largely ignores trauma survivors from other cultural groups (Fodor et al., 2014; Henrich et al., 2010; Jobson, 2009; Liddell & Jobson, 2016). Unless these studies have been replicated in non-WEIRD societies, whether the results are valid for other cultural groups is unclear. While there is some support for the cross-cultural validity of the PTSD construct, cultural variation in experiencing, expressing, and dealing with symptoms of PTSD has also been reported in numerous studies (Heim et al., 2022; Hinton & Good, 2016; Hinton & Lewis-Fernández, 2011; Jobson et al., 2022). Consequently, there is a growing need for more inclusive approaches that consider aspects of culture in trauma research. However, as outlined above, investigating these complex relationships presents significant theoretical and methodological challenges.

1.3.2 Posttraumatic stress disorder

PTSD can develop in people who have experienced or witnessed a traumatic event. According to the latest version of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association & Association, 2013), symptoms typically include intrusive thoughts, memories, or nightmares related to the trauma, avoidance of reminders of the event, negative changes in mood and cognition, such as persistent negative beliefs and emotional

numbness, and hyperarousal or increased reactivity, such as heightened irritability or difficulty sleeping. The symptoms must persist for at least one month and cause significant distress or functional impairment. The scientific community has widely acknowledged PTSD as a standardized framework. However, being developed mainly in Western contexts, the universal validity of PTSD across cultures has been questioned, and calls were made for the recognition of cultural diversity in experiencing psychological distress.

1.3.3 Risk factors for the development of PTSD

Given the high numbers of exposure to traumatic events worldwide (Benjet et al., 2016; Kessler et al., 2017), a comparatively small number of people develop PTSD following the event. Globally, 6% of people exposed to trauma will develop PTSD in their lifetime (Koenen et al., 2017). While the exact mechanisms that lead to PTSD are not fully understood, several risk factors have been identified that may help to explain why some people develop PTSD after trauma and others do not. These risk factors can be divided into pre-, peri- and post-trauma factors. Pre-trauma risk factors include being female (Haering et al., 2022; Tolin & Foa, 2006), low socioeconomic status (Atwoli et al., 2015; Brewin et al., 2000), a family history of mental illness (Breslau et al., 1999; Brewin et al., 2000; Ozer et al., 2003; Tortella-Feliu et al., 2019), and previous exposure to traumatic events, particularly childhood trauma (Breslau et al., 1999; Brewin et al., 2000; Ozer et al., 2003). Peri-trauma risk factors include the severity and type of trauma (Tolin & Foa, 2006; Tortella-Feliu et al., 2019) and peritraumatic dissociation (Ozer et al., 2003). Post-trauma risk factors include acute psychological stress reactions early after trauma (Dai et al., 2018), but also ongoing stressors such as financial problems and interpersonal conflicts, comorbid medical or psychiatric conditions, and delayed or inadequate treatment of acute stress reactions, or lack of

social support following a traumatic event (Brewin et al., 2000; Ozer et al., 2003; Tortella-Feliu et al., 2019). It is important to note that these risk factors do not necessarily lead to the development of PTSD and that the etiology is complex and multifaceted. Recognizing and managing these risk factors may help to prevent or mitigate the development of PTSD.

1.3.4 Prevention and Treatment of PTSD

Building on a better understanding of the pathological mechanisms that lead to PTSD, increasingly effective approaches to prevention and treatment have been developed and evaluated (Martin et al., 2021). National and international treatment guidelines recommend evidence-based treatments, such as trauma-focused cognitive behavioral therapy, eye movement desensitization and reprocessing (EMDR), and pharmacotherapy with selective serotonin reuptake inhibitors as primary interventions (Forbes et al., 2020; National Institute for Health and Care Excellence (NICE), 2018; Schäfer et al., 2019; World Health Organization, 2013). Among psychotherapeutic interventions, trauma-focused psychotherapies are among the evidence-based treatments for PTSD, with larger effect sizes than currently accepted pharmacotherapies and good evidence of long-term effects (Mavranezouli et al., 2020; Weber et al., 2021). Most trauma-focused psychotherapies focus on remediating abnormal fear circuitry and its consequences, such as exposure-based psychotherapies and medications that target anxiety and hyperarousal. They typically include elements such as psychoeducation, imaginal exposure, cognitive restructuring, or meaning-making (Burback et al., 2023).

In summary, the field of psychotraumatology has evolved significantly over the past few decades. Research has continued to expand knowledge about the disorder, leading to a better understanding of its etiology, risk factors, and, most importantly, effective ways to prevent and

treat PTSD. However, not everyone benefits equally from the advances in the field of psychotraumatology, and research is still dominated by concepts stemming from the so-called WEIRD countries.

1.3.5 Aims of this thesis

This dissertation aims to develop suggestions for encountering the challenges that come with investigating issues of culture in the context of traumatic stress. To this aim, the results from three thematically multifaceted empirical studies will be presented to illustrate exemplary how methodological and conceptual considerations about culture can benefit trauma research. In the upcoming sections, I will introduce two concepts from trauma research that are the focus of the empirical studies. First, I will introduce the concept of causal beliefs about PTSD (chapter 1.4, study 1 and study 2). Second, I will introduce the concept of acculturation in refugee youth exposed to trauma (chapter 1.5, study 3). After defining the respective concepts, the current state of research and the shortcomings and gaps in previous research will be outlined.

1.4 Example 1: Causal beliefs about PTSD in transcultural settings

1.4.1 Cultural dimensions of causal beliefs about PTSD

When treating traumatized patients from all over the world, practitioners cannot assume that they all speak the same language or share the same cultural beliefs (Schnyder et al., 2016). At the same time, these cultural beliefs influence how patients attach meaning to a traumatic experience and how they attempt to cope with symptoms (Bhugra, 2005; Kirmayer & Bhugra, 2009). It can be challenging to the therapeutic process when the beliefs of the patient and the practitioner differ – especially when the practitioner dismisses the patient's models as barriers to

communication and compliance (DelVecchio Good & Hannah, 2015). Yet, the exact role of culture and other influencing factors in the process of attaching meaning to mental health symptoms remains unclear and requires further research (Dinos et al., 2017).

1.4.2 Lay causal beliefs about PTSD

Lay causal beliefs are individual explanations about mental illnesses made by those affected or their relatives (Dinos et al., 2017). These beliefs include assumptions about the causes of existing mental symptoms and can – but not necessarily do – differ from the assumptions held by mental health care professionals. Causal beliefs about PTSD held by laypersons can encompass a wide range of different causes, including psychosocial causes (e.g., personality traits, lack of social support, unemployment), spiritual causes (e.g., punishment from God, loss of belief or curses), or biomedical causes (e.g., infections, substance abuse or pollution). However, the categorization and terminology employed in previous research exhibit notable inconsistency. Table 1 provides examples from several studies and summarizes how causal beliefs about PTSD are conceptualized across multiple domains. It highlights the diversity of causal beliefs on the one hand but also the inconsistent categorization of causal beliefs in previous studies. For instance, substance abuse has been categorized as a somatic cause, as risk behavior, or as a psychological cause, depending on the study. Similarly, childhood trauma has been categorized either as a consequence of trauma or as a psychological cause, depending on the study. Accordingly, comparisons between studies are only possible to a limited extent. In the subsequent reporting of previous findings, I will provide illustrative examples wherever feasible to enhance clarity and comprehension.

Table 1.1

Examples of causal beliefs about PTSD and their respective categorization in different studies

Domain	Sub-Domain	Examples	
Psychosocial	Socioeconomic causes	Unemployment, insufficient means to support children, loss of worldly possessions, homelessness, job loss, relationship breakdown, isolation, migration from war-torn countries, and family problems	Bolton et al. (2012), Grupp (2018), Im et al. (2017), May et al. (2014), Slewa-Younan et al. (2014)
	Political situation	Political situation, persecution for political reasons, flight route, war, women-specific violence	Bolton et al. (2012), Brea Larios (2022), Grupp (2018)
	Consequences of trauma	Constant awareness of suffering, guilt, feelings of injustice, rumination, childhood trauma, violence	Bolton et al. (2012), Brea Larios (2022), Ramsey (2017)
	Psychological causes	Specific personality traits, weak character, negative thinking, bereavement, childhood trauma, guilt, substance abuse	Barrowclough et al. (2008), May et al. (2014), Ramsey (2017), Slewa-Younan et al. (2014)
	Social causes	Feelings of injustice, lack of community support, family problems	Bolton (2012), Spoont et al. (2005)
	Risk behavior	Past actions, taking unnecessary risks, uncontrollable actions of others, punishment for own actions, substance abuse	Spoont et al. (2005), Kuittinnen
Spiritual	Religious causes	Neglecting religious duties, punishment by God, destiny, losing one's belief	Grupp (2018), Im et al. (2017), Kuittinnen (2017), May et al. (2014), Slewa-Younan et al. (2014)
	Perceived higher power	curses, possession, destiny, punishment by God	Im et al. (2017), May et al. (2014), Slewa-Younan et al. (2014)
Biomedical	Biological causes	Infections, chemical imbalance, genetic predisposition, substance abuse, poor physical health, pollution	May et al. (2014), Slewa-Younan et al. (2014), Spoont et al. (2005)
	Somatic causes	Physical illness, poor physical health, diabetes, substance use, insomnia	Kuittinen (2017)

Several studies have investigated whether causal beliefs are related to mental health and, more specifically, to PTSD (Dinos et al., 2017; Petrie & Weinman, 2006). They have concluded that causal beliefs can play an essential role in both developing and treating symptoms of PTSD.

A person attributing the traumatic event they experienced or subsequent symptoms of traumatic stress as internal, stable, and global will more likely develop severe psychological distress compared to other attributional styles (Massad & Hulsey, 2006). People's causal attributions also affect how they treat others affected by PTSD symptoms, which can lead to blaming or stigmatizing patients and influence whether social support is offered or declined to a person who has PTSD (Magda, 2016). Causal beliefs focusing on psychosocial causes (e.g., childhood trauma, bereavement) were, for example, found to be related to less hostile expressed emotions by relatives of patients with PTSD (Barrowclough et al., 2008) and to more empathic reactions from clinicians towards their patients (Lebowitz & Ahn, 2014).

Furthermore, causal beliefs can influence whether a person seeks treatment or not. Psychosocial causal beliefs for PTSD are associated with higher self-control perception and a higher probability of seeking professional help (Sheikh & Furnham, 2000; Spoont et al., 2005), while spiritual or religious causal beliefs (e.g., being punished by God, being possessed) can delay seeking help from Western healthcare services (Lee et al., 2010; Sheikh & Furnham, 2000; Slewa-Younan et al., 2020) or may lead to seeking help in traditional healing rituals (Hinton & Kirmayer, 2013; Lee et al., 2010). While some of those non-evidence actions may be experienced as empowering and helpful, others might contribute to human rights abuses, stigma, and discrimination (Petersen et al., 2011).

Finally, causal beliefs are relevant for treatment outcomes. Patient satisfaction increases when the patient and practitioner agree on causal beliefs (Callan & Littlewood, 1998), and considering cultural variation for particular groups can improve treatment success (Benish et al., 2011). In contrast, biological causal beliefs (e.g., germ or virus, exposure to chemicals) for PTSD

have been linked to lower adherence to psychopharmacological treatment (Spoont et al., 2005). A culturally sensitive approach to causal beliefs can be a basis for effective interventions in transcultural contexts when they are not seen as simply misguided or ill-informed by the clinician. So, causal beliefs become essential when treating mental illness (Kirmayer & Bhugra, 2009). In conclusion, lay causal beliefs can be an essential aspect in the development and treatment of PTSD.

In psychotherapeutic work with culturally diverse populations, discrepancies between the practitioner and the patient often become apparent and are at least partly attributed to factors such as origin or cultural background (Bhugra, 2005). Research has confirmed these differences when comparing causal beliefs between several cultural groups (Grupp et al., 2018; May et al., 2014; Reichardt et al., 2018; Slewa-Younan et al., 2017), but at the same time, considerable heterogeneity within groups has been reported (Dumke et al., 2023; Grupp et al., 2018). However, while cultural differences in causal beliefs are well established, less research has focused on the cultural pathways that shape causal beliefs across groups (Hruschka, 2009; Kagawa-Singer, 2012). This, in turn, might explain the considerable heterogeneity within cultural groups.

Other studies found indications that additional factors might play a role in developing certain causal beliefs about PTSD. For instance, higher age and lower education have been associated with a higher likelihood of agreeing with biological causal beliefs, such as infections or exposure to chemicals (Spoont et al., 2005). Education has been associated with the probability of agreeing with spiritual causal beliefs (e.g., being cursed or punished by God) with mixed findings: In one study, higher education was associated with higher agreement with spiritual beliefs (Grupp et al., 2018), in another study higher education was associated with lower agreement with spiritual beliefs (Sheikh & Furnham, 2000). Furthermore, higher self-reported religiosity was associated

with a higher likelihood of agreeing with spiritual causal beliefs (Grupp et al., 2018). However, all these findings are based on single studies, and comparisons between the studies are difficult due to the different methodological approaches used to assess causal beliefs.

Findings on gender differences in causal beliefs about PTSD are inconclusive and have so far only been investigated in specific populations such as refugees or patients (Brea Larios et al., 2022; Kuittinen et al., 2017; Reichardt et al., 2018). Qualitative studies with refugee populations have found differences between women and men in the perceived causes of mental illnesses (Brea Larios et al., 2022; Kuittinen et al., 2017). Women were more likely to mention factors related to society, structural violence, gender roles, or lack of social support in the community. In contrast, men tended to focus on intrapersonal characteristics, such as psychological or somatic causes. However, these differences have not been replicated in studies with quantitative designs (Reichardt et al., 2018). In conclusion, very little is known about meaningful correlates of causal beliefs about PTSD.

1.4.3 Shortcomings in previous research and implications for the current thesis

So far, most research on causal beliefs has applied qualitative methods with small sample sizes. Few studies have employed standardized and comparable instruments, and even fewer have examined additional characteristics aside from mere cultural comparisons. Furthermore, these studies have often focused on single populations with no comparison group (Aarethun et al., 2021; Alemi et al., 2016; Brea Larios et al., 2022; Kuittinen et al., 2017; Nohr et al., 2019; Savic et al., 2016). While the results of single-group studies or qualitative studies can inform about specifics of certain groups of interest, interpretation of the results in relation to previous research is limited. Especially in qualitative research settings that are highly subjective, this approach can produce

biased results. Without adequate contextualization of the data, this may, for example, lead researchers to overestimate differences (Levitt et al., 2021).

Another limitation of previous research is that quantitative cross-cultural research on causal beliefs about PTSD has mainly focused on comparisons between the general population and highly marginalized groups such as recently arrived refugees (May et al., 2014; Slewa-Younan et al., 2017). These refugees, however, differed in more than one aspect from the general population of their respective resettlement countries. They showed, for example, a lower socioeconomic status due to their marginalized position in society, fewer years of education, or were more religious, but these systematic differences between groups were not considered as potential confounders in the analyses (May et al., 2014; Slewa-Younan et al., 2017). Also, in most studies focusing on refugees, men were overrepresented (Grupp et al., 2018; May et al., 2014; Slewa-Younan et al., 2017). As studies often did not control for confounders, it is not possible at this point to determine whether group differences in causal beliefs of PTSD can only be attributed to cultural differences. Instead, it must be considered that they may be a combination of several interconnected factors. One exception poses a recent study that has focused on the causal beliefs of refugees from Sub-Sahara Africa (Grupp et al., 2018). Not only did the authors triangulate qualitative and quantitative data in their study, but they also included religiosity, gender, and education as potential moderators. However, a crucial limitation of this study is the high percentage of male participants and the limited sample size that did not allow for further analyses of moderators (Grupp et al., 2018).

In conclusion, previous research presents several methodological limitations that result in limited generalizability and may, more importantly, have led to biased results. These limitations include 1) lacking contextualization of the results (e.g., in single-gender studies or studies

investigating only one cultural group), 2) applying a unidimensional perspective of culture (e.g., by limiting assessment of culture to the immigration status of ethnicity without considering potential confounding variables), and 3) overrepresentation of men in the data. Alongside a multifaceted conceptualization of culture, the intersectional framework offers a valuable approach to counteract these limitations.

1.5 Example 2: Acculturation in Refugee Youth

1.5.1 Cultural dimensions of forced resettlement for refugee youth

In 2022, for the first time, the number of people who have been forced to leave their homes exceeded 100 million people (UNHCR, 2023). Culture plays a vital role in the acculturation process post-flight, influencing how people from different backgrounds navigate and integrate into a new society. Factors like language, traditions, and social norms can impact individuals' adaptation, shaping their interactions, identity development, and coping mechanisms (Sam, 2018; Ward & Geeraert, 2016). Difficulties in adjusting to a new culture can have serious consequences, potentially leading to isolation, mental health issues, or barriers to accessing professional and educational opportunities for resettled individuals (Brook & Ottemöller, 2020; Sam & Berry, 2006; Ward & Geeraert, 2016). For refugees, the acculturation process presents unique challenges due to the involuntary nature of their migration and the traumatic experiences that often accompany displacement.

1.5.2 Acculturation in the context of flight

The armed conflicts in Syria, Afghanistan, Iraq, Ukraine, and other world regions have resulted in an unprecedented number of forcibly displaced people (UNHCR, 2023). Among those

in need of international protection, one out of five came from Syria, with more than 6.5 million resettled Syrians by 2022. In Europe, Germany is one of the major destinations for Syrian refugees (UNHCR, 2023). Between 2015 and 2016, more than 430,000 Syrian refugees applied for asylum in Germany, representing 30% of all asylum applications (Bundesamt für Migration und Flüchtlinge, 2017). Today, Syrian nationals make up the largest group of people applying for asylum in Germany and have also increasingly applied for citizenship (Statistisches Bundesamt, 2022, 2023).

When resettling to a new country, refugees must adapt to a new life and face several challenges, such as learning a new language, making new friends, or becoming accustomed to different traditions (Brook & Ottemöller, 2020). The process of adapting to the new environment has been described as "acculturation" (Berry, 1997). Theoretically, all persons involved in the resettlement process may experience change, i.e., both those who resettle and those living in the receiving country. In reality, individuals who settle in a new country typically undergo more noticeable changes, as opposed to individuals from the resettlement country (Sam, 2006). A commonly used model suggested by Berry (1997) categorizes acculturation along two dimensions: whether the heritage culture is maintained or abandoned and whether the culture of the receiving country is adopted or rejected. Along the two dimensions, four orientations emerge. 1) assimilation (adopting the culture of the receiving country while abandoning the heritage culture), 2) separation (maintaining the heritage culture while rejecting the culture of the receiving country), 3) integration (adopting the culture of the receiving country while maintaining the heritage culture), and 4) marginalization (neither maintaining the heritage culture nor adopting the culture of the receiving country). The four categories are depicted in Figure 1.1.

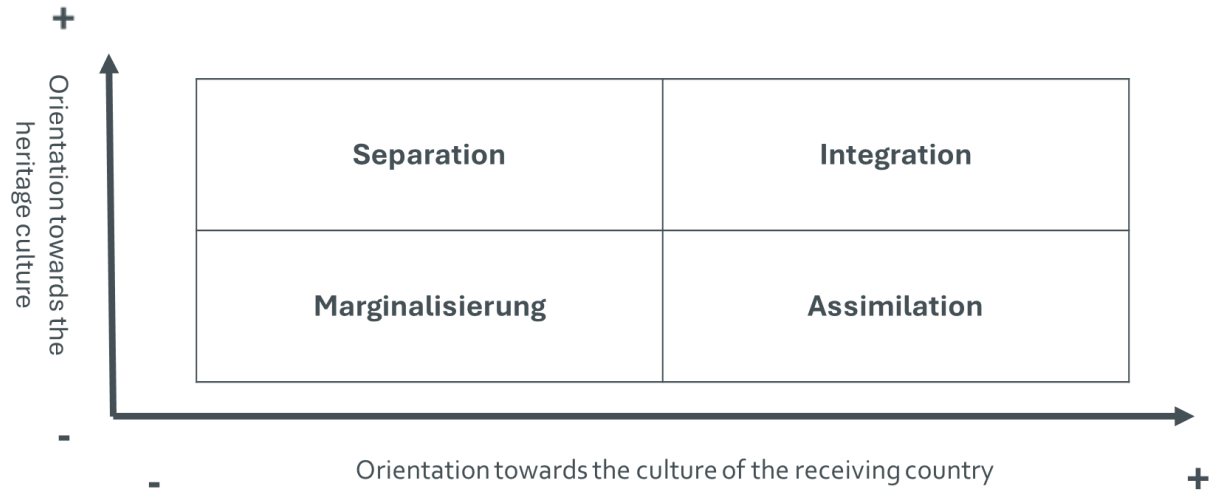

Figure 1.1. Depiction of the four categories of acculturation orientation suggested by Berry (1997), categorizing acculturation orientation along two dimensions: whether the heritage culture is maintained and whether the culture of the receiving country is adopted.

1.5.3 Acculturation and mental health in Arabic-speaking refugee youth

For children and youth, dealing with the demands of resettlement and acculturation can be particularly challenging as their identity is still developing, and they may undergo stressful periods as part of normative developmental changes, such as puberty or renegotiating relationships with their parents (Alhaddad et al., 2021; Jugert & Titzmann, 2020; Ward & Szabó, 2019). Consequently, refugee youth face high prevalences of short- and long-term mental health disorders, including depression, anxiety disorders, and PTSD (Blackmore, Gray, et al., 2020; Kien et al., 2019). So far, research has mainly focused on unaccompanied minors, this being an especially vulnerable group as they are at even greater risk of experiencing adverse events and trauma during flight and must face several post-migration stressors without their primary caregivers (Bean, Derluyn, et al., 2007; Derluyn et al., 2009; Müller et al., 2019).

Among those who travel and live with their parents, different challenges arise as they often must navigate between two distinct sociocultural environments: one at home and another outside their home (Cissé et al., 2020; Hayes & Endale, 2018; Menjívar, 2002; Roubeni et al., 2015). For refugee parents, it can be an important resource to retain the well-known language and traditions of their home country (Arends-Tóth & Van de Vijver, 2004). At the same time, refugee youth are expected to assimilate when attending educational institutions in the receiving country (Roubeni et al., 2015; Ward & Geeraert, 2016). Due to the different pace of acculturation and adjustment, intergenerational conflicts between parents and children can arise (Cissé et al., 2020; Kia-Keating & Ellis, 2007). Hence, it is important to understand how Arabic-speaking refugee youth living with their families adapt to life in Germany and how the challenges of transition may affect their well-being and mental health.

A growing body of research has studied associations between acculturation orientation and mental health in immigrant and refugee youth. A flexible orientation encompassing both heritage and receiving cultures has been linked to improved psychological adjustment (Berry et al., 2006; Garcia & Birman, 2022; Oppedal & Idsoe, 2012). Yet, empirical data focusing on refugee minors' adaptation to their new environment is lacking, and refugees are rarely distinguished in studies on immigrant minors (Maehler et al., 2021). Particularly for Middle Eastern refugee populations, evidence is limited. Only one study has focused on Middle Eastern refugee minors (EL-Awad et al., 2021), and results for adult refugee populations have been inconsistent (Copoc, 2019; El Khoury, 2019; Green et al., 2021). In male unaccompanied refugee youth, integration (i.e., acculturative orientation towards both cultures) was associated with reduced internalizing symptoms, fewer post-migration stressors, and improved sociocultural adaptation (EL-Awad et

al., 2021). However, the narrow inclusion criteria make it unclear whether results can be generalized to other groups, such as girls and refugee youth living with their families. In adult refugee populations, results are mixed. Some have found favorable effects for integration (El Khoury, 2019), while others have found no association between acculturation orientation and mental health (Copoc, 2019; Green et al., 2021).

Alongside these broad categories of acculturation orientation, several other factors have been associated with the adaptation to a new environment during resettlement. Some of these factors have been linked to mental health and can offer more specific approaches for identifying problems and informing interventions for the prevention or treatment of mental health. Language acquisition, for instance, has been associated with fewer overall difficulties during the acculturation process and better mental health (Buchanan et al., 2018; Earnest et al., 2015; Montgomery, 2008; Müller et al., 2019). Furthermore, social support has been associated with better mental health in refugee youth during the acculturation process, especially when provided by families and relatives (Behrendt et al., 2022; Blanc et al., 2022; Sierau et al., 2019) or by peer networks and friends (Almqvist & Broberg, 1999; Berthold, 2000; Oppedal & Idsoe, 2015; Verelst et al., 2022).

In conclusion, refugee youth constitute a highly vulnerable population when facing the challenges of acculturating to a new environment while navigating the demands of adolescence. Although Arabic-speaking refugees make up the largest part of refugee youth currently residing in Germany, data on the association between acculturation and mental health for Arabic-speaking refugee youth is very limited. Identifying risk and protective factors that can enhance their mental well-being and adaptation in the acculturation process is important.

1.5.4 Shortcomings in previous research and implications for the current thesis

Several aspects limit the current state of research on acculturation in refugee youth. First, most research on acculturation has been based on the categorical model proposed by Berry (1997), which has received several critiques. One of the major critiques has been that the model focuses on the attitudes of the resettling population while neglecting the role of context, such as state policies, discrimination, and attitudes of the majority population (Bourhis et al., 1997). It has also been criticized that the four categories cannot cover all acculturation styles and that, in reality, the meeting of cultures is multidimensional and much more complex (Rudmin et al., 2017). Other methodological approaches have been suggested to better represent the complex relationships, such as considering the two dimensions of orientation towards the heritage culture and the resettlement culture separately (Demes & Geeraert, 2014; Rudmin et al., 2017). Furthermore, the model proposed by Berry (1997) does not consider individual or contextual factors that may affect how individuals benefit from their orientation (Bourhis et al., 1997; Ward & Geeraert, 2016). Instead, the broad categories summarize several aspects of acculturation, making it difficult to attribute differences to specific aspects of acculturation. It is, therefore, often not possible to derive practical implications beyond broad recommendations. While, for example, language skills and social support are more specific indicators of the acculturation process and have been associated with positive mental health outcomes, they are rarely included in acculturation research (Maehler et al., 2021). Another limitation is that, although external factors are highly relevant for the acculturation processes of refugee youth (Garbade et al., 2023), a recent review indicated that studies rarely offer sufficient details on sample composition or address individual and contextual factors, such as living conditions or integration into educational institutions are rarely considered (Maehler et al., 2021). Also, the multitude of environmental conditions under which refugee youth

live in Germany is currently not represented in the data: Research has focused on unaccompanied minors, and no data is available on acculturation and mental health in accompanied refugee minors from the Middle East.

Finally, while gender plays a pivotal role in adolescent development, it is rarely considered in acculturation research with young immigrants or refugees (Güngör & Bornstein, 2013; Maehler et al., 2021). In acculturation research with refugee minors from the Middle East, boys and men have been highly overrepresented (EL-Awad et al., 2021; El Khoury, 2019; Garbade et al., 2023). This is, with few exceptions (Brook & Ottemöller, 2020)Generally, this is the case for research with refugee minors. At the same time, the experiences that young refugees have during the acculturation process may be highly dependent on gender as it influences social roles, access to resources, and experiences of discrimination. Refugee girls and young women may, for instance, encounter different societal expectations regarding education, employment, family roles, and social interactions, which can significantly impact their adaptation and acculturation experiences (Ellis et al., 2010; Klein et al., 2020).

In conclusion, previous research presents several methodological limitations that make it challenging to derive practical implications beyond broad recommendations and limit the generalizability of the results. These limitations include 1) applying a broad perspective on acculturation without consideration of more specific aspects of acculturation, 2) lack of consideration of individual and contextual factors (e.g., gender, living conditions), and 3) overrepresentation of boys in the data. A more detailed and multifaceted conceptualization of acculturation, as well as consideration of additional individual and contextual variables, offer pathways to encounter these limitations.

1.6 Research questions and overview of the studies

In summary, research demonstrates the growing importance of dealing with traumatic exposure on a worldwide level. So far, one of the major shortcomings in cultural clinical research is the lack of consideration of the multilayered and complex relationships regarding cultural differences. Applying a multifaceted concept of culture allows to encounter the limitations of previous research. This thesis examines the intersections of several sociodemographic and cultural variables in PTSD research across three thematically multifaceted studies. The two concepts of *causal beliefs* and *acculturation orientation* will serve as examples to illustrate how methodological and conceptual considerations about culture can benefit trauma research.

Study 1 assesses latent classes of causal beliefs about PTSD in laypersons from five countries and includes several cultural, contextual, and sociodemographic characteristics as correlates.

Study 2 investigates gender and culture as correlates of causal beliefs about PTSD as well as their interactions. The study uses a mixed-methods approach and combines qualitative and quantitative data.

Studies 1 and 2 use data from a vignette study conducted via an online survey with 737 participants from Germany, Greece, Ecuador, Mexico, and Russia. The survey included both a structured questionnaire on causal beliefs about PTSD and an open-ended question on possible causes for the problems described in the vignette. Additionally, several sociodemographic and cultural variables were included in the survey.

1.6.1 Research Questions for Study 1

Q1) Do latent classes of causal beliefs about PTSD differ between participants from different countries?

Q2) Which additional cultural or sociodemographic characteristics are associated with latent class membership?

1.6.2 Research Questions for Study 2

Q3) Do causal beliefs about PTSD differ between participants from different countries?

Q4) Do causal beliefs about PTSD differ between women and men in a sample including participants from several countries?

Q5) Do gender and country interact as correlates of causal beliefs about PTSD?

Study 3 investigates associations between acculturation orientation and mental health in Arabic-speaking refugee youth living in Germany.

Study 3 uses data from a study conducted in middle schools in Berlin. It included 101 Arabic-speaking refugee youth aged between 14 and 18. The study included questionnaires about several acculturation variables and mental health.

1.6.3 Research Questions for Study 3

Q6) Is acculturation orientation associated with posttraumatic stress symptoms in Arabic-speaking refugee youth?

Q7) Which additional acculturation-related factors are associated with mental health symptoms in Arabic-speaking refugee youth?

Q8) Can the assessment of more specific acculturation-related characteristics contribute to a better understanding of risk and protective factors for mental health symptoms in refugee youth in the context of acculturation?

Q9) Do gender and acculturation-related factors interact as correlates of PTSD in refugee youth?

Chapter 2

Study 1: Lay causal beliefs about PTSD and cultural correlates in five countries

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Lay causal beliefs about PTSD and cultural correlates in five countries

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Abstract for study 1

Background: To date, cultural clinical research has primarily focused on differences between ethnic groups when investigating causal beliefs about mental disorders. While individual as well as contextual factors are considered important for gaining a better understanding of cultural influences, research on causal beliefs about post-traumatic stress disorder (PTSD) and cultural correlates in laypersons is scarce.

Objective: This study aimed to gain a better understanding of the association between causal beliefs about PTSD and cultural aspects, as well as other contextual and individual correlates of causal beliefs.

Method: We conducted a cross-sectional, vignette-based online survey with 737 laypersons from Mexico, Ecuador, Germany, Greece, and Russia. Participants completed the illness perception questionnaire revised (IPQ-R) and reported several cultural and sociodemographic (e.g., country of residence, gender, personal values) as well as mental health–related variables (e.g., PTSD symptoms, previous seeking of help). Latent class analysis (LCA) was performed to identify subgroups of individuals expressing similar causal beliefs for PTSD. Multinomial logistic regression was used to analyze covariates of class membership.

Results: LCA resulted in a three-class solution of casual beliefs: a traumatic event–focused class (41.1%); an intrapersonal causes class (40.1%); and a multiple causes class (18.0%). Multinomial logistic regression analysis revealed country of residence, gender, personal value of security, PTSD symptoms, and mental health literacy as significant covariates of class membership.

Conclusions: Integrating a more diverse concept of culture into cultural clinical research can be a valuable addition to group comparisons based on nationality or ethnicity. Cultural clinical research needs to move towards a more integrated approach that accounts for the complexity of culture. Including additional contextual and sociodemographic factors can help to reach a more accurate understanding of the cultural influences on the development of causal beliefs and mental health.

2.1 Introduction

When people experience mental disorders, or observe them in others, they tend to search for explanations. Those affected by, or encountering others affected by, mental health symptoms hold so-called causal beliefs about them, which are part of a wider range of beliefs that can also include ideas about labels, timeline, prognosis, and treatment (Dinos et al., 2017; Rüdell et al., 2009). Laypersons' causal beliefs can differ considerably from medical or psychosocial clinicians' models of diseases. In contrast to scientific models, these beliefs are also dynamic strategies for dealing with illnesses that are shaped by social and cultural context, or personal experiences, and evolve over time (Kirmayer & Bhugra, 2009).

Taking causal beliefs into consideration in mental health care has proven useful at several stages of counseling and treatment (Dinos et al., 2017; Petrie & Weinman, 2006). Causal beliefs can influence symptom severity (Massad & Hulsey, 2006), whether a person seeks treatment (Sheikh & Furnham, 2000; Spoont et al., 2005), and what kind of treatment is sought (Hinton & Kirmayer, 2013; Slewa-Younan et al., 2020). Particularly in transcultural settings, but also in general, a sensitive approach to causal beliefs is the basis for effective interventions, as patient satisfaction and treatment effectiveness increase when patient and practitioner concur about a model (Benish et al., 2011; Callan & Littlewood, 1998).

2.2 Causal beliefs in cultural clinical research

Although "culture" is widely assumed to shape causal beliefs and consequently health disparities, there is a relative lack of empirical investigation of those claims, and research on the pathways through which culture may influence causal beliefs is scarce (Hruschka, 2009; Kagawa-

Singer, 2012). For post-traumatic stress disorder (PTSD), in contrast to other mental illnesses, the traumatic event is already included as a potential cause in the diagnostic criteria. Consequently, in studies across several cultural groups, many participants identified the traumatic event as one potential cause (e.g., May et al., 2014; Slewa-Younan et al., 2017). Further studies on causal beliefs about PTSD have focused mainly on differences between ethnic groups, finding, for instance, higher agreement on spiritual or religious causal beliefs for refugee populations from Sudan or Sub-Saharan Africa in comparison to residents from Germany or Australia, respectively (Grupp et al., 2018; May et al., 2014). This research has given valuable insights into the problems that can arise when Western concepts of mental health are applied to people with a different cultural background. However, many studies are implicitly or explicitly based on the assumption that participants can be grouped into 'Western' and 'non-Western', and that the study's results can be extended to other countries according to this dichotomy. This can be problematic as it does not take into consideration the huge differences that can be found among these broad groups (Maercker, 2019). In response, contemporary cultural psychiatry has been moving towards a perspective that accounts for the dynamics of individuals' hybrid identities, which are constantly transacting and in transformation (DelVeccio Good et al., 2011). The Lancet Commission on Culture and Health defined culture as "a set of practices and behaviors defined by customs, habits, language, and geography that groups of individuals share." They clarify, that "culture, therefore, does not equate solely with ethnic identity, nor does it merely refer to groups of people who share the same racial heritage" (Napier et al., 2014, p.1609). Instead, culture can be seen as a living, adapting system that offers contextualization within the geographic, historical, social, and political realities of diverse communities (Kagawa-Singer, 2012). Therefore, to better understand cultural influences in cultural clinical research it is necessary to consider other factors that may interact

with culture, including demographic (e.g., age, gender) and geographic (e.g., region or country), and also attitudes, beliefs and values (Chao & Moon, 2005; Heim et al., 2019; Hruschka, 2009; Kagawa-Singer, 2012). Though applying a broader concept of culture has proven to be a better predictor for mental distress than origin or ethnic group per se (Bhui & Bhugra, 2001), research is scarce on other factors that might be related to causal beliefs about PTSD. Studies have considered age (Spoont et al., 2005), education (Grupp et al., 2018; Spoont et al., 2005), religion or religiosity (Grupp et al., 2018; May et al., 2014), and economic aspects (Aidoo & Harpham, 2001). However, few studies have used standardized and comparable instruments and even fewer have considered the interrelations between these characteristics.

In this study, we sought to explore whether cultural, contextual, and sociodemographic characteristics are associated with differences in causal beliefs about PTSD. Toward this aim, we chose an etic methodological approach, assuming that, following a violent attack, PTSD symptoms can be seen as a universal human reaction. While an emic perspective may have revealed more detailed and culturally rich information, this approach allowed us to compare the results and identify correlates across the chosen countries. Our first goal was to identify profiles of causal beliefs for PTSD among the general population of five different countries. Our second goal was to identify characteristics associated with latent class membership. In line with previous research, we expected participants' country of residence, religion, age, and education to be significantly associated with class membership. In the exploratory analyses, we controlled for mental health–related factors and sought to identify additional correlates by including characteristics that have proven important for mental health research, such as gender, migration, socioeconomic status, and personal values.

2.3 Methods

We conducted a cross-sectional, online vignette-based survey using *Unipark* (Questback GmbH, 2018), targeting laypersons in Mexico, Ecuador, Germany, Greece, and Russia from February 2019 to May 2019. For our study we chose only high- or middle-income countries varying in mental health burden and having differing mental health care systems (World Health Organization, 2017). The research ethics committee of the Department of Education and Psychology at Freie Universität Berlin approved this study (202/2018).

2.3.1 Participants

To be included, participants had to be 18 years of age or older and currently live in one of the five targeted countries. Internet access and literacy were also required. Potential participants accessed the survey via a link, distributed over internet platforms, social media advertisements and postings, health-related online forums, institutional and university mailing lists, and local organizations. While random sampling was not possible, in order to create a diverse sample, recruitment strategies focused on targeting a wide range of age and interest groups, as well as diverse educational and occupational backgrounds. Participants were informed about the aims of the study, and duration and privacy issues, and gave informed consent. To provide an incentive to participate in the study, and to complete the survey, participants could voluntarily enter a prize drawing after completing the survey.

2.3.2 Study design

Vignette studies are a well-established method for assessing mental health beliefs (Wei et al., 2015). In this study, participants were presented with a short case vignette describing a

fictitious person (Mary/Alex) with PTSD symptoms according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013; Appendix). Thereafter, participants answered questions concerning their causal beliefs about mental health disorders, which were adapted to refer to the case vignette. The gender of the fictitious person in the vignette was matched to the gender of the participant to aid identification.

2.3.3 Instruments

Questionnaires were administered in the respective national languages of the included countries (Spanish, German, Greek, and Russian). Where no translations were available, a three-step approach was used to obtain valid instruments. Firstly, two bilingual mental health professionals translated and back-translated the questionnaires for each language. Secondly, the two translators discussed discrepancies between the translations and agreed on the best possible translation. Thirdly, all involved translators and the authors (CM, NS, and CKa) discussed potentially ambiguous items to eliminate discrepancies between different languages and ensure participants' interpretation of items would be as similar as possible between the languages used.

Sociodemographic and cultural variables

Participants answered questions regarding country of residence, country of origin, migration, age, gender, years of education, self-identified religious affiliation, and religiosity (Fragebogen zu Lebensbedeutungen und Lebenssinn [LeBe], Schnell & Becker, 2007, subscale explicit religiosity with higher values representing higher agreement on religious attitudes). The subjective socioeconomic status scale was used to assess social status (Adler et al., 2000), in which participants were asked to position themselves on a drawing of a 10-rung ladder according to their subjective standing in society. Participants' perceived cultural closeness to their country of

residence was measured with an adapted version of the Pictorial Representation of Illness and Self Measure (PRISM; Sensky & Büchi, 2016). Participants used a slider ranging from 1 ('not close at all') to 20 ('very close') to indicate how close they felt to the culture of their country of residence.

Personal values

The Portrait Value Questionnaire revised (PVQ-RR; Schwartz, 2017) is devised to capture personal value orientation. Each of the 57 items is a short portrait of a fictitious person's values, for example, "It is important to her never to violate rules or regulations". Participants are asked to answer on a six-point Likert scale how much the fictitious person is "not like me at all" to "very much like me". The gender of the person in the portraits was matched to the gender of the participants to improve identification. Validated translations of the PVQ-RR were available, and provided by the author, in all included languages. To reduce complexity, the 10 basic value scores can be aggregated into higher order dimensions (Heim et al., 2019). We followed the suggestion of Maercker et al. (2015) with the aggregated value orientations of 1) traditional value orientation (universalism, benevolence, security, tradition, and conformity) and 2) modern value orientation (achievement, power, self-direction, stimulation, hedonism).

Causal beliefs

The Illness Perception Questionnaire revised (IPQ-R; Moss-Morris et al., 2002) was used to assess causal beliefs. The IPQ-R has been applied to mental health research and has demonstrated good validity and reliability across illnesses and languages (Moss-Morris et al., 2002). This study used only the subscale on possible causes of the disease with 18 items, which consists of a range of disparate causes that are rated on a 5-point Likert scale ranging from 1 ('strongly disagree') to 5 ('strongly agree'). For further analysis, answers were dichotomized such

that answers with values 4 (“agree”) and 5 (“strongly agree”) were combined into an “agree”-category, while all other answers were combined into a “disagree”-category”. Instructions were adapted to refer to the vignette and asked “How strongly do you agree or disagree, that each factor caused Maria's problems?”. Validated translations of the IPQ-R were available, in Spanish, German and Greek.

Traumatic exposure and probable PTSD symptoms

The Primary Care PTSD Screen, which assesses previous potentially traumatic experiences with one item (Prins et al., 2016), was used to measure traumatic exposure. For participants who reported having experienced at least one potentially traumatic event, PTSD symptoms, according to the DSM-5 criteria, were assessed with the 20-item PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). To determine whether participants experienced PTSD symptoms, we followed the DSM-5 diagnostic rule. As recommend, each item rated as 2 = "Moderately" or higher was considered an endorsed symptom. Participants that met DSM-5 diagnostic criteria according to this recommendation were considered as probably having PTSD. Internal consistency was very good ($\alpha = .95$). Validated translations of the PCL-5 were available in German.

Well-Being

The World Health Organization-Five Well-Being Index (WHO-5) is a five item, self-report measure of current mental well-being (World Health Organization, 1998) where each item is scored from 5 (‘all of the time’) to 0 (‘none of the time’). By multiplying the sum score by 4, a range from 0 (absence of well-being) to 100 (maximal well-being) is calculated. The WHO-5 shows good construct validity as a unidimensional scale for measuring well-being and adequate validity as a screening tool for depression (Topp et al., 2015). Validated translations of the WHO-

5 were available, and provided by the WHO, in all included languages (Psykiatric Center North Zealand, 2018). Internal consistency was good (α = .87).

Mental Health Literacy

We used recognition of a mental disorder as an indicator for mental health literacy (Jorm, 2000). To this aim, we determined whether participants recognized PTSD in the vignette by using the answers to the open-ended question ("*What, if any, is Mary's problem?")*. We considered PTSD as *recognized* when participants mentioned signs such as *traumatized, trauma, traumatic stress, post-traumatic stress or PTSD*, and as not recognized when none of these were mentioned. Two independent raters coded each participant's answer. In cases of disagreement, consensus was reached by discussion.

Previous contact with mental health services

Previous experience with mental health services was considered both in terms of provider and patient experience, with one question for each: "Have you ever worked in mental health services in your life?" [yes/no]; and "Have you ever seen a mental health professional (e.g., psychologist, psychiatrist, counselor) to get help for your personal problems?" [yes/no].

2.3.4 Statistical Analyses

Respondents who answered items randomly were excluded prior to analyses, in order to ensure data quality. In order to identify such careless respondents, we determined several indicators following Meade and Craig (2012) by using the '*careless' package* in R4.0.2. For every participant we considered *duration* of participation, *LongString* and the *Psychometric Synonyms Index* as overall measures as well as *intraperson variance* and *Mahalanobis distance* for each separate

scale. Participants, who were flagged on one or more indicators were rated independently by two authors (CM, CKa) and excluded from the study, when careless data patterns became apparent. In cases of disagreement, consensus was reached by discussion.

In order to identify subgroups of individuals expressing similar causal beliefs about PTSD, we performed latent class analysis (LCA). LCA is a person-centered approach that can be used to identify latent subpopulations in a population based on a certain subset of variables, and subsequently analyze the relation between subpopulation membership and a variety of covariates (Lanza & Rhoades, 2013; Nylund-Gibson & Choi, 2018). Person-centered approaches have become more popular in the field of behavioral research as they allow for more precise estimations of individual differences in complex processes but have not yet been used to investigate causal beliefs about mental disorders. However, LCA has proven a suitable methodological approach for similar phenomena such as help seeking profiles, attitudes, or health beliefs (Hays & Gilreath, 2017; Smail et al., 2021).

Several statistical criteria were considered in order to identify the optimal number of classes (Nylund et al., 2007). For each k-class-solution, a bootstrap likelihood ratio test (BLRT) as well as the Vuong-Lo-Mendell-Rubin LRT (VLMR-LRT) were performed; a significant LRT indicated that the k-class model was a significantly better fit for the data than the k-1–class model. In addition, Akaike information criterion (AIC), Bayesian information criterion (BIC), and adjusted BIC (aBIC) were evaluated, with lower values indicating a better fit (Geiser, 2012). We considered entropy to determine how accurately the model classified individual cases into latent classes. Higher entropy values indicated better classification, with values greater than .80 indicating *good* and 1 indicating *perfect* classification of individual cases into classes (Nylund-

Gibson & Choi, 2018). Lastly, we considered boundaries, parsimony and size, and interpretability of the distinct classes.

To identify cultural covariates of observed class membership, we conducted Pearson χ^2 tests for categorical covariates and one-way analysis of variance (ANOVA), or the Kruskal-Wallis-test, for continuous covariates. When analyses uncovered significant differences between classes, covariates were included in a logistic multinomial regression model. For inclusion in the regression model, all categorical variables were dichotomized and coded in a way that allowed for meaningful interpretation: country of residence was effect coded as deviation from unweighted grand mean, and all other categorical variables were dummy coded with a reference category (Eid et al., 2017). As suggested by Vermunt (2010), the three-step approach was used for multinomial logistic regression, which takes the inaccuracy of class assignment into account when assessing latent class covariates in multinominal regressions. Analyses were carried out using R and MPlus 8.4.

For most variables, the proportion of missing values was less than 0.5%. Only the religiosity score and the scale for measuring participants' emotional closeness to their country (PRISM) had higher percentages of missing values (7.5% and 7.2%, respectively). Accordingly, missing values for covariates of class-membership were dealt with using expectation-maximization-based single value imputation, as implemented in SPSS 27, to avoid listwise deletion. Missing values for latent class indicators were dealt with using full information maximum likelihood estimation, as implemented in MPlus.

2.4 Results

2.4.1 Sociodemographic characteristics

Of N = 853 participants who were shown the vignette, N = 756 completed the survey. N = 19 persons had to be excluded for giving careless responses. The interrater reliability on exclusion as a result of careless response patterns was excellent (κ=.84; Landis & Koch, 1977). The final sample consisted of N = 737 participants (492 females, 66.8%), and age ranged from 18 to 78 years (M = 36.2, SD = 13.9). Most participants resided in Germany at the time of the study (N = 261), followed by Greece (N = 183), Russia (N = 134), Ecuador (N = 99), and Mexico (N = 60).

More than half of the participants (54.5%) reported having experienced at least one potentially traumatic event. When screened for symptoms of mental health problems, 22% (n = 165) of the total sample met the screening criteria for probable PTSD according to the PCL-5. Almost half of the participants reported having visited a mental health professional at least once in their lives, while a minority indicated having working experience in mental health services. Two hundred and forty-six participants (38.2%) were classified as having recognized the problems described in the vignette as related to PTSD. Interrater-reliability was excellent (κ=.93; Landis & Koch, 1977). See Table 1 for characteristics of the overall sample by country.

Table 1

Sample characteristics and PTSD rates across the five countries.

	Total sample (N = 737)	Mexico (N = 60)	Ecuador (N = 99)	Germany (N = 261)	Greece (N = 183)	Russia (N = 134)
Gender = Male [1], N(%)	243 (33.1)	23 (38.3)	45 (45.5)	76 (29.2)	65 (35.7)	34 (25.4)
Age in years, M(SD)	36.2 (13.91)	31.3 (10.68)	35.0 (12.21)	36.2 (15.08)	37.9 (13.45)	36.8 (14.19)
Probable PTSD = Yes, N(%)	165 (22.4)	18 (30.0)	23 (23.2)	43 (16.5)	39 (21.3)	42 (31.3)

Note. [1]N = 735, two participants gave *other* as their gender and were excluded from analysis due to their small category size.

2.4.2 LCA

To identify the optimal number of latent classes to fit the data, the 1- to 5-class solutions were evaluated and compared according to fit indices, parsimony, and interpretability. We stopped at estimating a six-class solution since the number of boundaries increased and visual inspection indicated that interpretability and separability of classes were low. The VLMR-LRT favored the two-class model, as it was non-significant when fitting the three-class solution. However, it showed poor interpretability, and since AIC, BIC, and aBIC decreased with a higher number of classes, the two-class model was dismissed. The five-class solution had a lower AIC and aBIC, and higher entropy than the three- and four-class solution; at the same time, it exhibited higher BIC, a significant number of boundaries, and poor interpretability, and was therefore also dismissed. Fit indicators slightly favored the four-class solution over the three-class solution; however, visual inspection revealed that the four-class solution simply subdivided one of the classes in the three-class solution into two similar profiles. Because of its parsimony, and in consideration of the small differences in fit indicators, the three-class solution was chosen as the

final solution. Overall, it demonstrated good interpretability, no boundaries, and good entropy (0.83). Table 1 presents fit indices for the 1 to 5 class solutions.

Table 2

Goodness of fit statistics for 1 to 5 class solutions

Number of classes	AIC	BIC	aBIC	BLRT	VLMR-LRT	Entropy
1	13.161	13.244	13.187	-	-	
2	11.394	11.564	11.446	< 0.001	< 0.001	0,863
3	**11.059**	**11.316**	**11.138**	**< 0.001**	**n.s.**	**0,831**
4	10.949	11.294	11.056	< 0.001	n.s.	0,809
5	10.888	11.320	11.022	< 0.001	n.s.	0,822

Note. aBIC, adjusted BIC; AIC, Akaike information criterion; BIC, Bayesian information criterion; BLRT, bootstrap likelihood ratio test; VLMR-LRT, Vuong-Lo-Mendell-Rubin LRT.

Latent class 1 consisted of participants who exclusively identified the traumatic stressor (*stress or worry*) as responsible for the symptoms described in the vignette (traumatic event focused, n = 303, 41.1%). Participants in latent class 2 also identified the traumatic stressor, but also considered individual psychological factors to be likely causes. In addition to *stress or worry*, they showed high rates of agreement in the items *emotional state, personality*, and *mental attitude* (individual psychological causal beliefs, n = 301, 40.1%). Participants in latent class 3 were the least specific when identifying possible causes. Beyond traumatic stress and individual psychological factors, they also endorsed a wide range of external, psychosocial risk factors (*accident/injury, family problems, behavior, overwork, alcohol*) as probable causes for the symptoms described (multicausal beliefs, n = 133, 18.0%). In none of the classes, biological risk factors (*hereditary, germ or virus, diet, poor medical care in the past, pollution*), or *chance or bad luck*, were considered to be likely causes. See Figure 1 for details.

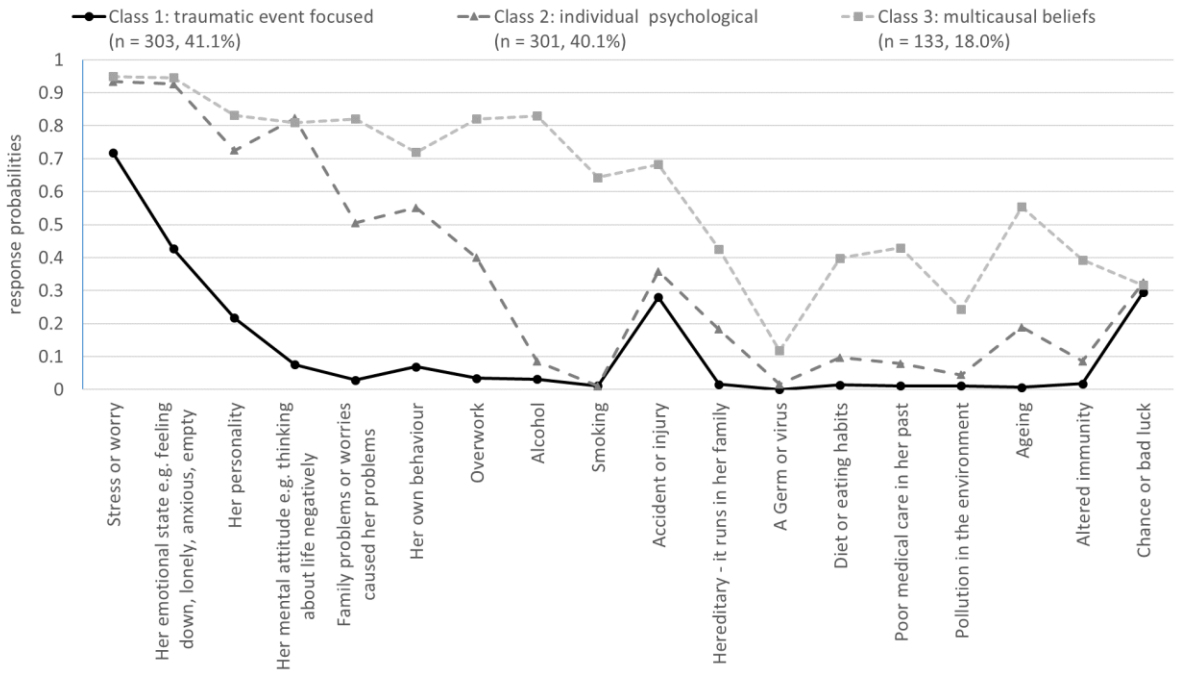

Figure 1. Estimated probabilities for the 3-class-solution.

2.4.3 Covariates of class membership

We examined differences among the observed classes by $\chi 2$-test, one-way ANOVA, and, where requirements for ANOVA were not met, the Kruskal-Wallis-test. Table 2 shows variable characteristics by class; numbers are given as percentage of category by class (e.g., 33.1% identified as male in the total sample, whereas the percentage of participants that identified as males was 27.7% in the traumatic event–focused class, 31.8% in the individual psychological class, and 48.1% in the multicausal beliefs class, respectively). The three classes differed in terms of country of residence, gender, education, previous occupation in the mental health field, probable PTSD, mental health literacy (recognizing PTSD), and the personal value orientations of self-direction (modern values), and tradition and security (traditional values). See Figure 2 for a

graphical representation of class membership by country. All variables with significant differences in the bivariate analyses were included in the multinomial logistic regression analysis.

Table 3

Variable characteristics for the overall sample and variable characteristics by latent classes for the 3-class solution. Pearson chi-square tests were conducted for categorical predictors (upper table) and one-way analyses of variance or Kruskal-Wallis-test were conducted for continuous predictors (lower table).

	N (% of category in class)				χ2-Test		
	Total sample (N = 737)	Traumatic event focused (N = 303)	Individual psychological (N = 301)	Multicausal beliefs (N = 133)	χ2	*df*	Cramer's V
Country of Residence					41.89***	8, 737	0.17
Mexico	60 (8.1)	26 (8.6)	21 (7.0)	13 (9.8)			
Ecuador	99 (13.4)	32 (10.6)	40 (13.3)	27 (20.3)			
Germany	261 (35.4)	122 (40.3)	102 (33.9)	37 (27.8)			
Greece	183 (24.8)	48 (15.8)	93 (30.9)	42 (31.6)			
Russia	134 (18.2)	75 (24.8)	45 (15.0)	14 (10.5)			
Working in Mental Health previously = Yes	98 (13.3)	52 (17.2)	32 (10.1)	14 (10.5)	6.67*	2, 737	0.10
Gender = Male [1]	243 (33.1)	84 (27.7)	95 (31.8)	64 (48.1)	17.66***	2, 735	0.16
Religion [2]					0.79	4, 737	0.03
Christian	417 (56.6)	165 (54.5)	175 (58.1)	77 (57.9)			
Other	81 (11.0)	35 (11.5)	32 (10.6)	14 (10.5)			
None	239 (32.4)	103 (34.0)	94 (1.3)	42 (31.6)			
Previous Help Seeking = Yes	356 (48.3)	158 (52.1)	136 (45.2)	62 (46.6)	3.116	2, 737	0.07
Migration = Yes	116 (15.7)	47 (15.5)	51 (16.9)	18 (13.5)	0.83	2, 737	0.03
Partnership = Yes	406 (55.1)	169 (55.8)	175 (58.1)	62 (46.6)	5.05	2, 737	0.08
Probable PTSD = Yes	165 (22.4)	58 (19.1)	64 (21.3)	43 (32.3)	9.62**	2, 737	0.11
Mental health literacy = recognized PTSD	264 (35.8)	131 (49.6)	93 (35.2)	40 (15.2)	12.33**	2, 737	0.13

	Mean (SD)				ANOVA / Kruskal-Wallis-Test		
	Total sample (N = 737)	Traumatic event focused (N = 303)	Individual psychological (N = 301)	Multicausal beliefs (N = 133)	F / $\chi 2$	*df*	$\eta 2$
Age	36.15 (13.90)	36.92 (13.96)	35.17 (13.71)	36.64 (14.17)	3.28	2, 737	0.002
Education	15.78 (4.72)	16.28 (4.79)	15.60 (4.45)	15.06 (5.08)	9.17*	2, 737	0.010
SSS	5.59 (1.48)	5.60 (1.48)	5.62 (1.45)	5.47 (1.53)	0.48	2, 737	0.001
WHO-5 Score	55.15 (21.16)	54.52 (21.50)	54.49 (20.94)	58.11 (20.75)	1.58	2, 737	0.004
Religiousness	2.74 (1.59)	2.76 (1.61)	2.81 (1.57)	2.54 (1.61)	2.27	2, 737	< 0.001
PRISM	15.09 (4.46)	14.78 (4.60)	15.10 (4.32)	15.77 (4.41)	4.98	2, 737	0.004
Personal value orientation							
PVQ-RR self direction[3]	0.71 (0.63)	0.80 (0.63)	0.69 (0.62)	0.55 (0.65)	8.03***	2, 737	0.021
PVQ-RR hedonism[3]	0.18 (0.80)	0.09 (0.83)	0.24 (0.78)	0.23 (0.77)	2.88	2, 737	0.008
PVQ-RR power[3]	-1.43 (0.93)	-1.48 (0.98)	-1.39 (0.88)	-1.39 (0.93)	0.81	2, 737	0.002
PVQ-RR conformity[3]	-0.18 (0.72)	-0.19 (0.75)	-0.19 (0.69)	-0.13 (0.70)	0.37	2, 737	0.001
PVQ-RR tradition[3]	-0.71 (0.72)	-0.78 (0.77)	-0.70 (0.69)	-0.59 (0.64)	3.56*	2, 737	0.010
PVQ-RR benevolence[3]	0.74 (0.51)	0.76 (0.54)	0.71 (0.51)	0.75 (0.45)	0.65	2, 737	0.002
PVQ-RR universalism[3]	0.35 (0.60)	0.38 (0.64)	0.36 (0.58)	0.25 (0.56)	2.11	2, 737	0.006
PVQ-RR stimulation[3]	-0.23 (0.88)	-0.27 (0.94)	-0.19 (0.85)	-0.26 (0.83)	1.33	2, 737	< 0.001
PVQ-RR achievement[3]	0.07 (0.80)	0.08 (0.86)	0.09 (0.76)	0.00 (0.70)	2.04	2, 737	< 0.001
PVQ-RR security[3]	0.30 (0.59)	0.34 (0.65)	0.24 (0.55)	0.36 (0.53)	9.47**	2, 737	0.010

Note. Descriptive statistics were computed based on the imputed dataset.
*p <0.05; **p <0.01; ***p <0.001.
[1]N = 735, two participants gave *other* as their gender and were excluded from analysis due to their small category size. [2] The categories *Buddhist, Hindu, Jewish, Muslim,* and *Other* were summarized as *Other* due to their small category sizes. [3]Values are mean centered at individual mean score over all PVQ-RR-scales in correspondence with author recommendations (Schwartz, 2017).
Abbreviations: PRISM, Pictorial Representation of Illness and Self Measure; PVQ-RR, portrait value questionnaire revised; SSS, subjective socioeconomic status; WHO-5, World Health Organization-Five Well-Being Index.

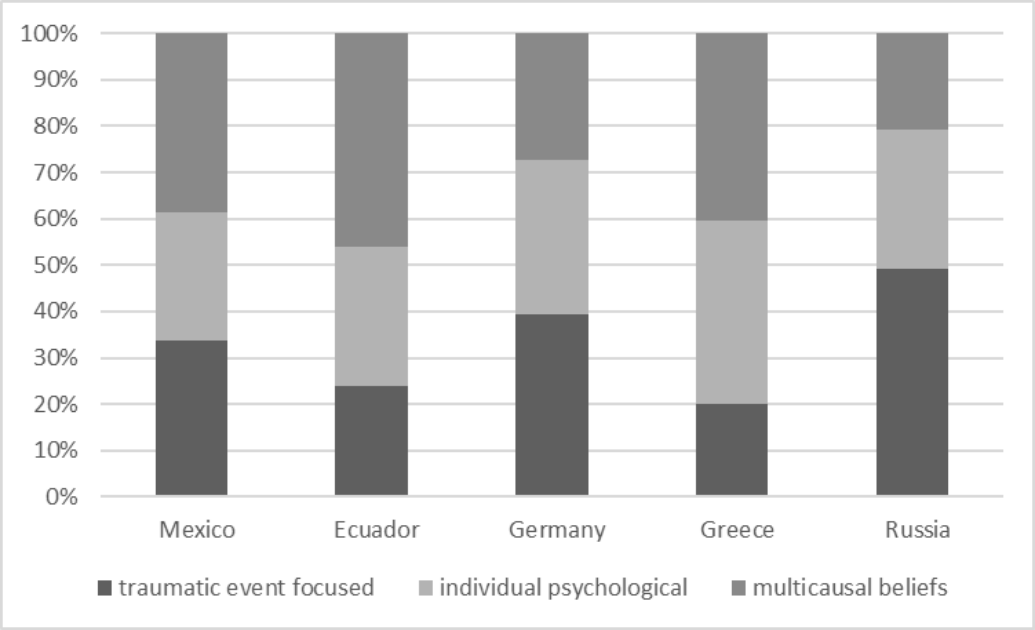

Figure 1. Percentage of class membership by country.

2.4.4 Multinomial logistic regression

Table 4 shows covariates of class membership as included in the regression model. Compared to the traumatic event-focused class, the likelihood for membership in the multiple causes class was significantly higher for participants from Greece or Ecuador, as well as for males and participants with probable PTSD, but lower for participants from Russia.

Compared to the traumatic event-focused class, the likelihood for being part of the individual psychological causes class was significantly higher for participants from Greece, but lower for participants from Russia. Participants who did not recognize PTSD in the vignette, and those who reported lower values on the personal value scale of security, were significantly more likely to be in the individual psychological class compared to the traumatic event–focused class.

Compared to the individual psychological causes class, the likelihood for males to be members of the multiple causes class was significantly higher, for participants with probable PTSD, and for participants who reported higher values on the PVQ-RR scale of security (Table 3). Years of education, having previously worked in a field related to mental health, and the personal value scales of tradition and self-direction did not emerge as significant covariates in regression analysis.

Table 4

Multinomial logistic regression predicting class membership.

	Estimates	**SE**	**OR**	**95 %-CI**	**p-value**
Multicausal beliefs vs. traumatic event focused (reference)					
Living in Mexico[a]	0.06	0.35	1.06	0.53-2.12	.873
Living in Ecuador[a]	**0.56**	**0.27**	**1.75**	**1.04-2.96**	**.037**
Living in Germany[a]	-0.21	0.22	0.81	0.53-1.24	.336
Living in Greece[a]	**0.65**	**0.24**	**1.92**	**1.2-3.06**	**.006**
Living in Russia[a]	**-1.06**	**0.30**	**0.35**	**0.19-0.62**	**<.001**
Male gender[b]	**0.83**	**0.25**	**2.28**	**1.39-3.75**	**.001**
Years of education	-0.04	0.03	0.96	0.91-1.01	.145
Previously worked in MH[c]	-0.32	0.34	0.73	0.37-1.42	.350
MHL: Recognition[d]	-0.43	0.27	0.65	0.38-1.1	.112
Probable PTSD[e]	**0.86**	**0.28**	**2.36**	**1.37-4.07**	**.002**
PVQ-RR: Self-direction[f]	-0.42	0.22	0.66	0.43-1.00	.052
PVQ-RR: Security[f]	0.06	0.22	1.06	0.69-1.62	.799
PVQ-RR: Tradition[f]	0.08	0.18	1.08	0.77-1.53	.648

	Estimates	SE	OR	95 %-CI	p-value
Individual psychological vs. traumatic event focused (reference)					
Living in Mexico[a]	-0.24	0.34	0.78	0.41-1.51	.466
Living in Ecuador[a]	0.31	0.26	1.36	0.81-2.28	.247
Living in Germany[a]	-0.11	0.18	0.89	0.63-1.27	.525
Living in Greece[a]	**0.67**	**0.21**	**1.96**	**1.30-2.94**	**.001**
Living in Russia[a]	**-0.62**	**0.22**	**0.54**	**0.35-0.82**	**.004**
Male gender[b]	-0.03	0.23	0.97	0.62-1.51	.891
Years of education	-0.03	0.02	0.97	0.93-1.01	.149
Previously worked in MH[c]	-0.48	0.32	0.62	0.33-1.15	.129
MHL: Recognition[d]	**-0.61**	**0.22**	**0.55**	**0.36-0.84**	**.006**
Probable PTSD[e]	0.16	0.25	1.17	0.72-1.91	.523
PVQ-RR: Self-direction[f]	-0.17	0.18	0.84	0.6-1.19	.325
PVQ-RR: Security[f]	**-0.43**	**0.18**	**0.65**	**0.45-0.93**	**.019**
PVQ-RR: Tradition[f]	-0.02	0.16	0.98	0.72-1.33	.904
	Estimates	**SE**	**OR**	**95 %-CI**	**p-value**
Multicausal beliefs vs. individual psychological (reference)					
Living in Mexico[a]	0.30	0.39	1.35	0.63-2.90	.439
Living in Ecuador[a]	0.25	0.28	1.29	0.75-2.22	.362
Living in Germany[a]	-0.1	0.24	0.91	0.56-1.46	.685
Living in Greece[a]	-0.02	0.23	0.98	0.62-1.54	.929
Living in Russia[a]	-0.44	0.32	0.65	0.34-1.22	.176
Male gender[b]	**0.86**	**0.26**	**2.35**	**1.40-3.95**	**.001**
Years of education	-0.01	0.03	0.99	0.94-1.05	.776
Previously worked in MH[c]	0.16	0.39	1.17	0.55-2.52	.684
MHL: Recognition[d]	0.18	0.29	1.19	0.67-2.12	.542
Probable PTSD[e]	**0.70**	**0.29**	**2.01**	**1.14-3.57**	**.017**
PVQ-RR: Self-direction[f]	-0.25	0.22	0.78	0.50-1.21	.267
PVQ-RR: Security[f]	**0.49**	**0.22**	**1.63**	**1.06-2.51**	**.027**
PVQ-RR: Tradition[f]	0.10	0.17	1.10	0.79-1.55	.569

Note. N = 735, two participants gave *other* as their gender and were excluded from regression analysis by listwise deletion due to their small group size. Categorical predictors were effect coded (deviation from unweighted grand mean) or dummy coded.

Positive estimates/ OR > 1 indicate that class membership is more likely compared to the reference group. Negative estimates/ OR < 1 indicate that class membership is less likely compared to the reference group.

[a]Coding for country of residence: deviation from unweighted grand mean. [b]0: Female; 1: Male. [c]0: Never worked in mental health; 1: Previous work in the field of mental health. [d]0: No PTSD; 1: Screened positive in self-report for probable PTSD (PTSD-Checklist for DMS-5, PCL-5). [e]0: Did not recognize PTSD in vignette; 1: Did recognize PTSD in vignette. [f]PVQ-RR, portrait value questionnaire revised; values are mean centered at individual mean score over all PVQ-RR scales in correspondence with author recommendations (Schwartz, 2017). Abbreviations: CI, confidence interval; MH, mental health; MHL, mental health literacy; OR, odds ratio; PTSD, post-traumatic stress disorder; SE, standard error.

2.5 Discussion

Our vignette study explored whether cultural and mental health–related characteristics are associated with causal beliefs for PTSD. To our knowledge, this is the first study applying LCA to causal beliefs about PTSD. This approach allowed us to find types of causal beliefs rather than compare approval to distinct constructs. It also enabled us to apply a multifaceted concept of culture and include a wide variety of covariates.

Three latent classes of causal beliefs about PTSD were identified: a traumatic event–focused class, whose members primarily identified traumatic stress as being responsible for the symptoms described in the vignette; a second individual psychological causes class, whose members also considered individual psychological factors to be likely causes; and a third multiple causes class whose members made the least distinction when identifying possible causes and mentioned a wide range of external psychosocial risk factors in addition to traumatic stress and individual psychological factors.

Overall, our findings accord with previous results in the field. First, among all latent classes, a majority of the participants identified traumatic stress as a potential cause, confirming previous results (e.g. May et al., 2014; Slewa-Younan et al., 2017) as well as the validity of the presented vignette. Second, the majority rejected biological causes in all classes, which is also in

agreement with previous results from predominantly Western populations (May et al., 2014; Spoont et al., 2005). Interestingly, more than half of the participants expressed agreement about there being more than one explanation. This indicates that different causal beliefs may in fact not compete with but complement each other, as has been suggested, for example, for psychological and spiritual models in non-Western populations (Furnham & Igboaka, 2007; Grupp et al., 2018).

Additional analysis revealed several cultural factors associated with class membership. First, country of residence and class membership were found to be significantly related. This is in line with previous studies comparing participants by ethnic or national origin and indicates that environmental factors are important for the development of causal beliefs about PTSD. Interestingly, differences in causal beliefs were also found between countries that might be perceived as having much in common because they are geographically close and have a common language, such as Mexico and Ecuador, or because they are part of a political union that cooperates on mental health policies, such as Germany and Greece. This is important, as it indicates that the often-used East–West dichotomy is outdated and has little predictive value and that, on the contrary, grouping countries on selective parameters may even be misleading in this way (Maercker, 2019). Second, gender and class membership were found to be significantly related, with males being more likely to be in the multiple causes class. In previous research, gender has not explicitly been considered a correlate of causal beliefs, but so far has only been included as a covariate (Grupp et al., 2018; Slewa-Younan et al., 2017). Our results indicate that gender should be included as a meaningful correlate when researching causal beliefs, and stress the importance of gender-sensitive approaches in all aspects of PTSD research (Olff, 2017). Third, regarding value orientation, security, which is considered a traditional value, was associated with class

membership. Participants who reported, for example, they would rather avoid dangers or indicated the importance of a country's safety and stability were less likely to be in the individual psychological class in comparison to the traumatic event–focused class and the multiple causes class. In previous research, traditional values have been connected to higher PTSD symptoms in German and Chinese crime victims (Maercker et al., 2009), and trauma victims were more likely to feel socially excluded and blamed for their symptoms in traditional groups (Bennett Herbert & Dunkel-Schetter, 1992). Our results indicate that people endorsing traditional values may be less likely to support psychological causal beliefs. Further research is needed to establish a better understanding of the complex interrelations between traditional values, causal beliefs, and PTSD symptoms. For all other cultural characteristics, no significant differences were found between classes. And, for several variables, differences between the classes were found on the bivariate level, but not when controlling for other covariates in the regression analysis. This underlines the importance of using multivariate methods when doing cultural clinical research. Results regarding age and education must be interpreted with care due to the limited representativeness of our sample, as previous studies have found both factors to be connected to certain aspects of causal beliefs (Grupp et al., 2018; Spoont et al., 2005). Particularly with regards to migration, perceived closeness to the country's culture and religion, it is possible that the relations with class membership cancelled one another out, since analyses were performed on the entire sample. A more detailed analysis at the country level may reveal differences in this respect.

Besides cultural and sociodemographic factors, mental health–related factors were also significantly related to causal beliefs. Participants recognizing PTSD were more likely to be in the traumatic event–focused class, and participants with probable PTSD were more likely to be in the

multiple causes class. It is possible that recognizing PTSD in someone else led participants to unidimensional and rather simple explanations, while people who themselves have PTSD symptoms might be more likely to endorse multicausal beliefs, owing to their own experiences when dealing with their illness (e.g., lack of social support, financial problems). However, these results must be interpreted with care as our overall sample exhibited unusually high rates of PTSD endorsement and PTSD rates differed considerably between countries. Overall, these results indicate that considering various cultural dimensions and controlling for mental health–related factors can be valuable additions when researching causal beliefs about mental disorders and cultural differences in general.

2.5.1 Limitations

The results of this study need to be interpreted in light of its limitations. First, data was collected using convenience sampling through an online survey. As can be seen in the sample characteristics, our participants were relatively young and well educated, and the majority of participants were female. Also, our overall sample exhibited unusually high rates of PTSD endorsement as we used a self-report screening instrument and PTSD rates differed considerably between countries. This should be taken into consideration when interpreting the results. Second, it must be noted that we chose an etic approach. While this approach allowed direct comparisons, it prevented us to include culturally specific emic aspects in our analysis. All the results of our study are highly dependent on the symptoms described in the vignette. Although the vignette was designed to be as descriptive as possible, it is based on DSM-5 criteria for PTSD, and is thereby already influenced by cultural beliefs and norms. This limitation also extends to our psychometric tools, since not all the questionnaires had validated translations in every language. Though we

chose validated versions wherever possible and followed recommendations for translating instruments closely, we cannot ensure, that measures are, in fact, measurement invariant. Third, the vignette method entails some problems, as its generalizability to clinical situations is limited and not all of the described symptoms are specific to a diagnosis of PTSD. Also, the study focused on causal beliefs for PTSD, and we did not examine other aspects of explanatory models, such as stigmatizing attitudes or potential cures. Lastly, our study included a small selection of countries and the results cannot be generalized to other countries.

2.5.2 Conclusions and implications

Integrating a more diverse concept of culture into mental health research can be a valuable addition to group comparisons based on nationality or ethnicity, which are still widely used in cultural clinical research. In addition to country of residence, our study revealed that, among laypersons, gender, mental health, knowledge about mental health, and personal values are significant covariates of causal beliefs for PTSD. Of further interest, we found systematic differences in countries that are geographically close or share a language. Research, therefore, needs to move away from transcultural comparisons towards a more integrated approach that attends to the complexity of cultural influences. Focusing on easily visible differences, such as ethnicity, may lead researchers to overestimate the influence of cultural aspects while neglecting other influential factors. Adopting a diverse concept of culture and including other contextual factors in research can help us acquire a more nuanced understanding of cultural influences in the development of causal beliefs and mental health in general. Considering causal beliefs in clinical practice should become an integral part of diagnostic processes and in treatment. Practitioners should be careful not to overestimate the influence of nationality or ethnic group on causal beliefs

and pay attention to individual causal beliefs and peoples' tendency to entertain multiple beliefs simultaneously. While cultural aspects clearly may account for differences in causal beliefs, other factors, such as gender, may be just as important.

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Appendix: Vignette

Imagine Mary, a fictitious person. Mary is about your age. For the past two months, she has been sleeping poorly. She often has vivid nightmares that cause her to frequently wake up in the middle of the night feeling very frightened. She is jumpy and easily startled and has lost interest in activities she previously enjoyed. This all began a few months ago, after an incident in which her life was endangered. Mary was out alone when two armed men threatened her with a knife and robbed her. After the incident, Mary felt numb for several days; then the nightmares began in which she still clearly sees the armed men. She is easily startled by unexpected noises. Since the event, Mary has been very afraid to go outside alone and expects danger at all times. She tries not to think about the assault and does not want to talk about it with others.

Author contributions for study 1

Christina Kampisiou, Caroline Meyer and Nadine Stammel designed the study and were responsible for the data collection. Caroline Meyer analyzed and interpreted the data and was the major contributor in writing the manuscript. Christina Kampisiou and Nadine Stammel contributed to the interpretation of data and critically revised earlier versions of the manuscript. Christine Knaevelsrud and Nadine Stammel supervised the study. All authors revised the manuscript and have approved the final version.

Chapter 3

Study 2: Do Gender and Country of Residence Matter? A Mixed Methods Study on Lay Causal Beliefs about PTSD

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Do Gender and Country of Residence Matter? A Mixed Methods Study on Lay Causal Beliefs about PTSD

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Abstract for study 2

Background: Laypersons' causal beliefs about mental disorders can differ considerably from medical or psychosocial clinicians' models as they are shaped by social and cultural context and by personal experiences.

Objective: This study aimed at identifying differences in causal beliefs about post-traumatic stress disorder (PTSD) by country and gender.

Methods: A cross-sectional, vignette-based online survey was conducted with 737 participants from Germany, Greece, Ecuador, Mexico, and Russia. Participants were presented with a short unlabeled case vignette describing a person with symptoms of PTSD. Causal beliefs were assessed using an open-ended question asking for the three most likely causes. Answers were analyzed using thematic analysis. Afterwards, themes were transformed into categorical variables to analyze differences by country and by gender.

Results: Qualitative analyses revealed a wide range of different causal beliefs. Themes differed by gender, with women tending to mention more external causal beliefs. Themes also differed between the five countries but the differences between countries were more pronounced for women than for men.

Conclusions: In conclusion, causal beliefs were multifaceted among laypersons and shared basic characteristics with empirically found derived risk factors. The more pronounced differences for women suggest that potential gender effects should be considered in cross-cultural research.

Differences between the five countries were more pronounced for women than for men, which suggests that gender effects should be considered in cross-cultural research.

3.1 Introduction

Posttraumatic stress disorder (PTSD) is a common mental disorder that can develop in the aftermath of experiencing a traumatic event such as assault, natural disasters, or accidents. PTSD comprises disrupting symptoms such as recurring memories of the traumatic event, avoidance of thoughts, negative changes in thinking and mood and hypervigilance (American Psychiatric Association, 2013). Across the world, the lifetime prevalence of PTSD varies between 1% and 9%, with prevalence rates being influenced by political, historical, and cultural factors across countries. Especially in low-income and post-conflict countries, the prevalence of traumatic exposure and PTSD can be substantially higher (Atwoli et al., 2015; ESEMeD/MHEDEA Investigators et al., 2004; Keane et al., 2006). While PTSD is caused by a preceding traumatic event, traumatic exposure does not necessarily lead to PTSD, indicating a multifactorial etiology (Keane et al., 2006). Meta-analyses have identified several risk factors, differentiating between factors before, during, and after the trauma (Brewin et al., 2000; Ozer et al., 2003; Tolin & Foa, 2008). Among the most important risk factors were specific characteristics during the traumatic situation, such as perceived life-threat or dissociation and general life stress or lack of social support in the aftermath of experiencing trauma. The authors also identified several sociodemographic factors and experiences before the trauma, including being female, having a lower socio-economic status, belonging to a racial minority, prior trauma, childhood adversities, and history of psychopathology in the family.

Not unlike clinicians, laypersons hold beliefs about possible causes for their own symptoms or those of others. These lay causal beliefs show similarities to the multifactorial etiological models of clinicians and are often multilayered and complex. At the same time, they are less static and

likely to change over time or in response to contextual factors and experiences (Dinos et al., 2017; Kirmayer & Bhugra, 2009). As causal beliefs also shape beliefs about appropriate and effective treatments, they are highly relevant for clinical psychology (Dinos et al., 2017; Yaser et al., 2016). Accordingly, the lack of understanding about the causes and correlates of mental illness can be a significant barrier to help-seeking (Jorm, 2012; Slewa-Younan et al., 2019).

Cultural differences have been the major research focus of causal beliefs in the past. So far, most studies on causal beliefs about PTSD have focused on refugee populations (Averous et al., 2021; Byrow et al., 2020; Ghane, 2011). Qualitative studies have shown that refugees often hold various causal beliefs about mental distress. Commonly identified themes in these studies were traumatic life experiences, psychological causes, social causes, religious or spiritual causes, gender-related factors, and causes directly linked to being a refugee, such as flight experience, post-migration stressors, or discrimination (Affleck et al., 2018; Al-Roubaiy et al., 2017; Alemi et al., 2014; Bettmann et al., 2015; Grupp et al., 2018; Owen, 2018; Poudel-Tandukar et al., 2019; Quinn, 2014; Shannon et al., 2015). In quantitative studies, traumatic experiences, interpersonal or social conflicts, being female, and aging were most commonly reported as risk factors (Alemi et al., 2016; Kuittinen et al., 2017; May et al., 2014; Slewa-Younan et al., 2017).

Studies on causal beliefs about PTSD in Western laypersons are exceptionally scarce. Spoont et al. (2005) studied causal beliefs in predominantly male US veterans using the Illness Perception Questionnaire (Weinman et al., 1996) and found higher agreement with psychosocial than with biological causal beliefs. In their study, agreement on biological causal beliefs was predicted by lower levels of education and higher age, but aside from biological and psychosocial factors, no other causal beliefs were assessed. Some quantitative studies comparing causal beliefs

have also included both refugees and participants born in the respective Western host country. While all participants expressed causes related to the traumatic event and psychological causes, in some refugee populations, participants were more likely to express spiritual and biological causal beliefs compared to participants from their Western host country (Grupp et al., 2018; May et al., 2014). Similar results were found for patients from Iran compared to patients from Germany (Reichardt et al., 2018). Cultural differences in causal beliefs have, for example, been attributed to specifics of mental health systems, to the role of religion in everyday life, or to refugee status (Grupp et al., 2018; Reichardt et al., 2018; Slewa-Younan et al., 2017). Few studies have additionally considered gender-based differences, and overall results have been inconclusive. Qualitative studies targeting refugee populations have found differences in the way women and men perceive causes and possible treatments for mental illnesses (Brea Larios et al., 2022; Kuittinen et al., 2017). While women tended to mention factors related to society, structural violence, gender-roles or lack of social support in the community, men tended to focus on intrapersonal characteristics, such as psycholo[i]gical or somatic causes. In contrast, a quantitative study with patients from Iran and Germany did not find any significant effect of gender on causal beliefs (Reichardt et al., 2018).

Clinical research in transcultural contexts presents unique challenges and therefore requires careful consideration of adequate methods and frameworks that can be used to answer complex research questions (Maercker, 2019). An interesting approach is presented by the intersectionality theoretical framework. According to this framework, multiple social categories (e.g., gender, ethnicity, race) intersect at the individual level of experience with large-scale social-cultural processes and institutionalized relationships resulting in power differentials (Collins, 2015;

Crenshaw, 1991). In the context of mental health, this alludes to the intersection of multiple sources of influence on mental health and well-being (Guruge & Khanlou, 2004). By examining multiple aspects of identity simultaneously to study their impact on mental health, it offers a novel perspective for cultural clinical research (Cole, 2009; Grzanka, 2020). Thereby, this approach can provide important insights into the health needs and experiences of marginalized populations and can contribute to improving health care practices (Powell Sears, 2012). Several studies have used the intersectional framework to study the combined effects of cultural factors and other aspects of social identity, such as age, class, sexual orientation, or gender (Adames et al., 2018; Goodwin et al., 2018; Kim-Puri, 2005; Lane et al., 2010; Purkayastha, 2012; Warner & Brown, 2011).

The aims of this study were twofold. First, the study aimed at a broader understanding of lay causal beliefs in a cross-cultural sample from five countries. It was hypothesized that participants would support a wide range of causal beliefs about PTSD (hypothesis 1). Second, by using an intersectional approach, the study aimed at gaining a better understanding of how gender and country interact as correlates of causal beliefs. In line with previous studies, it was assumed that participants' causal beliefs would differ by country of residence (hypothesis 2) and by gender (hypothesis 3). It was additionally assumed that there are interactions between the person's gender and country of residence for causal beliefs about PTSD, thus that results would differ for male and female participants for each country (hypothesis 4).

3.2 Materials and Methods

A cross-sectional, online vignette-based study was conducted from February 2019 to May 2019. Laypersons in Germany, Russia, Ecuador, Mexico, and Greece were surveyed using Unipark

(Questback GmbH, 2018). The research ethics committee of Freie Universität Berlin approved this study (202/2018).

3.2.1 Participants

Participants with a minimum age of 18 who lived in one of the five target countries at the time of the study could participate. The survey was accessible via a link that was distributed over internet platforms, social media advertisements and postings (e.g., Facebook, Twitter, VKontakte, Instagram), health-related online forums, institutional and university mailing lists, and local organizations. Recruitment strategies targeted participants of different ages and interest groups with diverse educational and occupational backgrounds to create a diverse sample. Before giving their informed consent, participants were informed about the aims of the study, its duration as well as privacy aspects. To increase the rate of consent and completion of the survey participants were offered a chance to participate in a raffle for shopping vouchers. The incentives were vouchers to widely used regional stores or companies that were attractive to a large sector of the population and could thus ensure a representative sample. Participants were informed beforehand that the survey was completely anonymous and apart from demographic data, no personal data would be collected. For entering the raffle, participants were directed to a second survey, where the email-address was collected independently from the main survey to ensure anonymity. For each country one voucher worth €100 and five vouchers worth €20 (or of equal worth in the corresponding national currency) were raffled among those who gave their email-address.

3.2.2 Study Design

Vignette

A short unlabeled case vignette describing a fictitious person with PTSD symptoms (according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition [DSM-5](American Psychiatric Association, 2013)) was presented to the participants. To aid identification and to ensure that participants would answer as if they themselves were in a similar situation, the gender of the fictitious person in the vignette (Maria/Alexander) was matched to the gender of the participant:

"I would like you to imagine Maria, a fictitious person: Maria is about your age. For the past two months, she has been sleeping poorly. She often has vivid nightmares and therefore she frequently wakes up in the middle of the night feeling very frightened. She is jumpy and easily startled and has lost interest in activities she enjoyed before. This all began a few months ago, after an incident in which she saw her life in danger. Maria was out alone, when she was threatened with a knife and robbed by two armed men. After the incident, Maria felt numb for several days and then the nightmares began. She still sees the armed men clearly in her nightmares. When she hears an unexpected noise, she gets easily startled. Maria has been very afraid to go outside alone since the event and expects danger at all times. She tries not to think about the assault and does not want to talk to others about it."

Open-Ended Question

After answering two standardized questionnaires which listed various possible causes for Maria's/Alexander's symptoms (Eisenbruch, 1990; Moss-Morris et al., 2002), participants were

asked to name the three causes they thought were the most likely for the problems described in the vignette: “Finally, please tell us which three factors you think are most responsible for Maria’s problems. You can do this by naming a possible cause from the previous list or by taking a cause that is not mentioned.”

Quantitative Measures and Sociodemographic Variables

Participants gave information regarding their country of residence, age, years of education, and self-identified gender (“male”, “female”, or “diverse”). The vignette and all measures were administered in the respective national languages of the included countries (German, Greek, Spanish, and Russian). All material was subjected to a three-step approach to obtain valid translated measures. 1. Two bilingual mental health professionals translated and 2. back-translated the vignette and questionnaires for each language, and 3. agreed on a translation after discussing possible discrepancies. Afterwards, all involved translators and the authors (C.M., N.S., and C.K. [Christina Kampisiou]) discussed potentially ambiguous expressions to ensure that the interpretation would be as similar as possible for all participants.

3.2.3 Data Analysis

Prior to all analyses, respondents who were assumed to have answered items randomly were excluded to ensure data quality. Following Meade and Craig (2012), several indicators were determined for each participant to identify these so-called careless respondents by using the ‘careless’ package in R4.0.2 (R Core Team, 2021), including the duration of participation, LongString and the Psychometric Synonyms Index as overall measures as well as intraperson variance and Mahalanobis distance for each separate scale. Participants, who were flagged on one

or more indicators, were rated independently by two of the authors (C.M., C.K. [Christina Kampisiou])). When careless data patterns became apparent, these persons were excluded from the study. In case of disagreement, a consensus was reached by discussion. For the remaining participants, the proportion of missing values was less than 0.5% for each variable. To avoid listwise deletion, missing values were dealt with using expectation-maximization-based single value imputation, as implemented in the Statistical Package for Social Sciences (SPSS), Version 27.0 (IBM Corp, 2020). Before conducting the thematic analysis, all answers given to the open-ended question were translated by bilingual clinical psychologists into the native language (German) of the two analyzing authors.

Qualitative Analysis

Thematic analysis is a relevant and flexible qualitative approach that is suitable in research conducted by teams and in the analyses of large qualitative data sets (Braun & Clarke, 2006). In this study, two researchers (C.M. and L.H.) analyzed the data in a rigorous and methodical manner. The coding was conducted inductively as there were no presumptions regarding the themes that might emerge from the analysis. As the format of the question encouraged participants to give short answers with a clear focus and did not give a lot of contextual information, coding was conducted on a semantic level. Both C.M and L.H. are clinical psychologists and have previously worked with patients with trauma-related disorders from several cultural backgrounds.

Following recommendations by Braun and Clarke (2006), at first, the researchers read through the participants' answers several times to familiarize themselves with the data. Afterwards, initial codes were generated independently by the two researchers to aggregate similar statements. After 25% of the data had been coded, codes were discussed between the researchers and a

preliminary code system was developed. Based on the preliminary code system the entire qualitative data set was coded independently by both researchers, who continuously added new codes which they noticed in the data. Subsequently, the coded segments were compared, and discrepancies were discussed and agreed upon. L.H. and C.M. then jointly searched for themes into which the codes could be organized (first-order themes), which were again grouped into higher-order themes (second-order themes). After the initial creation of themes, they were reviewed again and the resulting thematic map was presented to two co-authors (N.S., C.K. [Christina Kampisiou])) to discuss controversies and verify the coherence of the themes. Finally, all themes were defined and named and a hierarchical system of first- and second-order themes resulted. The qualitative analysis was performed using MAXQDA 2020 (VERBI Software, 2019).

Quantitative Analysis

All first- and second-order themes resulting from the thematic analysis were transformed into dichotomous variables (0 = theme not mentioned, 1 = theme mentioned) to allow for quantitative data analysis. Frequencies were calculated for all first- and second-order themes. Afterwards, the second-order themes were analyzed for differences concerning country of residence and gender using Fisher's exact test. To determine whether a person's gender interacted with the effect of the country of residence, Fisher's exact test was performed separately for men and women. Cohen's ω was calculated to measure the size of the effect, with $\omega = 0.1$ indicating a small effect, $\omega = 0.3$ indicating a medium effect, and $\omega = 0.5$ indicating a large effect (Bortz & Schuster, 2011). Variables with assigned p-values < 0.05 were considered statistically significant. For post-hoc testing, Hochberg's pairwise testing was used to correct for multiple testing as suggested in non-balanced designs (Armstrong, 2014; Benjamini & Hochberg, 1995). All

statistical analyses were performed with R4.0.2 (R Core Team, 2021). Two participants self-identified their gender as "diverse" and were excluded from all analyses including gender as a variable due to the small group size.

3.3 Results

3.3.1 Sample Characteristics

The vignette was shown to N = 853 participants. Of those, 97 did not complete the survey and another 19 participants were excluded for giving careless responses. The interrater reliability on exclusion due to careless response patterns was excellent ([κ=.84](Landis & Koch, 1977)). The final sample consisted of N = 737 participants (492 females, 66.8%). The age ranged from 18 to 78 years (M = 36.2, SD = 13.9). Sample characteristics for the total sample as well as by country are given in Table 1. The sample has been described in more detail elsewhere (Meyer et al., 2022).

Table 1

Sample description by current country of residence.

	Total (N = 737)	**Germany (N = 261)**	**Russia (N = 134)**	**Ecuador (N = 99)**	**Mexico (N = 60)**	**Greece (N = 183)**
Gender						
Female	492 (66.8%)	184 (70.5%)	100 (74.6%)	54 (54.5%)	37 (61.7%)	117 (63.9%)
Male	243 (32.9%)	76 (29.1%)	34 (25.4%)	45 (45.5%)	23 (38.3%)	65 (35.5%)
Diverse	2 (0.3%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.6%)
Age (mean [SD])	36.2 (13.9)	36.2 (15.1)	36.8 (14.2)	35.0 (12.2)	31.3 (10.7)	37.9 (13.4)
Years of education (mean [SD])	15.8 (4.7)	15.7 (5.0)	16.4 (3.1)	15.4 (5.5)	13.5 (7.1)	16.4 (3.6)

3.3.2 Qualitative Data Analysis

In total, 2404 statements about causal beliefs were coded and assigned to the category system by thematic analysis. Forty-nine first-order themes emerged from the initial codes and were categorized into eight second-order themes that are described in more detail in the following part. A comprehensive list of all first- and second-order themes can be found in Table 2.

Table 2

Percentage of participants mentioning each causal belief according to the thematic analysis of responses to naming the most likely causes.

Second-Order Theme	First-Order Theme	N	%
Emotional, cognitive, and behavioral reactions		**452**	**61.3**
	Stress or worries	267	36.2
	Anxiety	162	22.0
	Mental burden	143	19.4
	Reduced sense of security	92	12.5
	Worldview shattered	26	3.5
	Feeling helpless/vulnerable	23	3.1
	Feelings of humiliation	12	1.6
	Feeling nervous/tense	12	1.6
	Problems with sleeping	11	1.5
	Negative thoughts	10	1.4
	Reexperience	3	0.4
	Subconscious	2	0.3
	Pain	1	0.1
Characteristics of the person		**340**	**46.1**
	Personality	133	18.0

	Biological factors	82	11.1
	Previous experiences	77	10.4
	Attitude	72	9.8
	Low self-esteem	18	2.4
	Resilience	11	1.5
	Weakness	10	1.4
	Predisposition	9	1.2
	Education	1	0.1
Reference to the event		**290**	**39.3**
	Traumatic event	150	20.4
	Attack/assault	122	16.6
	Experiencing violence	31	4.2
	Stress related to the attack	10	1.4
	Behavior in the situation	8	1.1
Social and societal factors		**210**	**28.5**
	Lack of support	105	14.2
	Lack of therapy/professional support	52	7.1
	Societal problems	47	6.4
	Financial problems	23	3.1
	Social environment	21	2.8
	No legal consequences	1	0.1
Inappropriately dealing with distress		**183**	**24.8**
	Lack of communication about the attack	48	6.5
	Lack of processing the attack	42	5.7
	Lack of self-help strategies	36	4.9
	Not seeking help proactively	30	4.1

	Own behavior	25	3.4
	Avoidance	24	3.3
	Substance abuse	13	1.8
	Not being able to overcome the past	8	1.1
	Lack of positive experiences	1	0.1
Problems in everyday life		**123**	**16.7**
	Problems in everyday life	123	16.7
Mental disorders		**122**	**16.6**
	Shock	62	8.4
	Trauma-related disorders	40	5.4
	Anxiety disorders	14	1.9
	Depression	7	0.9
	Mental disorder	6	0.8
Spirituality		**37**	**5.0**
	Spirituality	37	5.0

Emotional, cognitive, and behavioral reactions: Participants mentioned a wide range of emotional or behavioral reactions, such as feelings of anxiety and humiliation, a reduced sense of security, negative thoughts, or problems with sleeping ("Maria's mental health", "difficulties, finding trust in other people", "feelings of shame and guilt", "she experienced herself as powerless").

Characteristics of the person: Participants made references to certain characteristics of the person described in the vignette in several ways. Several participants mentioned the person's character in general or certain personality traits as likely causes ("anxious personality", "her

personality", "he is a weak character", "shyness", "she is generally very sensitive") along with several biological factors lying within the person ("illness", "problems with immunity", "genetic disposition", "the process of aging"), and their attitude ("nihilistic thinking", "negativism", "her attitude towards life"). Some participants also mentioned previous experiences of the person that may have contributed to the problems ("problems in childhood", "negative experiences in the past", "she might have been abused as a child, and the attack brought those memories to the surface"). One person also mentioned education as a potential cause ("level of education").

Reference to the event: Participants made references to the attack described in the vignette in several ways. Some merely referred to the event ("the attack", "being assaulted", "a sudden and unexpected attack", "the event that threatened his life", "it was the men with the knives"), while others focused on the violent nature of the attack ("being the victim of aggression", "experiencing violence") or clarified that they considered the event to be traumatic ("traumatic event", "he had a traumatizing experience"). Some participants also commented on the behavior in the situation ("she was unable to react", "defensive behavior encourages an attack").

Social and societal factors: Participants mentioned several issues that lay outside the person and can be found either on the societal level ("poverty", "increased crime in the area", "she has done something that is considered taboo for the society in which she lives"), or in the direct surroundings of the person ("living in an environment where she feels insecure", "living conditions in the neighborhood", "fear of being insulted for being involved in the attack", "social surroundings"). Several participants also mentioned lack of support, either on a professional level ("lack of psychological support services in his local community", "poor medical care", "lack of psychotherapy") or on an informal level ("lack of social contacts, too little help from others", "lack

of stable, close relationships and family ties that help to ease anxiety", "she did not get any help after the event").

Inappropriately dealing with distress: Several participants mentioned factors related to the person's dealing with distress, mostly commenting on inappropriate or unfavorable dealing with the situation. This included a general lack of self-help strategies ("not providing reassurance, e.g., through mindfulness techniques, relaxation", "he cannot handle emotions"), but also not seeking help proactively ("he refuses to take help from others", "maybe she does not know where to get help", "lack of courage to seek professional help") and the lack of communicating about their problems with others ("she doesn't want to talk to anyone about the problem, which makes them seem bigger and scarier, thereby making her worse", "not having talked to anyone about it") most likely lead to the person's problems. Participants also mentioned several specific strategies they thought were inappropriate, such as substance abuse ("consumption of alcohol", "drug abuse", "addiction"), a lack of processing or avoidance ("he is afraid of facing his problems", "his psychological trauma has not been processed", "she refuses to accept and talk about what happened"), and not being able to overcome the past ("having ongoing thoughts/worries about this event", "she cannot forget what happened to her").

Problems in everyday life: Participants mentioned several problems in everyday life that could have contributed to the problems, for example, work-related problems ("problems at the workplace", "being overworked", "unemployment") or problems with their family ("problems in the family", "worries about his family", "conflicts in the family"). Some participants also commented on this on a broader level, such as being in a difficult situation ("Maria was already in

a difficult place", "he has a boring life", "having an unsuccessful life") or pursuing a problematic lifestyle ("constant stress", "problematic habits", "maybe she does not eat healthy").

Mental disorders: In addition to nonspecific mentions of emotional and behavioral reactions, participants also made reference to several mental disorders, such as anxiety disorders ("panic attacks", "phobias"), depression ("depression"), or trauma-related disorders ("psychological trauma", "she has post-traumatic stress", "PTSD").

Spirituality: Few participants mentioned explicitly spiritual or religious issues as the most likely causes ("karma", "crisis of faith", "religion"), but several participants mentioned fate as a possible cause ("bad luck", "fate").

In summary, a wide range of causes was found in the answers, indicating that participants held a variety of different explanations for the problems depicted in the vignette. These themes included also other domains of explanatory models, such as labels, specific symptoms, and help-seeking recommendations. Also, most participants expressed support for more than one of the second-order themes, indicating that many held multicausal beliefs. For a more in-depth understanding, this was further explored in the quantitative analysis.

3.3.3 Quantitative Data Analysis

All first- and second-order themes resulting from the thematic analysis were transformed into dichotomous variables for quantitative data analysis. On average, participants mentioned 2.4 second-order themes (min = 0, max = 6). A large majority of participants mentioned at least two second-order themes (89%) and almost half (43.8%) mentioned even three or more second-order themes. Table 2 reports the percentage of participants mentioning each theme for all first- and

second-order themes. Among the second-order themes, *emotional, cognitive, and behavioral reactions* was most frequently mentioned (61.3%), followed by *characteristics of the person* (46.1%), and *reference to the event* (39.3%). Less frequently named were the themes *social and societal factors* (28.5%), *inappropriately dealing with distress* (24.8%), *problems in everyday life* (16.7%), and *mental disorders* (16.6%). Least frequently mentioned was the theme *spirituality* (5.0%). Themes were relatively independent from each other, only weakly correlated ($r = -0.26$ to $r = 0.07$), and showed no systematic patterns in overlap (Appendix A).

Themes by Country of Residence

To investigate differences in causal beliefs across the five countries, the frequencies of all second-order themes were compared using Fisher's exact test (see Table 3 for details). For six out of eight second-order themes, significant differences were found between the countries. However, post-hoc tests revealed relatively few significant differences when testing pairwise. Although causal beliefs differed between the five countries, in most cases, the differences were only significant for the countries on each extreme of the continuum (e.g., for the second-order theme *characteristics of the person* when comparing Mexico with the lowest rate of mentions [30.0%] vs. Greece with the highest rates of mentions [55.2%]; see Table 3). In summary, no systematic pattern emerged and the overlap between the five countries was considerable.

Table 3

Percentage of participants mentioning the second-order theme according to the thematic analysis presented by current country of residence. p-values were calculated with Fisher's exact test.

	Germany (N=261)	**Russia (N=134)**	**Ecuador (N=99)**	**Mexico (N=60)**	**Greece (N=183)**	***p*-Value**	**Sig. Pairwise Comparisons [1]**
Emotional, cognitive, and behavioral reactions	151 (57.9%)	88 (65.7%)	63 (63.6%)	32 (53.3%)	118 (64.5%)	0.295	
Characteristics of the person	117 (44.8%)	53 (39.6%)	51 (51.5%)	18 (30.0%)	101 (55.2%)	0.004 **	Greece > Mexico**
							Mexico > Greece*
Reference to the event	132 (50.6%)	40 (29.9%)	41 (41.4%)	28 (46.7%)	49 (26.8%)	<0.001 ***	Germany > Greece***
							Germany > Russia***
Social and societal factors	68 (26.1%)	56 (41.8%)	20 (20.2%)	16 (26.7%)	50 (27.3%)	0.003 **	Russia > Germany*
							Russia > Ecuador**
							Germany > Ecuador**
Inappropriately dealing with distress	96 (36.8%)	35 (26.1%)	16 (16.2%)	15 (25.0%)	21 (11.5%)	<0.001 ***	Germany > Greece***
							Russia > Greece**
Problems in everyday life	30 (11.5%)	24 (17.9%)	14 (14.1%)	8 (13.3%)	47 (25.7%)	<0.001 ***	Greece > Germany**
Mental disorders	38 (14.6%)	31 (23.1%)	21 (21.2%)	12 (20.0%)	20 (10.9%)	0.024 *	
Spirituality	14 (5.4%)	9 (6.7%)	1 (1.0%)	2 (3.3%)	11 (6.0%)	0.252	

Note. [1] Hochberg's pairwise testing was performed to correct for multiple testing. ">" indicates that participants from this country were more likely to mention this second-order theme when compared pairwise.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Themes by Gender

To investigate differences in causal beliefs among women and men, the frequencies of all second-order themes were compared using Fisher's exact test (see Table 4 for details). For three out of eight second-order themes, significant differences were found between women and men. As in the overall sample, the second-order theme, *emotional, cognitive, and behavioral reactions* was most frequently mentioned for both genders, followed by *characteristics of the person,* and *reference to the event*. In direct comparison, however, a significantly higher percentage of women mentioned the themes *reference to the event, social and societal factors*, and *inappropriately dealing with distress* compared to men.

Table 4

Percentage of participants mentioning the second-order theme according to the thematic analysis presented by gender. p-values for gender differences were calculated with Fisher's exact test.

	Female (N = 492)	**Male (N = 243)**	***p*-Value**
Emotional, cognitive, and behavioral reactions	305 (62.0%)	145 (59.7%)	0.574
Characteristics of the person	219 (44.5%)	120 (49.4%)	0.238
Reference to the event	209 (42.5%)	80 (32.9%)	0.013 *
Social and societal factors	155 (31.5%)	54 (22.2%)	0.009 **
Inappropriately dealing with distress	134 (27.2%)	49 (20.2%)	0.037 *
Problems in everyday life	77 (15.7%)	46 (18.9%)	0.294
Mental disorders	83 (16.9%)	39 (16.0%)	0.833
Spirituality	20 (4.1%)	17 (7.0%)	0.106

Note. N = 735. Two participants self-identified as "diverse" and were excluded from the analysis due to the small group size. * $p < 0.05$, ** $p < 0.01$.

Comparison by Country and Gender

To investigate possible interactional effects of gender and country of residence, Fisher's exact test to test for differences between the five countries was performed separately for men and women and Cohen's ω was calculated to measure the size of the effect.

Results on the country-level differed between the male and the female sample, indicating a possible moderating effect of gender on the differences between countries (Table 5). For three second-order themes, there were significant differences between the countries in the female sample but not in the male sample, namely r*eference to the event* ($p < 0.001$, $\omega = 0.23$)*, social and societal factors* ($p = 0.004$, $\omega = 0.17$)*,* and *problems in everyday life* ($p = 0.002$, $\omega = 0.19$)*.* The second-order theme *inappropriately dealing with distress* was the only one that showed significant differences between the countries for both samples with equally high effect sizes ($p < 0.001$, $\omega = 0.24$ for females vs. $p < 0.001$, $\omega = 0.25$ for males). Besides, significant differences between the countries were not found in the male sample for any of the second-order themes.

Table 5

Percentage of participants mentioning the second-order theme according to the thematic analysis presented by current country of residence for female (upper table) and male (lower table) participants. p-values were calculated with Fisher's exact test.

FEMALES

	Germany (N = 184)	Russia (N = 100)	Ecuador (N = 54)	Mexico (N = 37)	Greece (N = 117)	*p*-Value	Cohen's ω
Emotional, cognitive, and behavioral reactions	107 (58.2%)	67 (67.0%)	35 (64.8%)	21 (56.8%)	75 (64.1%)	0.560	0.08
Characteristics of the person	83 (45.1%)	39 (39.0%)	24 (44.4%)	11 (29.7%)	62 (53.0%)	0.098	0.13
Reference to the event	96 (52.2%)	31 (31.0%)	29 (53.7%)	20 (54.1%)	33 (28.2%)	<0.001 ***	0.23
Social and societal factors	46 (25.0%)	46 (46.0%)	13 (24.1%)	11 (29.7%)	39 (33.3%)	0.008 **	0.17
Inappropriately dealing with distress	73 (39.7%)	27 (27.0%)	9 (16.7%)	8 (21.6%)	17 (14.5%)	<0.001 ***	0.24
Problems in everyday life	20 (10.9%)	16 (16.0%)	6 (11.1%)	3 (8.1%)	32 (27.4%)	0.003 **	0.19
Mental disorders	29 (15.8%)	24 (24.0%)	11 (20.4%)	6 (16.2%)	13 (11.1%)	0.126	0.12
Spirituality	6 (3.3%)	7 (7.0%)	0 (0.0%)	1 (2.7%)	6 (5.1%)	0.260	0.10

MALES

	Germany (N = 76)	Russia (N = 34)	Ecuador (N = 45)	Mexico (N = 23)	Greece (N = 65)	*p*- value	Cohen's ω
Emotional, cognitive, and behavioral reactions	43 (56.6%)	21 (61.8%)	28 (62.2%)	11 (47.8%)	42 (64.6%)	0.651	0.10
Characteristics of the person	34 (44.7%)	14 (41.2%)	27 (60.0%)	7 (30.4%)	38 (58.5%)	0.061	0.19
Reference to the event	35 (46.1%)	9 (26.5%)	12 (26.7%)	8 (34.8%)	16 (24.6%)	0.057	0.20
Social and societal factors	21 (27.6%)	10 (29.4%)	7 (15.6%)	5 (21.7%)	11 (16.9%)	0.342	0.14
Inappropriately dealing with distress	23 (30.3%)	8 (23.5%)	7 (15.6%)	7 (30.4%)	4 (6.2%)	0.002 **	0.25
Problems in everyday life	10 (13.2%)	8 (23.5%)	8 (17.8%)	5 (21.7%)	15 (23.1%)	0.515	0.11
Mental disorders	9 (11.8%)	7 (20.6%)	10 (22.2%)	6 (26.1%)	7 (10.8%)	0.190	0.16
Spirituality	8 (10.5%)	2 (5.9%)	1 (2.2%)	1 (4.3%)	5 (7.7%)	0.550	0.12

Note. N = 735. Two participants self-identified as "diverse" and were excluded from the analysis due to the small group size. ** $p < 0.01$, *** $p < 0.001$.

3.4 Discussion

3.4.1 Causal Beliefs in Laypersons

This vignette study explored causal beliefs in laypersons for PTSD using a mixed methods approach combining qualitative and quantitative analyses. The first aim of this study was to gain a better understanding of lay causal beliefs in a non-refugee, cross-cultural sample. The qualitative thematic analysis resulted in 49 first-order themes that were categorized into eight second-order themes, namely *emotional, cognitive, and behavioral reactions; characteristics of the person; reference to the event; social and societal factors; inappropriately dealing with distress; problems in everyday life; mental disorders;* and *spirituality.*

The first major finding of this study is that participants held a wide variety of causal beliefs, with most participants focusing on psychological causes, on the traumatic experience, and on social causes, often expressing beliefs from more than one domain at the same time. So far, studies on lay causal beliefs about PTSD have mainly targeted refugee populations from various areas across the world. Aside from the aspects that were specifically linked to flight or migration, the themes found in this study were very similar to the themes found in refugee samples (Affleck et al., 2018; Al-Roubaiy et al., 2017; Alemi et al., 2014; Bettmann et al., 2015; Grupp et al., 2018; Owen, 2018; Poudel-Tandukar et al., 2019; Quinn, 2014; Shannon et al., 2015). The analysis of frequency and coexistence of second-order themes revealed that most participants in this study also mentioned two or more second-order themes when asked for the most likely causes of the problems described in the vignette. This further supports the assumption of coexisting instead of competing causal beliefs (Bhui et al., 2006; Grupp et al., 2018), indicating that laypersons hold multifactorial models similar to clinicians' models. However, while overlap was considerate, the

themes showed no systematic patterns. This indicates that not only causal beliefs from similar domains (e.g., psychosocial causes) overlap, but that participants shared causal beliefs from several different domains.

Overall, most of the causes mentioned by the participants resembled causes and risk factors for PTSD that have been identified by meta-analyses, e.g., certain characteristics of the traumatic event, general life stress, lack of social support, lower socio-economic status, prior trauma, childhood adversities, and being female (Brewin et al., 2000; Ozer et al., 2003; Tolin & Foa, 2008). The results thus indicate that clinicians' etiological models for PTSD might be plausible for, and shared by, laypersons. However, regarding the congruence of lay and professional models, it was also noticeable that although participants were explicitly asked about causes, several participants mentioned aspects that might as well be classified as the problem itself and referred to nonspecific symptoms or mental illnesses. The distinction between cause and effect may not be as clear for laypersons as it is stated in professional models. This result is consistent with findings suggesting that several domains of explanatory models might be interwoven (Rüdell et al., 2009). Also, while the potentially traumatic event is central in etiological models of PTSD and accordingly was explicitly described in the vignette as the starting point for the problems, less than half of the participants made a reference to the event described in the vignette. At the same time, many participants mentioned aspects that were not mentioned in the vignette, such as overworking or problems in the family. Seemingly, besides recognizing the importance of a potentially traumatic event (May et al., 2014; Reavley & Jorm, 2011), many laypersons consider other factors to be more important for developing PTSD, even making inferences beyond the information given in the vignette.

3.4.2 Country and Gender in Causal Beliefs

The second aim of this study was to analyze differences in the frequency of the expressed second-order themes by country of residence and by gender, and possible interactions between both factors. It was assumed that participants' causal beliefs would differ in frequency by country of residence because of differing cultural, historical, and political settings and by gender. Following an intersectional approach, it was further assumed that differences between countries would be different for male and female participants.

Our results indicate that the majority of mentioned causal beliefs differed between the five countries, but only a few differences were significant when compared pairwise. This is in line with previous studies that have found differences between ethnic groups for specific characteristics, such as higher expressions of spiritual causal beliefs, but also stress the considerable heterogeneity within groups (Grupp et al., 2018; McCabe & Priebe, 2004). It is possible that, in contrast to other studies that have cross-culturally compared causal beliefs, the countries chosen for this study were more similar in terms of cultural and contextual aspects. Overall, the results support the idea that various models can be found across different populations and that nationality or ethnicity predict causal beliefs inaccurately (Grupp et al., 2018; May et al., 2014; Savic et al., 2016)

Differences between causal beliefs were more pronounced between male and female participants. Noticeably, two out of the three themes that were more frequently mentioned by women were external factors (*reference to the event* and *social and societal factors)*. So far, to our knowledge, there are no studies analyzing gender differences in causal beliefs in laypersons from non-refugee populations. In other populations, the results for gender effects in causal beliefs are inconsistent (Brea Larios et al., 2022; Grupp et al., 2018; Reichardt et al., 2018). Our results are

in line with results from qualitative studies targeting refugee populations that have suggested that women were more likely to mention factors related to society, structural violence, gender-roles, or lack of social support in the community, while men were more likely to mention intrapersonal characteristics, such as psychological or somatic causes. However, no differences between women and men were found in a sample surveying patients from Iran and Germany when asked for causes of their own symptoms (Reichardt et al., 2018). It is possible that the effects are at least partly due to the chosen methodology using a case vignette and, thereby, are focused mainly on the perception of others which might enhance attributional bias. For causal attribution of rape, for example, a gender effect is well established in the literature. Attributional studies have found that women are more likely to express external causes for rape, such as circumstances or the perpetrator, while men were more likely to attribute the event internally, that is, they blame the victim (Grubb & Harrower, 2008; Van der Bruggen & Grubb, 2014). Our results suggest that the findings on gender effects in rape scenarios may be extended also to PTSD symptoms following interpersonal trauma. Women in our study tended to be less focused on internal or psychological causes than men.

Finally, this study aimed at illustrating intersectional effects in cross-cultural research focusing on the interactions of gender and country of residence. The results of this study indicate that gender matters in the comparison of countries, thereby supporting the intersectional approach. For several factors, differences at the national level were more pronounced for women compared to men. These differences were found especially for the second order themes related to the event, to social and societal factors, and to problems in everyday life. One possible explanation for this result is that the differences between the countries are more relevant for women and less so for men. One important factor might be, for example, how commonly women experience violence.

This can differ considerably between countries and can depend on, for example, gender roles and country specific policies (Watts & Zimmerman, 2002; Yodanis, 2004) which may lead to more accepting attitudes towards violence in women (Gracia & Herrero, 2006; Nayak et al., 2003). This might, in turn, affect causal beliefs and explain why differences for women were more pronounced than for men in our sample. This is an interesting finding but the results must be interpreted with care due to the small effects and the qualitative methodology. It must also be noted that the sample size differed between genders and that there is more data on women. However, it is possible that by choosing a mixed methods approach, gender effects that are overlooked or not reported in quantitative designs were made visible. In this study, the most important differences between males and females ran along the lines of the internal and external attribution of symptoms. This aspect and possible implications for related concepts, such as stigma and help-seeking intentions, should be considered in future studies.

In summary, the second major finding of this study is that there were noteworthy gender effects in this study. There were significant differences in causal beliefs between male and female participants. Also, differences between countries were more pronounced in women and much smaller or non-existent among men. This highlights the importance of including gender-aspects in transcultural research and underlines the problems that arise from single-gender samples or samples with highly unbalanced gender distributions that may fail to cover gender-specific experiences. Intersectional approaches pose an interesting approach for research in transcultural settings as they allow researchers to equally consider cultural and gender aspects.

3.4.3 Limitations

Several limitations need to be considered. First, data collection was carried out via convenience sampling through an online survey and included only a small selection of countries. As the sample was not balanced concerning gender and country and participants were relatively young and well educated, one should be careful to generalize the results to other socioeconomic groups or countries. Although the sample is not representative, it nevertheless reflects typical sample characteristics that have been found in online-based surveys (Etzelmueller et al., 2020; Lee et al., 2020; Stokes et al., 2019).

Second, by the nature of the chosen method, all results are highly dependent on the case vignette. It must be noted that, although, vignette studies are a well-established method for assessing mental health beliefs (Wei et al., 2015), they cannot simulate symptoms of PTSD. Furthermore, as a robbery was chosen as the traumatic incident, results might differ for cases with other traumatic experiences, such as sexual assault or combat (Magda, 2016) and all effects must be interpreted as beliefs that participants hold about their own gender, as female participants were presented with a female case vignette and male participants were presented with a male case vignette to ensure that participants would identify as much as possible with the case. In addition, the participants were presented with a structured questionnaire before answering the open-ended question, which may have influenced their answers.

Third, the transcultural approach posed several challenges. Prior to the thematic analysis, all statements were translated into the first language of the analyzing authors to ensure coherent coding. While thematic analysis focuses on the content of the statements rather than on linguistic details, it is still possible that by using the translated statements, nuances in the statements were

missed that could have led to different coding. Also, both raters have been born and raised in one of the five countries and may therefore be biased in their coding and ratings as qualitative research methods always highly depend on the perception of the raters.

Finally, for an in-depth understanding of possible interactions between country and gender, we chose a narrow focus for our analyses and the chosen method did not allow the inclusion of further cultural or sociodemographic covariates. In addition, all quantitative analyses should be considered exploratory in nature and additional studies are needed to confirm the results.

3.4.4 Conclusions

Largescale mixed methods studies can be a valuable approach for capturing health beliefs in the widest possible way to reduce the problem that cultural presumptions influence the results while at the same time it enables researchers to draw conclusions about frequencies and potential correlates. The results of this study indicate that lay persons hold a wide variety of possible beliefs about PTSD that largely overlap with risk factors identified by recent clinical research. While there were only a few significant differences between countries when compared pairwise, beliefs clearly differed between women and men and differences between countries were also more pronounced for women compared to men. Using an intersectional approach in cross-cultural research can lead to a better understanding of the interrelationships between several factors influencing cultural differences. The results further suggest that gender should be considered when researching causal beliefs in transcultural contexts. Moreover, practitioners should be aware and mindful of potential gender differences in causal beliefs and consider these and their potential interactions with cultural factors in psychotherapy and counseling, especially when culturally adapting interventions. Future research should further expand to other social characteristics and include factors potentially

leading to disadvantages in mental health care, such as race, class, age, disability, or sexual identity. With concern to the intersectional approach, these factors should not be studied singularly, but also the intersections of these factors should be considered where possible.

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Appendix: Vignette

Imagine Mary, a fictitious person. Mary is about your age. For the past two months, she has been sleeping poorly. She often has vivid nightmares that cause her to frequently wake up in the middle of the night feeling very frightened. She is jumpy and easily startled and has lost interest in activities she previously enjoyed. This all began a few months ago, after an incident in which her life was endangered. Mary was out alone when two armed men threatened her with a knife and robbed her. After the incident, Mary felt numb for several days; then the nightmares began in which she still clearly sees the armed men. She is easily startled by unexpected noises. Since the event, Mary has been very afraid to go outside alone and expects danger at all times. She tries not to think about the assault and does not want to talk about it with others.

Author contributions for study 2

Christina Kampisiou, Caroline Meyer and Nadine Stammel designed the study and were responsible for the data collection. Caroline Meyer analyzed and interpreted the data and was the major contributor in writing the manuscript. Louisa Heinzl supported the data analysis and the writing of the first draft of the manuscript. Christina Kampisiou and Nadine Stammel contributed to the interpretation of data and critically revised earlier versions of the manuscript. Christine Knaevelsrud and Nadine Stammel supervised the study. All authors revised the manuscript and have approved the final version.

Chapter 4

Study 3: With a little help from my friends? Acculturation and mental health in Arabic-speaking refugee youth living with their families

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With a Little Help from my Friends? Acculturation and Mental Health in Arabic-speaking Refugee Youth Living with their Families

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Abstract for study 3

Background: Refugee youth are often faced with the compounding challenges of heightened exposure to traumatic events and acculturating to a new country during a developmental period when their sense of self is still forming.

Objective: This study investigated whether refugee youth's acculturation orientation (separation, integration, marginalization, and assimilation) is associated with depressive and posttraumatic stress symptoms and aimed to identify additional indicators of acculturation that may contribute to mental health.

Methods: A total of 101 Arabic-speaking refugee youths (aged 14-20 years), who were living with their families and attending school in Germany, took part in the study. They answered questions concerning traumatic exposure and posttraumatic stress symptoms, depressive symptoms, and several indicators of acculturation, including cultural orientation, positive and negative intra- and intergroup contact, language skills and friendship networks. All participants were categorized into one of four acculturation orientations using median splits.

Results: Kruskal-Wallis rank sum tests revealed that acculturation orientation was not significantly associated with depressive symptoms (χ^2 [3, 97] = .519, p = .915) or posttraumatic stress symptoms (χ^2 [3, 97] = .263, p = .967). Regression analysis revealed that German language skills were significantly associated with lower scores of depressive symptoms (p = .016) and number of friends in Germany was significantly associated with lower scores of depressive (p = .006) and posttraumatic stress symptoms (p = .002), respectively.

Conclusions: Policies that provide refugee youth with access to language classes and social activities with peers do not only enable them to actively participate in a new society but may also have a positive effect on their mental health.

4.1 Introduction

In recent years, the number of people who have been forced to migrate has increased dramatically worldwide. At the end of 2021, the United Nations High Commissioner for Refugees estimated that approximately 89.3 million people had been forcibly displaced from their homes and that 41% of them were minors (UNHCR, 2023). Refugee youth, compared to non-refugee youth, show increased rates of short- and long-term mental health problems such as post-traumatic stress disorder (PTSD), depression, or anxiety disorders (Blackmore, Gray, et al., 2020; Kien et al., 2019). Moreover, resettlement in a new country can be particularly challenging for youth as, in addition to acculturative challenges, they also experience developmental changes such as puberty, renegotiating relationships with their parents, and forming a sense of self (Alhaddad et al., 2021; Jugert & Titzmann, 2020; Ward & Szabó, 2019).

Most research on refugee youth mental health to date has focused on unaccompanied youth, who face a particularly high risk of experiencing adverse events and trauma during flight and must face post-migration stressors without their primary caregivers (Bean, Derluyn, et al., 2007; Derluyn et al., 2009; Müller et al., 2019). This often results in higher rates of mental health problems (Hodes & Hussain, 2020; Hodes et al., 2008). However, refugee youth living with their families also show elevated levels of mental health problems (Kevers et al., 2022a; Müller et al., 2019) and share several risk factors with unaccompanied youth such as traumatic exposure in their home country and during their flight, and/or being separated from relatives (Shapiro & Montgomery, 2020; Spaas et al., 2022).

Refugee youth living with their parents are also exposed to other potential stressors. Due to the challenges experienced during their flight, refugee parents may experience elevated levels

of mental health problems (Blackmore, Boyle, et al., 2020), which in turn have been associated with mental health problems in children and youth (Karamehic-Muratovic et al., 2022; Vaage et al., 2011). Refugee youth living with their families often have to navigate two worlds in their everyday life, one at home and one outside their home. While this allows them to develop unique skills, such as flexibility, adaptability, and empathy (Oppedal, 2006), it can be challenging when socio-cultural expectations vary drastically between these two "worlds" and when refugee youth and their parents adjust differently to life in the resettlement country (Cissé et al., 2020; Hayes & Endale, 2018; Menjívar, 2002). Specifically, refugee parents may value retaining their home culture (Birman & Trickett, 2001), but refugee youth are often exposed to different cultural expectations when attending educational institutions (Roubeni et al., 2015; Ward & Geeraert, 2016). This can result in conflicts between parents and children (Cissé et al., 2020; Kia-Keating & Ellis, 2007). Overall, research has consistently shown that refugee youth are confronted with several stressors when adjusting to a new country which can negatively affect mental health (Betancourt et al., 2012; Ellis et al., 2008; Keles et al., 2016; Sirin et al., 2013). The term 'acculturation' has been used to describe the "meeting of cultures and the resulting changes" (Sam, 2006). Although all groups that come into contact may undergo change, in practice, changes are usually more pronounced in individuals who settle in a new country (and not vice versa). Berry (1997) proposed a model for categorizing people's acculturation orientations along two dimensions: (1) whether the heritage culture (also referred to as 'minority' or 'home' culture) is maintained after resettlement, and (2) whether the culture of the resettlement country (also referred to as 'majority' or 'host' culture) is adopted. Across these two dimensions, four distinct acculturation orientations emerge: Individuals who show an *assimilation* orientation adopt the culture of the resettlement country but do not maintain their heritage culture; those who show a

separation orientation do not adopt the culture of the resettlement country but maintain their heritage culture; an *integration* orientation, also referred to as *biculturalism,* is shown by individuals who adopt the culture of the resettlement country while maintaining their heritage culture, and, finally, *marginalization* occurs when individuals neither maintain their heritage culture nor adopt the culture of the resettlement country. In the past years, a growing body of literature has examined the relationship between acculturation orientations and mental health in migrants and refugees. A systematic review and meta-analysis including 83 studies with immigrant minors and adults found that a bicultural orientation was associated with better psychosocial adjustment compared to a monocultural orientation (Nguyen & Benet-Martínez, 2013). For immigrant youth, a (flexible) orientation towards both the heritage culture and culture of the resettlement country has also been connected to better psychological adjustment (Berry et al., 2006). Research with refugee youth from the Middle East showed that integration was associated with less internalizing symptoms, less post-migrations stressors and better sociocultural adjustment (EL-Awad et al., 2021; El Khoury, 2019).

However, the model proposed by Berry (1997) has also received several critiques. It has been criticized that people's acculturation orientations do not always fit into the four above mentioned categories and that the advantages or disadvantages of different orientations may depend on contextual and/or individual factors (Ward & Geeraert, 2016). For example, orientation towards the culture of the resettlement country has been associated with better mental health in educational and work settings, while orientation towards the heritage culture was preferable for mental health outcomes in private life (Birman et al., 2014). It has also been criticized that the model focuses predominantly on acculturation orientation of the immigrant or refugee groups while neglecting the role of the context in which these attitudes are shaped, for example state

policies or acculturation attitudes of the majority population in the resettlement country (Bourhis et al., 1997). Furthermore, comparisons between studies can be difficult due to differences in methodologies and in how acculturation is operationalized (Sam, 2006). In addition to measures of cultural orientation, other variables that are associated with refugee youth' adjustment to life in their resettlement country may also play a role in refugee youth's mental health. For instance, proficiency in the language of the resettlement country has been reported to be an important indicator of acculturation processes: Young refugees resettled in Australia who reported higher confidence in their language skills had fewer problems overall and settled in faster (Earnest et al., 2015). Language skills have also been connected to better mental health in accompanied and unaccompanied refugee youth, for instance in Denmark, Germany and Australia (Buchanan et al., 2018; Montgomery, 2008; Müller et al., 2019), and in Syrian refugee youth resettled in Germany (El Khoury, 2019). Another important indicator of acculturation is access to social networks. Specifically, social support has been consistently identified as a protective factor for mental health problems and PTSD (Brewin et al., 2000; Ozer et al., 2003). For refugee youth, this includes support by family and relatives (Behrendt et al., 2022; Oppedal & Idsoe, 2015; Sierau et al., 2019), but especially by peer networks and friends (Almqvist & Broberg, 1999; Behrendt et al., 2022; Berthold, 2000; Verelst et al., 2022). Other factors also play a role in refugee youths' mental health outcomes, such as country of origin (Bean, Eurelings-Bontekoe, & Spinhoven, 2007; Hodes et al., 2008), not having a secure status of residence in the resettlement country (Bean, Eurelings-Bontekoe, & Spinhoven, 2007; Jakobsen et al., 2017), and a sense of belonging to their school (Geltman et al., 2005; Kia-Keating & Ellis, 2007). These findings highlight the need to investigate a range of potential protective factors, in addition to cultural orientation, to gain a nuanced understanding of the relation between acculturative processes and mental health.

As outlined above, refugee youths belong to a vulnerable group. They may experience resettlement as particularly challenging due to the compounding effects of having to acculturate to a new country and facing the developmental tasks of adolescence (Jugert & Titzmann, 2020) It is therefore important to identify potential protective factors that may foster mental health and adjustment after resettlement. This study focused on Arabic-speaking refugee youth in Germany. Since 2015 Europe, and more specifically Germany, has seen an unprecedented influx of refugees from the Middle East, predominantly by refugees from Syria and Iraq (Hebebrand et al., 2016). At the time of the study, these two groups made up one third of the refugee population in Germany with most of them speaking Arabic as a mother tongue or as a second language (Bundesamt für Migration und Flüchtlinge, 2018). Given these number, it is essential to understand how Arabic-speaking refugee youth adjust to life in Germany, and which impact the transition has on their mental health and well-being. Our study had two aims. First, to test whether acculturation orientation is associated with depressive and posttraumatic stress symptoms. Second, to identify additional factors associated with acculturation processes that are associated with depressive and posttraumatic stress symptoms.

4.2 Methods

4.2.1 Sample characteristics

We targeted Arabic-speaking refugee youth above the age of 14 who attended school in Berlin, Germany. Of the 112 students who agreed to participate, seven participants dropped out during data collection and were excluded from the study. Of the remaining 105 participants, two participants were excluded after data collection as they reported an age below 14, another two

participants were excluded for the purpose of this analysis as they reported living unaccompanied in Germany and this study focused on youth living with their families. The final sample consisted of 101 refugee youths (52.3% females, none identified as "other") living with their families, aged 14 to 20 years (M = 16.6, SD = 1.34). All participants spoke Arabic and came to Germany as refugees. Most participants originated from Syria (75.2 %), followed by Iraq (10.9%), and Palestine (5.9%). Almost all participants (96.0%, n = 97) reported having experienced at least one traumatic event with an average of nine traumatic events per participant. When screened for symptoms of mental health problems, 12.9% (n = 13) of the total sample met the screening criteria for probable PTSD according to the PCL-5, and 57% (n =58) scored above the cut-off for Depression according to HSCL-25. See Table 1 for a detailed description of the sample.

Table 1

Sample characteristics

	n	%	*M*	*SD*	Range
Female gender	53	52.5	–	–	
Age	–	–	16.6	1.34	14-20
Length of stay in Germany (in years)	–	–	3.12	1.32	1-7
Traumatic experiences	–	–	8.87	5.61	0-20
Secure asylum status	39	38.6	–	–	–
Country of origin					
Syria	76	75.2			
Iraq	11	10.9	–	–	–
Palestine	6	5.9			
Lebanon	3	3.0			
Egypt	1	1.0	–	–	–
Libya	1	1.0			
Bahrein	2	2.0			
Kuwait	1	1.0	–	–	–
Class: welcome-class	34	33.7	–	–	–
Friends					
All friends	–	–	7.95	8.18	0-30
Friends in Germany	–	–	5.73	6.31	0-30
Friends born in Germany	–	–	5.65	6.09	0-30
Depressive symptoms (HSCL-25)	–	–	1.95	0.55	1-3.40
Posttraumatic stress symptoms (PLC-5)	–	–	18.3	14.1	0-67
Acculturation Germany (unidimensional)	–	–	4.60	1.17	1.8-7
Acculturation heritage (unidimensional)	–	–	5.92	1.08	1.9-7

Note. N = 101; HSCL-25: Hopkins-Symptom Checklist-25, PCL-5: PTSD Checklist.

This study was part of a larger project investigating how newly arrived Arabic-speaking refugee youth adjust to life in Germany (for a qualitative study with a different sample of youth in the Berlin/ Brandenburg area, see (Alhaddad et al., 2021). To recruit participants, we contacted 418 schools in Berlin via email and informed them about the study. A total of 14 schools agreed to participate in the study. All other schools were either unavailable, had no students that fulfilled the inclusion criteria, withdrew their agreement to participate, or did not respond. Before the main

study, we conducted a series of pilots to ensure that procedures and study materials were appropriate. First, we tested the full survey on a group of Arabic-speaking refugee adults as well as with one refugee adolescent. Thereafter, we piloted the survey with six Arabic-speaking refugee youths in one of the schools that had agreed to take part in the study. Participants' feedback was included in the final survey and the six participants were excluded from the final data set.

Data collection took place in Berlin, Germany, between November 2018 and June 2019 and followed the same procedure at every school. For each school's testing appointment, one native Arabic-speaking and one native German-speaking researcher were present. Arabic-speaking refugee youths aged 14 years and older were identified by the school and invited to take part in the study by the two researchers. In Berlin, most students arriving as refugees or immigrants start to attend so-called Willkommensklassen (welcome-classes) within three months of their arrival. These classes focus on language acquisition and on introducing newly arrived students to the German school system. As soon as students in welcome-classes are sufficiently fluent in German, they transfer to regular classes. For this study, students from both welcome-classes and regular classes were invited to participate. All contact was handled by the school.

Those who agreed to participate were gathered in a different classroom to ensure quiet surroundings. Every participant received a tablet on which the survey was presented in written form in both Arabic and German using the Software LimeSurvey (LimeSurvey GmbH, 2017). Before starting the survey, the students were informed about the details of the study and gave consent to participate (no parental consent was needed as adolescents were aged 14 years and older). A maximum of six students took part in each session, which lasted around 45 minutes on average. Both researchers were available to answer questions during the survey sessions and

ensured that participants did not influence each other and answered the survey independently. For those students who were not able to read in Arabic due to interrupted education on the flight journey and had insufficient German language skills, questions were read quietly in Arabic by the Arabic-speaking researcher. At the end of the session, participants received a 12 Euro voucher from an electronics store and a list of mental health counseling services available in Arabic should the need for such services arise.

The research ethics committee of the Department of Education and Psychology at Freie Universität Berlin the Berlin (203/2018) and the Berlin Senate's Department for Education, Youth and Family approved this study.

4.2.2 Measures

For all measures, a three-step approach was used to obtain valid instruments as recommended for cross-cultural research (Guillemin et al., 1993). Firstly, measures were translated from English to German and Arabic. Secondly, another person translated the questionnaires back into English, and thirdly, differences between the two versions were discussed and the wording was revised accordingly. The scales concerning acculturation orientation and positive and negative inter- and intragroup contact were translated in the same way for a previous study (Sixtus et al., 2019).

Sociodemographic variables

The survey included questions regarding participants' age, gender (female, male, other), and country of origin. The socio-demographic survey also asked about participants' flight to Germany (time of arrival), whether they lived alone or with their family, the type of class attended

(welcome-class or regular class) and their asylum status. A confirmed asylum status was considered "secure", while a temporary status or rejection were considered "insecure".

Traumatic exposure and posttraumatic stress symptoms

To assess exposure to traumatic events, two standardized trauma lists, the Harvard Trauma Questionnaire (Mollica et al., 1992), focusing on war-related trauma and torture, and the Posttraumatic Diagnostic Scale (Foa et al., 1997; Foa et al., 2016) focusing on civilian trauma, were combined. Specifically for the HTQ, the authors recommend modifying and adapting the questionnaire to the characteristics of each cultural group as traumatic events may vary depending on historical, political, and social context. Therefore, the combined trauma list was supplemented with two additional items, "ill-treatment by smugglers" and "violent attack by authorities" that were identified as frequently occurring on the Balkan route, one of the main flight routes for refugees from the Middle East in 2015/2016 (Arsenijević et al., 2017). The resulting list was presented to the participants three times, asking for experiences in their home country, during their flight, and in Germany. For each list, events were rated as "experienced" "witnessed", or "neither-nor". For the current study, the three lists were combined, i.e., when a traumatic event was marked as "experienced" or "witnessed" in any of the three lists (in their home country, during their flight, in Germany) it was scored as 1, otherwise it was scored as 0, and a sum score across all trauma types was calculated.

Posttraumatic stress symptoms according to the DSM-5 criteria were assessed using the PTSD-Checklist for DSM-5 (PCL-5; Weathers et al., 2013). Participants answered 20 items on a five-point Likert scale (from 0 "not at all" to 4 "extremely"). Sum scores were calculated for the analysis. Reliability in the current study was excellent (Cronbach's α =.92). To screen for a

probable PTSD diagnosis, we followed the DSM-5 diagnostic rule. As recommended, each item rated as 2 = ”Moderately” or higher was considered an endorsed symptom. Participants that met DSM-5 diagnostic criteria according to this recommendation were considered as probably having PTSD.

Depressive symptoms

Depressive symptoms were assessed using the depression subscale of the Hopkins Symptom Checklist-25 (HSCL-25; Derogatis et al., 1974). The scale consists of 15 items that are scored on a four-point Likert scale (from 1 “not at all” to 4 “extremely”). Mean scores were calculated for the analysis. Values ≥ 1.75 indicate possible depression. Reliability in the current study was good (Cronbach’s α =.86).

Acculturation related variables

Acculturation was assessed using several indicators to cover various facets of acculturational attitudes, behaviors, and competencies.

Vancouver Index of Acculturation: The Vancouver Index of Acculturation (VIA) assesses orientation towards the heritage culture and the culture of the resettlement country (Ryder et al., 2000). The 20 items were presented in pairs, with one item in each pair referring to the heritage culture and the other item referring to German culture, for example “I often participate in cultural traditions of the Syrian culture” or "I often participate in German cultural traditions.”. Items were rated on a seven-point scale ranging from not at all (1) to very much so (7) with higher subscale scores indicating higher levels of orientation towards the culture represented. The VIA has been used in several studies with children and adolescents and proven a valid instrument (Goforth et al.,

2015; Jia et al., 2016; Zhang et al., 2020). Recently, an Arabic translation of the VIA has been validated in 957 Syrian refugee children and youth aged 11-18 living in Turkey (Bozdağ & Bilge, 2021). Analyses confirmed the two-dimensional structure and showed good construct, convergent and discriminant validity as well as satisfying reliability coefficients. Reliability in the current study was excellent for the subscale concerning heritage culture (Cronbach's α =.91) and good for the subscale concerning German culture (Cronbach's α =.86).

Positive and Negative Contact with heritage culture and German culture: To measure intergroup contact in Germany with persons from the heritage culture and the German culture, a short questionnaire was used that assesses quantity and quality of contact (Dhont & Van Hiel, 2009). For both cultural groups, eight items were presented to assess the amount of positive and negative contact, for example "How often do you have friendly contact with Germans?" or "How often did you have conflicts with people from your home country in Germany?". Items were rated on a 7-point scale ranging from very little (1) to very much (7). Reliability in the current study was acceptable for all four scales (Cronbach's α =.71 to Cronbach's α =.78).

German language skills: Participants were asked to subjectively rate their German language skills on four dimensions: Speaking, writing, reading, and listening. Each scale ranged from 0 ('no ability') to 4 ('very good'). For analyses, a mean score was calculated across all four dimensions with higher values indicating better German language skills.

Friendship network: To assess participants friendship network, participants were asked three questions: 1) "How many close friends do you have?", 2) "How many of your close friends live in Germany?", and 3) "How many of your close friends were born in Germany?". For each question, the scale ranged from 0 – 30 friends.

4.2.3 Statistical analysis

To test for associations between acculturation orientations and mental health, all participants were assigned to one of the four acculturation orientations proposed by Berry (1997). Following the procedure used by Behrens et al. (2015), both scales of the VIA were split at the median to determine low vs. high orientation towards the heritage culture and the German culture, respectively. The four acculturation orientations were as follows: Separation (high heritage/ low German orientation, $n = 25$), integration (high heritage /high German orientation, $n = 24$), marginalization (low heritage/ low German orientation, $n = 29$), and assimilation (low heritage, high German orientation, $n = 25$). Afterwards, Kruskal-Wallis tests were conducted to test for differences in depressive symptoms and posttraumatic stress symptoms between the four groups. To address critiques of the acculturation model proposed by Berry (1997), we additionally performed Kruskal-Wallis tests for both scales separately (orientation towards heritage cultural group high/low and orientation towards German cultural group high/low).

To identify further indicators of acculturation, correlation analysis was conducted. Afterwards, linear regression analysis was conducted separately for depressive and posttraumatic stress symptoms. All indicators that revealed significant correlations with either depressive or posttraumatic stress symptoms were included into the regression model. As male gender has been reported as a protective factor in several previous studies, gender was included as independent variable into the regression analysis, and gender-disaggregated regression analyses were additionally performed exploratory. For inclusion in the regression model, all categorical variables were dichotomized, and dummy coded with a reference category (Eid et al., 2017). For both regression models, Pagan–Breusch test indicated heteroskedasticity. Therefore, the Huber-White estimator of standard errors was applied for these regression analyses using the package ‘sandwich’

(Zeileis, 2006; Zeileis et al., 2020) in R. No further assumptions were violated. There were no missing data in the data set used for this analysis. All statistical analyses were conducted using R version 4.2.0 (R Foundation for Statistical Computing, 2022).

4.3 Results

4.3.1 Acculturation orientations and mental health

Participants were grouped into one of the four acculturation orientations proposed by Berry (1997) using both acculturation dimensions measured by the VIA. Figure 1 gives a detailed overview of the bivariate distribution and classification of the participants. On average, participants showed higher orientation towards their heritage culture (*Mdn* = 6.3) than towards the German culture (*Mdn* = 4.5). However, almost all participants reported bicultural orientation towards both cultural groups with high or very high orientation towards their heritage cultural group and medium to high orientation towards the German cultural group (see Figure 1).

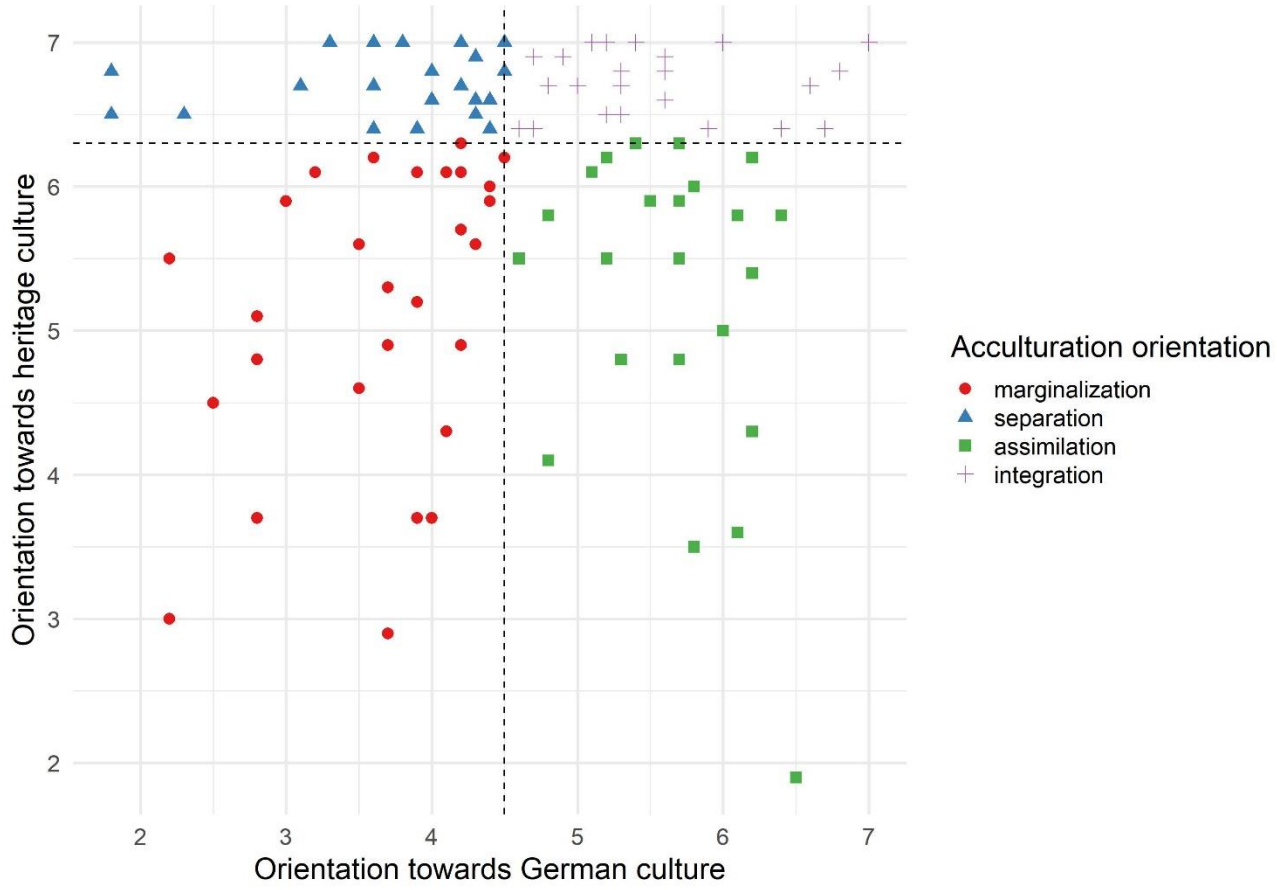

Figure 1. Scatterplot: displayed is the classification of the participants into the four acculturation orientations according to the definition by Berry (1997): Separation (n = 25), integration (n = 24), marginalization (n = 29), and assimilation (n = 25).

In a second step, mean scores for depressive symptoms and posttraumatic stress symptoms were compared across the four acculturation orientations. Kruskal-Wallis rank sum tests revealed no significant differences for depressive symptoms or posttraumatic stress symptoms between the four groups. For details see Table 2 and Figure 2.

Table 2

Mean scores of depressive symptoms and posttraumatic stress symptoms grouped by acculturation orientations.

Depressive symptoms				Kruskal-Wallis rank sum test		
	n	*M*	*SD*	χ^2	*df*	*p*
Marginalization	29	1.95	0.57		3	
				0.519		.915
Separation	25	1.96	0.54			
Assimilation	23	1.87	0.48			
Integration	24	1.99	0.61			
Posttraumatic stress symptoms				Kruskal-Wallis rank sum test		
	n	*M*	*SD*	χ^2	*df*	*p*
Marginalization	29	18.8	13.1		3	
				0.263		.967
Separation	25	16.7	14.4			
Assimilation	23	17.5	12.5			
Integration	24	20.3	16.8			

Note. Posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5); depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25).

As the model with four acculturation orientations proposed by Berry (1997) has received several critiques, we additionally performed univariate analyses for cultural orientation towards the heritage culture (low. vs. high) and to the German culture (low vs. high). Kruskal-Wallis rank sum tests revealed no significant differences for depressive symptoms or posttraumatic stress symptoms neither for cultural orientation towards the heritage culture nor for cultural orientation towards the German culture. The results of this additional analysis can be found in Supplement B.

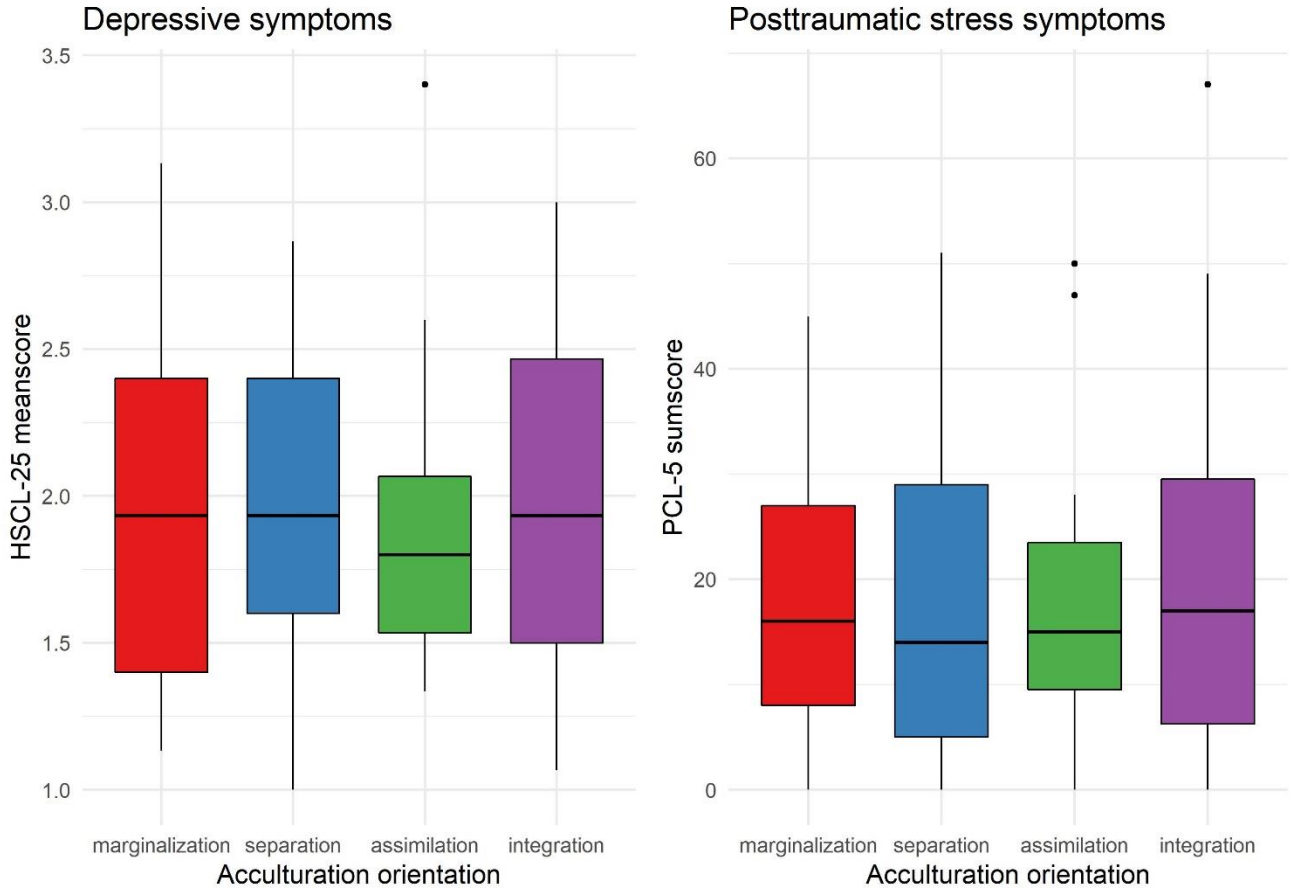

Figure 2. Mean scores of depressive symptoms and posttraumatic stress symptoms grouped by acculturation orientations.

4.3.2 Additional indicators of acculturation as covariates of mental health in refugee youth

Several additional indicators of acculturation were assessed as potential covariates of mental health in refugee youth. As expected, correlations between depressive and posttraumatic stress symptoms were high ($r = 0.63$). Significant correlations were found for several indicators of acculturation with both depressive and posttraumatic stress symptoms. Depressive symptoms correlated negatively with German language skills and the number of close friends in Germany. Posttraumatic stress symptoms correlated positively with age, and the amount of traumatic exposure and negatively with the number of close friends in Germany. All correlation coefficients

with mental health outcomes are reported in detail in Table 3. A comprehensive correlation matrix of all variables can be found in Supplement A.

Table 3

Correlations of indicators of acculturation with depressive symptoms and Posttraumatic stress symptoms.

	Depressive symptoms	**Posttraumatic stress symptoms**
Age	0.08	0.25*
Female gender (vs. male gender) [a]	0.04	-0.01
Length of stay in Germany (in years)	0.00	0.08
Home country Syria (vs. all other countries) [b]	0.13	0.09
Secure asylum status (vs. insecure asylum status) [c]	-0.11	0.01
Welcome class (vs. regular class) [d]	-0.04	-0.05
German language skills	-0.22*	-0.14
Traumatic events, aggregated	0.09	0.38***
Acculturation Germany (unidimensional)	0.00	0.00
Acculturation heritage (unidimensional)	-0.01	0.00
Positive contact Germans	-0.09	0.08
Negative contact Germans	0.02	0.03
Positive contact with people of same heritage	-0.07	0.08
Negative contact with people of same heritage	0.02	0.04
Friends in Germany	-0.26**	-0.26**
All friends	-0.09	-0.10
Friends born in Germany	-0.10	-0.03

Note. N = 101. Posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5); depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25). Acculturative orientations were measured with the Vancouver Acculturation Index (VIA). [a]0: Male; 1: Female. [b]0: Country of origin: All other countries; 1: Country of origin: Syria. [c]0: Insecure asylum status; 1: Secure asylum status. [d]0: Attending regular class; 1: Attending welcome class (preparatory class with only refugee/immigrant youth focusing on language acquisition).
*$p < .05$. **$p < .01$. ***$p < .001$.

Age, traumatic events, language skills, and friends in Germany showed significant associations with either depressive or posttraumatic stress symptoms and were therefore included

as predictors in the regression analysis. Additionally, gender and length of stay in Germany were included as they are established risk factors for mental health in refugee youth (Fazel et al., 2012). Results of the regression analyses are reported in Table 4 and Table 5. For depressive symptoms, better language skills and a higher number of friends in Germany were significantly related with lower symptom scores. For posttraumatic stress symptoms, a higher number of friends in Germany was also significantly related with lower symptom scores. Additionally, participants who had experienced a higher number of traumatic events showed higher posttraumatic stress symptom scores.

Table 4

Regression analysis for depressive symptoms.

Depressive symptoms				
	B	*SE*	β	*p*
Intercept	2.37	0.76		.002**
Female gender [a]	0.00	0.11	0.00	.980
Age	0.01	0.04	0.02	.866
Length of stay in Germany (in years)	0.02	0.04	0.05	.652
Traumatic events	0.01	0.01	0.06	.544
Language skills	-0.18	0.07	-0.21	.016*
Friends in Germany	-0.02	0.01	-0.25	.006**

Note. $R^2 = .12$; adj. $R^2 = .07$; depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25). [a]0: Male; 1: Female.
* $p < 0.05$, * $p < 0.01$.

Table 5

Regression analysis for posttraumatic stress symptoms.

Posttraumatic stress symptoms				
	B	*SE*	β	*p*
Intercept	4.43	18.40		.810
Female gender [a]	-0.23	2.85	0.00	.936
Age	1.48	1.00	0.14	.140
Length of stay in Germany (in years)	0.51	0.98	0.05	.605
Traumatic events	0.84	0.28	0.33	.003**
Language skills	-2.57	1.85.	-0.12	.167
Friends in Germany	-0.54	0.17	-0.23	.002**

Note. R^2 = .25; R^2 Adj. = .20; posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5). a0: Male; 1: Female.
* p < 0.05, ** p < 0.01, *** p < 0.001.

Exploratory regression analysis performed separately for male and female participants revealed that associations were more pronounced in female participants than in males. For female participants, the results of the aggregated analysis were confirmed while analyses for male participants showed no associations between mental health symptoms and friendship networks or language skills, respectively. The amount of explained variance was higher in the sub-group analysis for female participants than for male participants for both depressive symptoms (R^2_{adj} = .25 vs. R^2_{adj} = .08) and posttraumatic-stress symptoms (R^2_{adj} = .33 vs. R^2_{adj} = .25). The results are reported in detail in Supplements C and D.

4.4 Discussion

This study investigated the relationship between acculturation and mental health in Arabic-speaking refugee youth living with their parents in Berlin, Germany. In a first step, we analyzed associations between the four acculturation orientations proposed by Berry (1997) and depressive

and posttraumatic stress symptoms. In a second step, we explored whether several other indicators of acculturation were related with depressive and posttraumatic stress symptoms.

We found that acculturation orientation was not associated with depressive or posttraumatic stress symptoms in our sample. This contrasts with previous findings that have shown better mental health outcomes for immigrants and refugees with bicultural orientation who maintain some contact with their home culture and, at the same time, attempt to connect with the culture of the resettlement country (Fazel et al., 2012; Nguyen & Benet-Martínez, 2013). Also, bivariate analyses revealed no associations between acculturation scales and mental health outcomes, neither for the unidimensional scales of cultural orientation towards heritage culture and German culture nor for scales measuring positive and negative contact with both cultures.

A possible explanation for these results may be that our sample differed from other studies in the field regarding several characteristics. First, our study focused on Arabic-speaking refugee youth who lived with their families in Berlin, Germany, and attended school on a regular basis at the time of the study. To date, most research on acculturation and mental health has focused on immigrants or unaccompanied refugee minors (Behrens et al., 2015; Berry et al., 2006; Green et al., 2021; Nguyen & Benet-Martínez, 2013; Oppedal & Idsoe, 2015). Pathways of stressors and resilience may differ for these groups as every group faces specific challenges that are unique to their living situation (Buchanan et al., 2018; Müller et al., 2019). It is possible that integration is a more favorable strategy for adults and unaccompanied refugee youth as they are under more pressure to function in the new society on their own. In contrast, for accompanied refugee youth, orientation towards the new culture may also lead to increased conflicts with their parents due to potential differences in cultural values (Cissé et al., 2020; Hayes & Endale, 2018; Roubeni et al.,

2015). Associations between acculturation orientation and mental health may be highly dependent on contextual factors and family dynamics (Ward & Geeraert, 2016) and may vary across life domains. While orientation towards the majority culture in work or school contexts has been related to better mental health, in private life orientation towards heritage culture has been related to better mental health (Birman et al., 2014). Consequently, there may be no "best way" to cope with the challenges of acculturation for this group. This might explain, why in our sample, none of the acculturation styles was associated with mental health outcomes.

Moreover, other characteristics of our sample and contextual factors may have contributed to the results. While the sample is comparable to other studies concerning the prevalence of mental health problems (Blackmore, Gray, et al., 2020; Müller et al., 2019), it may be unique due to several reasons: The study was conducted in Germany's capital Berlin which is multicultural and metropolitan, and where particularly high numbers of refugees from Syria have arrived since 2015 due to the ongoing war. Most participants in our study came from Syria and, at the time the study took place in 2018/2019, they had already stayed in Germany on average for 3 years. In addition, more than half of the participants were female. Although this may not be representative for refugee youth populations, it nevertheless reflects typical sample characteristics that have been found in Syrian refugees arriving in Europe at the time (Hebebrand et al., 2016). However, other studies investigating acculturation orientations and mental health in Middle-Eastern refugee youth mainly included male participants (El Khoury, 2019) or exclusively focused on male refugee youth (EL-Awad et al., 2021), which may also explain why our results diverged from previously published studies.

Furthermore, several methodological aspects must be considered. First, our sample showed high levels of orientation towards both cultures but especially high orientation towards the heritage culture. As a result, variability on these scales was low and may have contributed to the non-significant results. For analyses, we assigned all participants to one of the four acculturation orientations using a median split, thus the grouping into one of the four acculturation orientations was dependent on the distribution of ratings in the sample and relative to the studied group. Few participants in our study showed low orientation to either cultural group in terms of absolute numbers, and almost all participants, to some extent, showed bicultural orientation. Some researchers have therefore criticized the median-split approach as arbitrary and have suggested using person-centered approaches such as latent profile analysis to ensure the validity of the categorization (Fox et al., 2013; Tobin et al., 2018). Unfortunately, due to the limited sample size this was not possible in the current study. However, considering the critique that the categorical model proposed by Berry (1997) has received (Rudmin, 2003), we have additionally performed analyses with the unidimensional scales of cultural orientation. These analyses, too, did not reveal significant associations between acculturation orientation and mental health. Therefore, we consider our results as relatively robust concerning the chosen method of analysis. Finally, it must be noted that the VIA assesses cultural orientation. Thereby, it is a measure of attitudes and does not directly refer to actual experiences, behavior, or skills which may show stronger associations with mental health symptoms.

In addition to acculturation orientations, we also investigated whether other indicators of acculturation may act as protective factors for mental health in young refugees. We found that the number of friends in Germany was negatively associated with both depressive and posttraumatic

stress symptoms. Social support is a well-established protective factor in trauma survivors (Brewin et al., 2000; Ozer et al., 2003) and previous research has stressed the importance of friendships for refugee youth (Almqvist & Broberg, 1999; Behrendt et al., 2022). Some studies have suggested that ethnicity of peers and social networks may influence the effects of social support on mental health in refugee children and youth (Liebkind, 1996; Montgomery, 2008). However, in our study, the number of close friends originating from Germany, in contrast to the general number of friends in Germany, was not significantly associated with mental health symptoms. A recent study with refugee youth in Belgium found that peers of similar heritage were more important in the early stages of flight, while local friends in the resettlement country became increasingly important in later stages of the resettlement process (Behrendt, 2022). Overall, this suggests that the proximity of friends in everyday life – but not ethnicity – mattered most for youth in our sample, most of whom had been in Germany for a while. Access to joining local clubs or sport teams may provide refugee youth with vital opportunities for building local peer networks (Earnest et al., 2015; Hopkins & Hill, 2010).

Furthermore, we found that better German language skills were significantly associated with lower symptoms of depression. This is in line with studies showing associations between language skills and symptoms of depression in refugee minors (Montgomery, 2008; Müller et al., 2019). Language has been found to be a major contributor for successfully dealing with resettlement, and language skills are typically fostered to allow refugee youth to attend school. Our findings suggest that language skills may not only be associated with educational success but also significantly linked to mental health. Fostering language acquisition in refugee youth may thus not only support their academic development, but also have a positive effect on their mental

health. In Berlin, most students arriving as refugees attend so-called welcome-classes that focus primarily on language acquisition and may provide refugee children with a "safe space" (Buth & Hacker, 2017). However, welcome-classes have also been criticized for separating refugee minors from students attending regular classes (Gambaro et al., 2020; Morris-Lange & Schneider, 2020), which may result in lower participation in school based extracurricular activities among young refugees (Gambaro et al., 2020). This, in turn, may lead to less opportunities for building local peer-networks and making friends – the second factor that was associated with lower mental health symptoms in our study. Policies should make sure that these two potentially protective factors are not mutually exclusive in practice and that refugee youth can acquire language skills and make friends at the same time.

Finally, to identify potentially gender-dependent associations, exploratory regression analysis was performed separately for male and female participants. Results indicated that associations were more pronounced in female participants than in male participants and that the model fit was better in the female sub-sample than in the male sub-sample. While these results must be interpreted with caution due to the small sample size, they support studies that have highlighted the importance of gender aspects in acculturation research and should be considered in future studies (Dion & Dion, 2001; Klein et al., 2020).

4.4.1 Strengths and limitations

Few studies to date have investigated the association between acculturation and mental health in refugee youth living with their families. By focusing on acculturation orientations and other indicators of acculturation, we provide a nuanced picture of potential protective factors for refugee mental health in a high-income country (Germany). However, our study has several

limitations. First, relatively few schools in Berlin agreed to participate in the study and our sample may not be representative of the refugee youth population at the time in Berlin. Second, all analyses were conducted based on cross-sectional data and, therefore, no causal inferences are possible. Longitudinal studies are needed for a better understanding of acculturational processes in the context of developmental pathways. Third, the number of friends and language skills were self-assessed by the students. While this approach most directly reflects how students see themselves and was therefore considered to be an adequate representation of social integration, it also bears the risk of over- or underestimation. Fourth, several factors limit the generalizability of our results. Socioeconomic status and post-migration experiences were not assessed in the study and could not be controlled for in the analyses. Moreover, our sample included a set of heterogenous countries with most participants originating from Syria, therefore especially the result concerning country of origin should be interpreted with caution. Finally, due to the highly skewed distributions on the scales measuring cultural orientation and the chosen method for analyzing associations between cultural orientation and mental health, conclusions outside the studied group must be drawn with caution.

4.4.2 Conclusions and implications for practice

Adjusting to a new culture after forced resettlement can be a stressful process for Arabic-speaking refugee youth in high income resettlement countries and negatively impact their mental health. While we found no significant relation between refugee youths' acculturation orientations and depressive and posttraumatic stress symptoms, two other acculturative factors were significantly associated with mental health: better self-assessed German language skills and a higher number of friends in Germany. Previous research proposed several policy implications for

fostering mental well-being of refugee youth in resettlement countries. These include rapid resolution of asylum claims, protection from post-migration violence, prioritizing family reunions, and providing physical and psychological health care (Fazel et al., 2012). These measures are important and should be enforced with the most possible urgency. However, implementation depends to a large extent on the political will and changes may require resources and time. While there is no adequate substitute for these much-needed policy changes, the present study suggests that to prevent mental health problems in refugee youth, additional and relatively easy steps such as providing access to high-quality language classes and social activities with peers may have a positive impact on mental health.

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Appendix A: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Depressive symptoms																			
2. Posttraumatic stress symptoms	0.63***																		
3. Age	0.08	0.25*																	
4. Female gender (vs. male gender) [a]	0.04	-0.01	0.00																
5. Length of stay in Germany (in years)	0.00	0.08	0.21*	-0.02															
6. Flight journey by land (vs. journey by plane) [b]	-0.04	0.07	0.14	-0.13	0.40***														
7. Home country Syria (vs. all other countries) [c]	0.13	0.09	0.05	0.28**	-0.04	-0.21*													
8. Secure asylum status (vs. insecure asylum status) [d]	-0.11	0.01	0.08	-0.06	0.28**	0.29**	0.03												
9. Welcome class (vs. regular class) [e]	-0.04	-0.05	-0.24*	0.01	-0.69***	-0.22*	-0.03	-0.05											
10. German language skills	-0.22*	-0.14	-0.09	-0.02	0.10	-0.14	0.00	0.03	-0.19										
11. Potentially traumatic events, aggregated	0.09	0.38***	0.20*	-0.19	0.15	0.16	-0.07	-0.08	-0.12	-0.02									
12. Acculturation Germany (unidimensional)	0.00	0.00	-0.06	-0.27**	-0.04	0.05	0.11	0.05	0.14	0.01	0.19								
13. Acculturation heritage (unidimensional)	-0.01	0.00	0.09	0.15	-0.09	-0.07	0.11	0.02	0.16	0.04	-0.05	0.08							
14. Positive contact Germans	-0.09	0.08	-0.04	-0.15	0.16	0.11	0.14	0.01	-0.23*	0.15	0.13	0.42***	-0.01						
15. Negative contact Germans	0.02	0.03	0.05	-0.10	0.31**	0.05	0.19	-0.02	-0.31**	0.05	0.13	0.04	-0.01	0.06					
16. Positive contact with people of same heritage	-0.07	0.08	-0.03	-0.08	-0.07	0.01	-0.05	-0.01	-0.03	0.03	0.09	0.15	0.49***	0.31**	0.02				
16. Negative contact with people of same heritage	0.02	0.04	0.12	-0.39***	0.17	0.24*	-0.18	0.11	-0.13	-0.05	-0.06	0.06	-0.14	0.06	0.37***	0.07			
18. Friends in Germany	-0.26**	-0.26**	-0.09	-0.19	0.14	0.04	-0.04	0.11	0.06	0.03	-0.06	0.11	0.09	0.17	0.05	0.14	0.03		
19. All friends	-0.09	-0.10	-0.02	-0.15	0.11	-0.06	-0.09	0.02	-0.02	0.03	0.06	0.16	0.05	0.23*	-0.12	0.13	0.08	0.62***	
20. Friends born in Germany	-0.10	-0.03	-0.08	-0.13	0.16	0.05	-0.08	0.14	-0.06	0.22*	-0.06	0.18	0.19	0.14	0.11	0.11	0.17	0.31**	0.22*

Note. $N = 101$. Posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5); depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25). Acculturative orientations were measured with the Vancouver Acculturation Index (VAI). [a]0: Male; 1: Female. [b]0: Flight by plane; 1: Flight by land. [c]0: Country of origin: All other countries; 1: Country of origin: Syria. [d]0: Insecure asylum status; 1: Secure asylum status. [e]0: Attending regular class; 1: Attending welcome class (preparatory class with only refugee/immigrant youth focusing on language acquisition). $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

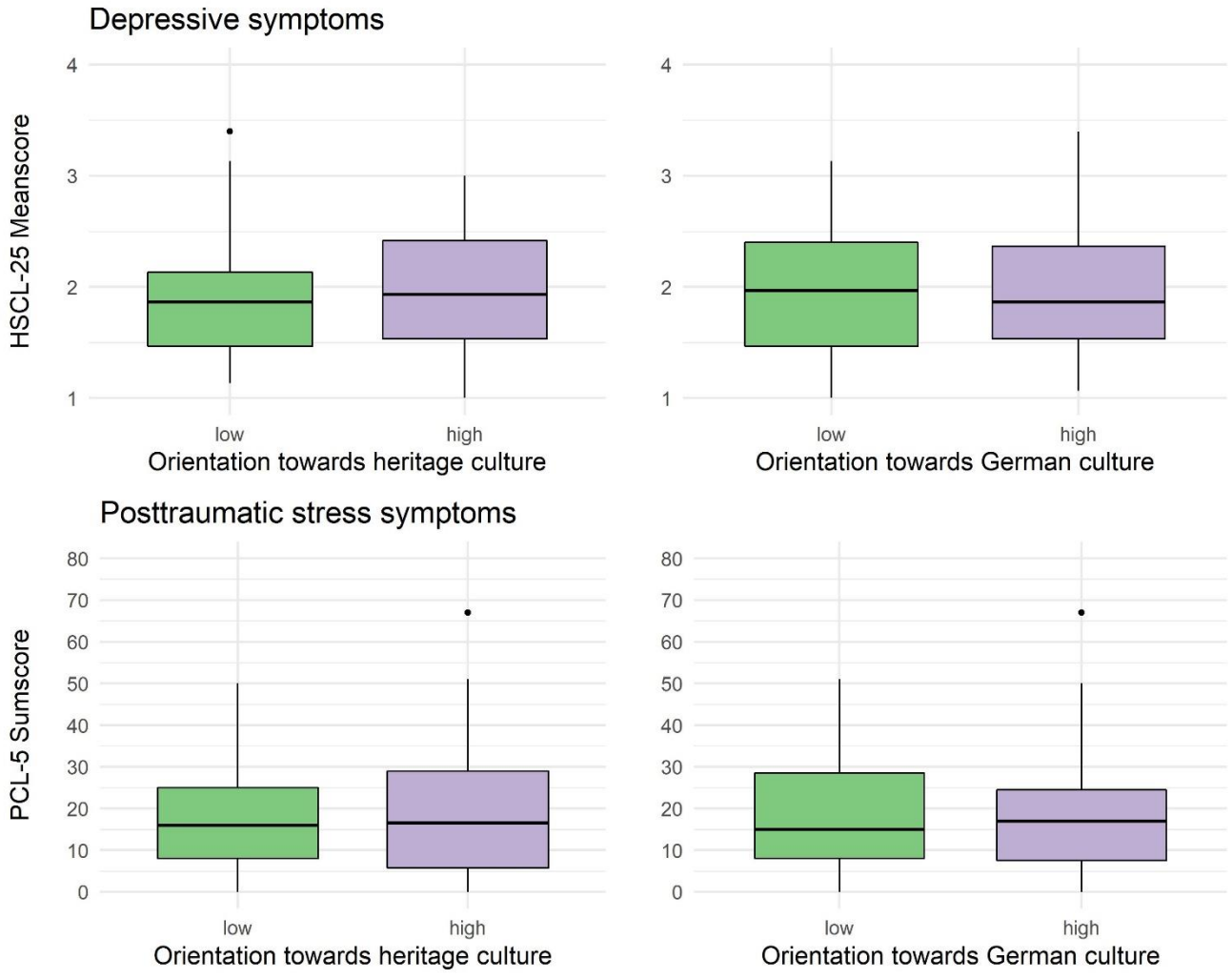
Appendix B: Unidimensional Analysis of Acculturation Orientation

Mean scores of depressive symptoms and posttraumatic stress symptoms grouped by acculturative orientation towards heritage culture (low vs. high) and German culture (low vs. high)

Depressive symptoms				Kruskal-Wallis rank sum test		
	n	*M*	*SD*	χ^2	*df*	*p*
Orientation towards heritage culture						
low	52	1.97	0.6	0.400	1	.527
high	49	1.92	0.5			
Orientation towards German culture						
low	51	1.94	0.5	0.098	1	.755
high	50	1.96	0.6			
Posttraumatic stress symptoms				Kruskal-Wallis rank sum test		
	n	*M*	*SD*	χ^2	*df*	*p*
Orientation towards heritage culture						
low	52	18.4	15.2	0.03	1	.862
high	49	18.2	13.0			
Orientation towards German culture						
low	51	18.7	14.8	0.03	1	.870
high	50	18.0	13.6			

Note. Posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5); depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25).

Mean scores of depressive symptoms and posttraumatic stress symptoms grouped by acculturative orientation towards the heritage culture (high vs. low) and the German culture (high vs. low).



Appendix C: Gender-disaggregated regression analysis for female participants

Regression analysis for depressive symptoms and posttraumatic stress symptoms for female participants.

Depressive symptoms			
	B	*SE*	*p*
Intercept	3.16	0.92	.001**
Age	-0.03	0.05	.535
Length of stay in Germany (in years)	0.08	0.05	.127
Potentially traumatic events	0.00	0.01	.699
Language skills	-0.28	0.09	.004**
Friends in Germany	-0.03	0.01	.020*

Note. $R^2 = .25$; adj. $R^2 = .16$; Depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25). [a]0: Male; 1: Female.
* $p < 0.05$.

Posttraumatic stress symptoms			
	B	*SE*	*p*
Intercept	-41.46	27.26	.401
Age	3.89	1.66	.973
Length of stay in Germany (in years)	-0.89	1.49	.269
Potentially traumatic events	0.45	0.37	.001**
Language skills	-1.18	3.61	.095
Friends in Germany	-0.41	0.29	.039*

Note. $R^2 = .33$; R^2 Adj. = .26; posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5). [a]0: Male; 1: Female.
* $p < 0.05$, ** $p < 0.01$.

Appendix D: Gender-disaggregated regression analysis for male participants

Regression analysis for depressive symptoms and posttraumatic stress symptoms for male participants.

Depressive symptoms			
	B	*SE*	*p*
Intercept	1.32	1.19	.272
Age	0.05	0.07	.466
Length of stay in Germany (in years)	-0.05	0.07	.447
Potentially traumatic events	0.00	0.02	.881
Language skills	-0.01	0.16	.931
Friends in Germany	-0.02	0.01	.177

Note. $R^2 = .08$; adj. $R^2 = -.02$; Depressive symptoms were measured with the Hopkins-Symptom Checklist-25 (HSCL-25). [a]0: Male; 1: Female.
* $p < 0.05$.

Posttraumatic stress symptoms			
	B	*SE*	*p*
Intercept	-41.46	27.26	.136
Age	3.89	1.66	.024*
Length of stay in Germany (in years)	-0.89	1.49	.554
Potentially traumatic events	0.45	0.37	.229
Language skills	-1.18	3.61	.745
Friends in Germany	-0.41	0.29	.167

Note. $R^2 = .25$; R^2 Adj. = .16; posttraumatic stress symptoms were measured with the PTSD symptoms Checklist for DSM-5 (PCL-5). [a]0: Male; 1: Female.
* $p < 0.05$.

Author contributions for study 3

Lina Alhaddad, Christine Knaevelsrud, Patricia Kanngießer, Nadine Stammel, Rudolf Kerschreiter, Frederick Sixtus, Jenny Sarah Wesche, and Caroline Meyer designed the study. Lina Alhaddad was responsible for the data collection, and Patricia Kanngießer supervised it. Caroline Meyer analyzed and interpreted the data and was the major contributor to writing the manuscript. Nadine Stammel contributed to the interpretation of data and critically revised earlier versions of the manuscript. All authors provided critical revisions to the manuscript and have approved the final version.

Chapter 5

General Discussion

This chapter will summarize and discuss the core findings of the three studies. Chapter 5.1 will focus on the results on causal beliefs about PTSD (study 1 and study 2). Chapter 5.2 will focus on the results on acculturation and mental health (study 3). For each topic, I will a) present the core findings, b) discuss the impacts of culture, and c) discuss the benefits of a more diverse conceptualization of culture with a particular focus on gender aspects. In Chapter 5.3, I will outline the strengths and limitations of this thesis. These limitations give rise to suggestions for improving future research. I will present a more generalized discussion of the findings and implications for cultural clinical research (chapter 5.4) and practice (chapter 5.5.) and finish with a conclusion in chapter 5.6.

5.1 Study 1 and study 2: Cultural aspects of lay causal beliefs about PTSD

5.1.1 Summary of findings for study 1

Study 1 investigated latent classes of causal beliefs about PTSD in participants from Germany, Greece, Russia, Ecuador, and Mexico and cultural and sociodemographic correlates of latent class membership. Three latent classes with differential profiles of causal beliefs about PTSD were identified. In all classes, participants showed high rates of agreement with the traumatic stressor as a potential cause. In the first class, participants solely showed agreement with the traumatic event as a potential cause (traumatic event-focused class). Beliefs were more multifaceted in the second and third class. In the second class, participants also showed high

agreement with individual psychological causes (individual psychological class). In the third class, participants mentioned several additional factors in addition to traumatic stress and individual psychological factors (multicausal beliefs class). Differences were found when comparing participants between countries (Q1). When additionally considering other variables, particularly gender emerged as a significant predictor of class membership: Male participants were more likely to show multifaceted causal beliefs than females (Q2). Independent of participants' origin, characteristics directly related to the illness were predictive of class membership: Participants recognizing PTSD were more likely to be in the traumatic event-focused class, and participants who themselves showed elevated ratings of PTSD symptoms were more likely to be in the multiple causes class (Q2). Taken together, these results highlight the need to include a diverse concept of culture and thus consider individual factors, such as gender and personal history with illness, when investigating causal beliefs in transcultural settings. Study 1 revealed that this can uncover additional factors influencing causal beliefs, including gender differences. However, the methodology of this study did not allow for a detailed exploration of these differences. Therefore, the aim of study 2 was to assess causal beliefs on a more detailed level and perform a gender-disaggregated data analysis. To this end, a mixed-methods approach was applied on the theoretical basis of the intersectional framework.

5.1.2 Summary of findings for study 2

Study 2 investigated intersections of gender and culture in causal beliefs about PTSD using qualitative data. The results show that participants held a wide variety of causal beliefs, with most participants focusing on psychological causes, traumatic experiences, and social causes, often expressing beliefs from more than one domain simultaneously. In this respect, laypersons' models

resembled the multifactorial etiological model of healthcare professionals. However, in contrast to professional models, laypersons did not distinguish clearly between cause and effect. Various causal beliefs were found across the five countries concerning cultural differences, with only slight differences between the countries (Q3). However, distinct differences were found in the causal beliefs of male and female participants. Female participants tended to focus less on internal or psychological causes than men. They were more likely to mention external factors such as the traumatic event or social and societal factors (Q4). Exploratory, differences between the countries were also analyzed separately for male and female participants. Interestingly, these analyses revealed that for several factors, differences on the national level were less pronounced or non-existent for men compared to women, indicating an interaction between country and gender (Q5). In sum, applying the intersectional framework allowed a more precise understanding of gender-specific cultural influences on causal beliefs.

5.1.3 Interpretation of findings for study 1 and study 2

These studies contribute to the field in several ways. In contrast to previous studies, this study included participants from several countries that were broadly comparable in terms of sociodemographic variables, allowing for a more detailed understanding of the mechanisms leading to cross-cultural differences. Furthermore, the analyses included potentially confounding variables to control for their effect. Particular interest was paid to the role of gender in causal beliefs, which has not been investigated in Western lay persons so far. Guided by the intersectional framework, the results contribute to a more nuanced understanding of cultural influences, offering a more detailed exploration of gender-specific variations in causal beliefs. In the following

paragraphs, implications will be discussed in more detail, along with the research questions of this dissertation.

5.1.3.1 Cross-country differences

Determining how people from different origins differ in their causal beliefs has long been the center of attention in this field. While applying different methodological approaches, both studies confirmed differences in causal beliefs between the five countries (Q1, Q3), highlighting the impact of cultural context on the formation of causal beliefs. These findings align with previous claims in the field that have emphasized the influence of cultural, social, and historical factors on the development of causal beliefs (Bhui et al., 2006; Dinos et al., 2017). Few studies have directly compared causal beliefs between countries using quantitative designs (Grupp et al., 2018; May et al., 2014; Reichardt et al., 2018; Slewa-Younan et al., 2017). However, most of these studies compared groups that, aside from cultural background, differed considerably in sociodemographic characteristics. Studies comparing the general population with recently arrived refugees found that the refugee populations reported, for example, younger age, fewer years of education, and higher rates of religious affiliation compared to the general population (Grupp et al., 2018; May et al., 2014; Slewa-Younan et al., 2017). Therefore, the risk was discussed that neglecting these factors may have led to overestimating the effect of culture in previous studies. However, our findings confirm that the country of residence is a relevant factor for the formation of causal beliefs, even when controlling for several other variables.

At the same time, our findings showed considerable heterogeneity within the countries. All types of beliefs were found across all countries. This supports claims that different causal beliefs do not necessarily compete but can coexist within cultural groups (Dumke et al., 2023; Grupp et

al., 2018). Considering the heterogeneity observed within countries, it is imperative to acknowledge the complexity of cultural influences on individuals' perceptions. One implication of this heterogeneity is the need for a more context-sensitive approach to understanding and addressing mental health concerns within diverse cultural contexts rather than assuming homogeneity within cultural groups.

5.1.3.2 Additional factors related to causal beliefs

Furthermore, we explored additional factors that may be associated with the formation of causal beliefs (Q2). While previous studies have acknowledged sociodemographic differences between cultural groups, such as age, level of education, and religious affiliation, they have often failed to adequately control for these variables in their analyses, particularly in cross-cultural group comparisons (May et al., 2014; Sheikh & Furnham, 2000; Slewa-Younan et al., 2017). This lack of control for potential confounders makes attributing observed differences solely to cultural factors challenging. In addition to country of residence, our study revealed that among laypersons, gender, mental health, knowledge about mental health, and personal values are significant covariates of causal beliefs for PTSD. These findings underscore that considering various cultural dimensions and controlling for mental health–related factors can be valuable additions to mere group comparisons. It urges a shift away from an exclusive focus on transcultural analyses toward an approach that acknowledges the multifaceted nature of cultural influences. Both studies furthermore identified self-assessed gender as a significant correlate of causal beliefs. This aspect will, therefore, be discussed separately in the following section.

5.1.3.3 The role of gender in causal beliefs

In both studies, we found gender differences in causal beliefs about PTSD (Q2, Q4, Q5). While there is a scarcity of quantitative studies explicitly focusing on gender differences in lay causal beliefs about PTSD (Grupp et al., 2018; May et al., 2014; Slewa-Younan et al., 2017), qualitative research targeting refugees has indicated that gender may play a role in the formation of causal beliefs (Brea Larios et al., 2022; Kuittinen et al., 2017). Particularly study 2 offers valuable insights into how causal beliefs may differ between women and men: Three themes were significantly more often mentioned by women: Reference to the event, social and societal factors, and inappropriately dealing with distress. Noticeably, two of these three themes referred to external factors (reference to the event and social and societal factors). This somewhat aligns with studies in refugee populations that have found similar results for Somali refugees in Finland (Kuittinen et al., 2017) and Afghan refugees in Norway (Brea Larios et al., 2022). Both studies found that women were more likely to mention factors related to society, structural violence, gender roles, or lack of social support in the community, while men were more likely to mention intrapersonal characteristics, such as psychological or somatic causes (Brea Larios et al., 2022; Kuittinen et al., 2017). The results are also in line with previous research demonstrating a gender disparity in the attribution of rape, with women being more inclined to attribute external causes, such as circumstances or the perpetrator, while men are prone to internal attributions, tending to blame the victim (Grubb & Harrower, 2008; Van der Bruggen & Grubb, 2014).

In turn, causal beliefs about trauma and symptoms have been linked to several aspects of mental health, including the severity of PTSD symptoms, help-seeking intentions, treatment adherence, and treatment outcomes (Benish et al., 2011; Hinton & Kirmayer, 2013; Massad &

Hulsey, 2006; Sheikh & Furnham, 2000; Slewa-Younan et al., 2020; Spoont et al., 2005). The current findings strongly imply that gender warrants greater consideration in future research, given potential implications for related concepts like stigma and help-seeking intentions.

Furthermore, the results of study 2 indicate that gender and culture may interact in their influence on causal beliefs. For some themes, significant differences between countries were found in the female sample but not in the male sample. While these results must be interpreted with caution due to methodological limitations, the findings suggest that the cultural influences on causal beliefs about PTSD may manifest differently for men and women. This opens interesting avenues for future research and emphasizes the importance of including gender aspects in cultural clinical research. Employing an intersectional approach in cross-cultural investigations holds promise for investigating the intersections of multiple factors shaping cultural variations in causal beliefs.

5.1.3.4 Conclusion

In conclusion, the studies demonstrate the significant influence of country of residence on causal beliefs about PTSD. The findings reveal differences and commonalities across the five countries, highlighting the need for a nuanced approach to understanding the impact of cultural factors. Additionally, the role of gender in the formation of causal beliefs seems to be important. Future cultural clinical research should explore the differential impact of cultural influences on causal beliefs about PTSD for women and men.

5.2 Study 3: Acculturation and mental health

5.2.1 Summary of findings

Study 3 investigated associations between cultural orientation and mental health in Arabic-speaking refugee youth. Furthermore, the study aimed to identify factors associated with acculturation that may contribute to mental health in refugee youth. As the results of studies 1 and 2 highlighted the importance of gender-sensitive methodological approaches in cultural clinical research, analyses were additionally performed separately for girls and boys. Results showed that cultural orientation was generally high towards both the German and the heritage culture. Cultural orientation was neither associated with PTSD symptoms nor with depressive symptoms (Q6). In contrast, the investigation of other factors related to acculturation and mental health in refugee youth revealed that the number of friends in Germany was negatively associated with the amount of both depressive symptoms and PTSD symptoms (Q7). Traumatic exposure was positively associated with symptoms of PTSD but not associated with symptoms of depression (Q7). German language skills were not associated with symptoms of PTSD but associated with depressive symptoms (Q7). These results indicate that a more specific assessment of acculturative factors can contribute to a better understanding of risk and protective factors for mental health symptoms in refugee youth in the context of acculturation (Q8). Exploratory analyses performed separately for girls and boys indicated that risk and protective factors for mental health symptoms may differ between girls and boys, for example, with language skills and number of friends being related to mental health only for girls but not for boys. Gender-sensitive methodological approaches can further contribute to understanding these complex interrelations (Q9).

5.2.2 Interpretation of findings

This study significantly contributes to the field by investigating the specific situation of accompanied refugee youth, which has been overlooked in previous acculturation research that mainly focused on either voluntary immigrants or unaccompanied refugee minors. Additionally, by balancing the sample regarding gender, we provide a more comprehensive understanding of the topic and add to the existing knowledge. Furthermore, in addition to a broad conceptualization of acculturation orientation, this study considers specific aspects such as positive and negative contact experiences, friendships, and language skills. In the following paragraphs, implications will be discussed in more detail, along with the research questions of this dissertation.

5.2.2.1 Associations between acculturation orientation and mental health

Research has consistently shown that assimilation and integration are associated with improved well-being among migrants, while separation is often identified as a risk factor for mental health problems (Berry, 1997; Choy et al., 2021; Nguyen & Benet-Martínez, 2013). Research on refugees is less extensive than that on immigrants, but some studies have shown similar results for refugees, with assimilation and integration being associated with better well-being (EL-Awad et al., 2021; Garcia & Birman, 2022; Oppedal & Idsoe, 2012). Contrary to expectations based on the literature, we found no associations between acculturation orientation and mental health in this study (Q6).

Several explanations could account for this deviation from previous findings, necessitating careful interpretation of our results. One possible explanation is that the distinct living circumstances of refugee youth living with their families may play an important role. In the only

previous study investigating associations between acculturation orientation and mental health, the sample diverged significantly from ours, comprising solely boys and predominantly unaccompanied refugee youth (EL-Awad et al., 2021). It can be assumed that experiencing migration as part of a family can significantly impact the acculturation process and potentially impact mental health (Buchanan et al., 2018; Müller et al., 2019). This might be one of the reasons for the diverging results. Unlike unaccompanied minors or voluntary immigrants who may have more autonomy in their adaptation to the receiving culture, accompanied refugee youth navigate the acculturation process within the context of their family's dynamics and cultural practices (Cissé et al., 2020; Roubeni et al., 2015). Consequently, associations between acculturation orientation and mental health may be more complex and, for example, highly dependent on contextual factors and family dynamics (Ward & Geeraert, 2016). While integration or assimilation may be beneficial for school or work contexts, they may at the same time cause conflicts at home (Birman et al., 2014). As such, there may be no single 'best way' for this group to cope with the challenges of acculturation.

More generally, associations between acculturation orientation and mental health may likely differ between refugees and voluntary immigrants. However, these differences have not been investigated systematically so far. As studies have often generalized findings across immigrant populations but rarely provided sufficient detail about the sample composition (Maehler et al., 2021), it is unclear to what extent previous research represents the experiences of refugee populations. While immigration is often voluntary, fleeing from one's home country is typically due to external factors beyond the individual's control. This comes with various migration histories, often lined by traumatic experiences, and more severe post-migration challenges

(Blackmore, Gray, et al., 2020; Fazel et al., 2012; Fazel et al., 2005). In line with this possible explanation, recent studies focusing on adult refugees have shown less consistent associations between acculturation and mental health (Copoc, 2019; Green et al., 2021). Furthermore, external factors have been found to affect acculturation orientation in refugees, such as available resources (Copoc, 2019) or insecure asylum status (Garbade et al., 2023). These results support the hypothesis that acculturation processes and their impact on mental health may differ considerably between immigrants and refugees. These differences should be investigated more systematically in future studies.

Moreover, with almost all studies in the field using cross-sectional designs, the directionality of the association remains unclear, which may further contribute to inconsistent results. It has been argued that acculturation and mental health may impact each other (Green et al., 2021). One longitudinal study focusing on adult refugees in Australia has suggested that the direction may, in fact, be the other way: They found that better mental health in refugees led to better integration in terms of employment and labor income (Dang et al., 2022). This calls for more longitudinal study designs, especially in minors, to understand these complex relationships better.

In conclusion, our findings underscore the unique challenges faced by accompanied refugee youth stemming from their migration experiences and family dynamics. These can significantly shape the relationship between acculturation and mental health outcomes. These findings highlight the importance of considering contextual factors and the specific living circumstances of certain groups in acculturation research.

5.2.2.2 Associations between other acculturation-related factors and mental health

While no significant association was found between the acculturation orientations of refugee youth and depressive and posttraumatic stress symptoms, it is worth noting that two other acculturation-related factors did show significant associations: having a more extensive social network in Germany and better self-assessed German language skills (Q7, Q8). These findings are consistent with previous research in the field, which suggests that social support and language proficiency can play an important role in the acculturation process. It is widely acknowledged that social support from friends, family, or school can act as a protective factor for non-refugee children and youths exposed to trauma (Trickey et al., 2012; Yule et al., 2019) and refugee youth (Blanc et al., 2022; Oppedal & Idsoe, 2015). Our results highlight the importance of social support by local peers during the acculturation process. Furthermore, acquiring language skills in the language of the host country can have a positive impact on the mental well-being of young refugees (Buchanan et al., 2018; Earnest et al., 2015; Montgomery, 2008; Müller et al., 2019). Research has identified several policy implications for promoting the mental well-being of refugee youth, most of them requiring significant policy changes. These include expediting the resolution of asylum claims, ensuring protection from post-migration violence, prioritizing family reunification, and providing access to physical and psychological healthcare (Fazel et al., 2012). This study suggests that, in addition to necessary policy changes, providing access to high-quality language classes and social activities with peers during the acculturation process may positively impact the mental health of refugee youth. The results further highlight the importance of school as a social context for refugee minors that has the potential to foster both language acquisition as well as social connections (McDiarmid et al., 2023).

5.2.2.3 Gender differences

While gender did not emerge as a significant correlate of mental health, gender-disaggregated analysis showed that risk and protective factors may differ between girls and boys (Q9). In the gender-disaggregated analysis, language skills and number of friends were related to mental health only for girls but not for boys. Instead, for boys, higher age was related to a higher risk of PTSD symptoms. Due to the small sample size in the disaggregated analysis, these results must be interpreted with the utmost care, but they open interesting avenues for future research. As outlined previously, gender may be crucial to the acculturation process due to its importance for social roles and identity building - especially in refugee youth (Güngör & Bornstein, 2013). However, gender is rarely considered in acculturation research (Maehler et al., 2021). For immigrant minors, results on gender differences in the associations between acculturation orientation and mental health have been inconsistent when measured on a broad level in secondary analyses (Berry, 2006; Klein et al., 2020; Motti-Stefanidi et al., 2008). Future studies should further explore this to better understand gender-dependent mechanisms of acculturation and mental health.

Consideration of gender may also help to shed light on the partly contradictory findings that have been found for risk and protective factors in meta-analyses on mental health in refugee minors (Fazel et al., 2012; Höhne et al., 2020). So far, refugee boys have been highly overrepresented in acculturation research and generally in research studying refugee minors (Behrendt et al., 2022; EL-Awad et al., 2021; Garbade et al., 2023; Keles et al., 2016). This has often been attributed to the fact that refugee girls can be more difficult to approach. One reason for this is that a lot of research has focused on unaccompanied refugee minors. Within this group, girls are more likely to be placed with relatives, while boys are more often placed in institutional

care (Herz & Lalander, 2017). Therefore, the experiences of refugee girls may not adequately be represented in previous research. By accessing refugee youth via school, this study conquered the problem of past research and included a balanced sample. However, overall, few schools were willing or able to participate in our study, which limited the sample size in this study. Other studies have shown that establishing a trusting relationship with schools on a long-term basis, for example, by combining data collection with school interventions, can enhance willingness to cooperate (Kevers et al., 2022b; Spaas et al., 2022). Future research should aim to achieve balanced samples and consider potentially gender-specific associations in the analyses.

5.2.2.4 Conclusion

In conclusion, these findings underscore the importance of considering contextual factors and living conditions of the participants studied in acculturation research. They furthermore highlight the benefits of focusing on specific aspects of acculturation instead of broad concepts, which could potentially be more informative for policymakers when it comes to concrete measures to promote mental health in refugee youth. Exploratory analyses on gender differences call for further studies in the field that apply gender-sensitive analyses.

5.3 Strengths and limitations

This thesis contributes to the field by suggesting several methodological approaches that address problems in current research. This included, for example, assessing several facets of culture in addition to group comparisons based on nationality or ethnicity, which are still widely used in cultural clinical research. This allowed us to move away from simple transcultural comparisons towards a more integrated approach that attends to the complexity of cultural

influences. Furthermore, suitable methodological and statistical approaches were implemented, which allowed for a nuanced understanding of this complex topic. As shown in this thesis, this can be achieved, for example, by including several aspects of culture simultaneously in the analysis (study 1, study 3), by using person-centered statistical approaches (study 1), by using mixed methods designs (study 2), and by applying the intersectional framework (study 2 and study 3).

Despite the merits of this thesis, several limitations must be addressed. First, none of the samples was representative of the general population. For studies 1 and 2, data was collected using convenience sampling via an online survey, which resulted in a relatively young and educated sample. Similar limitations apply to study 3. While the sample was not self-selected, as in studies 1 and 2, relatively few schools agreed to participate. This limits the representativeness of the sample. Furthermore, all three studies included specific populations, which also limits generalizability. In studies 1 and 2, only a few countries were included, and the results may differ when a different set of countries is chosen. Study 3 focused on Arabic-speaking refugee youth living with their families and attending school in Berlin. In this study, too, one must be careful when transferring these results to other groups, e.g., unaccompanied refugee youth, refugee youth who are not able to attend school, or refugee children of younger age.

Second, in all studies presented, we encountered challenges inherent to cultural clinical research. One major limitation of this dissertation is the focus on the etic perspective with little attention to the emic perspective. Studies 1 and 3 were based mainly on an etic approach, i.e., taking an outsider's perspective instead of an insider's. This approach allowed us to use validated questionnaires used in other studies and to make direct comparisons between countries. However, by choosing this approach, all study materials (i.e., instructions, questionnaires, the vignette) were

inherently influenced by cultural beliefs and norms, and specific emic aspects could only marginally be included in the analyses: Only study 2, which analyzed the open-ended questions from the survey was based on an emic approach as no presumptions were made on themes and categories. However, for study 2, study material and the rating by the researchers must be considered as influenced by cultural beliefs: Before conducting thematic analysis, all statements were translated into the native language of the analyzing authors to maintain coding coherence. To conquer this limitation, we chose to analyze the data using thematic analysis, a method that prioritizes statement content over linguistic nuances. However, using translated statements may have resulted in overlooking subtleties that could have influenced coding outcomes. Additionally, it is important to note that both raters involved in the analysis were white females born and raised in one of the five countries. This background could potentially introduce bias into their coding and ratings, as the perspectives of the researchers inherently influence qualitative research methods. Concerning the psychometric tools, it must be noted that not all questionnaires had validated translations for every language. Though validated versions were chosen whenever possible, and in all other cases, questionnaires were translated with the utmost care following recommended guidelines, this remains a major limitation for all studies.

Third, while this thesis aimed to adopt a more comprehensive approach to understanding cultural influences, it must be acknowledged that the level of nuance most certainly is not sufficient to capture the complexity and variability within cultures fully. One problem is that grouping participants into their respective country of residence oversimplifies matters. This may especially apply to Russia: Being the largest country in the world by land area, it exhibits significant geographical and cultural diversity. We tried to counteract this simplification in our study by

assessing several other factors, such as education, religion, personal values, migration history, or socioeconomic status. However, not all these aspects could be considered in the final analyses. Also, other factors remain not adequately considered in the two studies, for instance, intergenerational or urban-rural differences. Overall, the results remain an approximation of capturing culture, with many unanswered questions.

Fourth, due to limited resources, we were not able to engage in participatory research methods and include representatives from the studied populations throughout the whole research process. We counteracted this limitation by including at least one representative from every country in the research team, for instance, for consultation during the translation of the study material and during the process of recruiting participants. However, this does not cover the full spectrum of experiences we aimed to study in this thesis.

Fifth, all studies were conducted on the level of attitudes. In studies 1 and 2, this limitation must be considered with special care as the study design used a case vignette to assess causal beliefs. For study 3, acculturation orientation was assessed rather than actual acculturation behavior. These attitudes are highly subjective and may not necessarily be linked to actual health or acculturation behavior or treatment choices.

Finally, while gender is included in the study design and analyses, several methodological limitations apply, mainly due to small sample sizes. Furthermore, this thesis does not move beyond a binary perspective on sex/gender. While for all studies, we allowed participants to self-identify and included a non-binary option in the assessment (self-identified gender: diverse), due to the small *n*, we were not able to include these participants in the analysis. Thus, the presented results fail to acknowledge the full spectrum of gender diversity.

Several of the mentioned limitations represent challenges inherent in cultural clinical research, such as navigating the risk of cultural bias, dealing with different languages and translations, or targeting populations that are hard to reach for research. In the following section, I will outline implications for future research that might contribute to overcoming the previously raised issues.

5.4 Implications for future research

Beyond the considerations for the specific fields described above, several implications for future research should be discussed on a broader level. This systematic exploration aims to contribute to the methodological and conceptual advancements in cultural clinical research, fostering a more comprehensive and nuanced understanding of the field. These aspects include 1) considering inclusive theoretical frameworks in cultural clinical research, 2) applying the intersectional framework, 3) including gender aspects in cultural clinical research, and 4) the potential of open science practices in the field. Each aspect will be illuminated in detail in the subsequent paragraph.

5.4.1 Considering inclusive theoretical frameworks for cultural clinical research

The term "culture" encompasses a multitude of definitions and theoretical frameworks, with several of these having gained importance in the field of cultural clinical research in recent years (De Jong & Van Ommeren, 2002; Heim & Knaevelsrud, 2021). Several of these aspects have been considered in this thesis to caution against essentializing single characteristics such as ethnic group as "culture" (DelVecchio Good & Hannah, 2015). However, there remain avenues for future research to safeguard against cultural bias.

Emic and etic approaches: One suggestion that has been made is addressing these challenges by adopting both insider and outsider viewpoints, commonly known as the combination of the etic and emic perspective (Pike, 1967). While the etic approach adopts an outsider viewpoint, the emic approach adopts an insider perspective, using qualitative methods to describe the views, thoughts, or behaviors of a specific cultural group without predefined concepts (Karasz & Singelis, 2009). In combination, the two perspectives have the potential to complement each other (Grupp et al., 2018; Heim et al., 2022; Niblo & Jackson, 2004). Emic aspects were only marginally considered in this thesis. Future research should expand these perspectives for more inclusive representations of cultural variety, considering, for example, cultural concepts of distress following trauma in addition to the Western concept of PTSD. This can be achieved, for instance, by participatory research methods along every step of the research process and by more explicitly considering local representations of distress, such as cultural concepts of distress, which will be explained in more detail in the next chapter.

Cultural concepts of distress: For a more inclusive understanding of culturally specific distress, "cultural concepts of distress" have been introduced (Kaiser & Jo Weaver, 2019). In the most recent version of the DSM (5. Edition), they are defined as "ways cultural groups experience, understand, and communicate suffering, behavioral problems, or troubling thoughts or emotions" (American Psychiatric Association & Association, 2013). Cultural concepts of distress represent an important extension of the widely used concept of mental disorders. One example of a cultural concept of distress is *susto*, which is found in many Latin American populations (Leon, 2020). *Susto* is attributed to a frightening event that causes the soul to leave the body and results in unhappiness and sickness, as well as difficulties in performing key social functions (American

Psychiatric Association & Association, 2013). Symptoms can appear days or years after the fright is experienced and typically include appetite disturbances, inadequate or excessive sleep, troubled sleep or dreams, sadness, lack of motivation, and feelings of low self-worth or dirtiness. Somatic symptoms accompanying *susto* include muscle aches and pains, headache, stomachache, and diarrhea (American Psychiatric Association & Association, 2013). Research has linked *susto* to PTSD as it is etiologically defined by distress due to a sudden intense fear or a result of a traumatic event, and symptoms are similar to those that are typical in PTSD. However, there is a lack of research investigating symptom overlap between *susto* and other mental disorders, such as depression and anxiety disorders (Leon, 2020; Martínez-Radl et al., 2023). Examples like this call for research that combines the emic and etic perspectives to bridge the gap between cultural concepts of distress and concepts of mental disorders developed in WEIRD societies. This thesis could have benefitted from including the concept of *susto* given its potential relevance to the participants from Ecuador (Armijos et al., 2014) and Mexico (Muñoz Morán, 2011; Weller et al., 2002) demonstrated in previous research. This consideration may have provided additional insights into potential symptom overlap between *susto* and PTSD, thereby enhancing the comprehensiveness and applicability of our findings.

In conclusion, conceptualizing culture as a multilayered and complex construct instead of focusing on unidimensional differences may help to depict and understand the underlying mechanisms more adequately. In addition to etic perspectives, research should consider emic perspectives, such as cultural concepts of distress.

5.4.2 The intersectional framework in cultural clinical research

This thesis further applied the intersectional framework to recognize the interconnectedness of various social identities, such as gender and ethnicity, and their impact on mental health outcomes (Collins & Bilge, 2020; Grzanka, 2020). The intersectional framework goes beyond considering these factors in isolation, acknowledging their interconnectedness and the unique experiences that arise at these intersections. It offers the potential to provide important insights into the health needs and experiences of marginalized populations, which can ultimately contribute to improving healthcare practices (Brabeck et al., 2022; Grzanka, 2020; Hermaszewska et al., 2022). When translated into methodological approaches, it furthermore allows to conquer the problem that social inequalities are often reproduced in research and that experiences of marginalized groups, therefore, are often underrepresented (Henrich et al., 2010).

Future research could benefit from engaging with community organizations and advocacy groups representing the studied populations to ensure that research questions, methods, and findings are relevant and responsive to community needs and priorities. Ideally, this includes building diverse and culturally competent research teams to enhance the sensitivity and relevance of studies conducted in multicultural contexts. Recruiting researchers and staff members from diverse backgrounds, providing cultural competency training, and fostering open dialogue about cultural differences and potential intersections can help mitigate biases and promote culturally responsive research practices. Furthermore, qualitative research methodologies, such as conducting in-depth interviews or facilitating focus groups advancing a research endeavor, can help capture individuals' intricate experiences navigating the intersections of diverse social identities without constraining them within preconceived categories. Future research may also

benefit from including the intersectional perspective not only in the analysis but in all stages of the research process, from study design to dissemination of results. This can involve, for instance, purposive sampling methods or oversampling to include individuals from marginalized or underrepresented groups deliberately and to ensure that research samples reflect the diversity of intersecting social identities relevant to the study. One example of this is unaccompanied refugee girls, who have been hard to reach in past research. As gender differences were a main focus in this dissertation, this facet of intersectionality will be discussed in the next paragraph in more detail.

5.4.3 Including gender in cultural clinical research

The results of this thesis indicate that gender is meaningful in cultural clinical trauma research. Not only was it identified as a correlate of causal beliefs but also as a potential moderator for cultural differences. It must be noted that both analyses hold considerable methodological limitations. However, gender emerged as an important factor in all three studies, indicating its significance when investigating cultural aspects.

Sex and gender differences in mental health are at the center of debates about structural inequalities in healthcare, and issues of sex/gender-sensitive research have been argued for in recent years (Howard et al., 2017; Riecher-Rössler, 2017). For instance, gender differences in PTSD prevalence have received growing attention (Christiansen & Berke, 2020). Several studies have reported that while men have a higher risk of experiencing traumatic events, women are more likely to experience symptoms of PTSD (Haering et al., 2022; Tolin & Foa, 2006). However, while the overall tendency is well established in meta-analyses, there is considerable heterogeneity in the results. For instance, gender differences in populations varied when analyses were stratified by

race/ethnicity (Norris et al., 2001; Valentine et al., 2019). In populations that have been exposed to combat, both in post-conflict populations and veteran populations, little or no differences have been reported between women and men (Charak et al., 2014; Wilker et al., 2021). These results indicate a link between gender and culture. Still, most high-quality research is still conducted in (English-speaking) Europe and North America due to better infrastructure and resources and fewer barriers. Accordingly, research in these populations is overrepresented in systematic reviews and meta-analyses implementing rigorous inclusion criteria (Haering et al., 2022).

So far, the underlying mechanisms of these disparities are not fully understood, but several hypotheses have been proposed to understand these mechanisms better (Christiansen et al., 2022; Olff, 2017). Current research has focused on mechanisms driving these differences and has suggested that traumatic events may impact women differently than men, in part due to social experiences (Street & Dardis, 2018). Consequently, gender role socialization impacts several risk factors related to traumatic event exposure, the development and maintenance of PTSD, and successful diagnosis and treatment of PTSD (Street & Dardis, 2018).

Multiple gender-related risk factors may play a role in explaining differences in PTSD between women and men, including intrapersonal risk factors, such as negative affectivity, rumination, low self-esteem, depression, and excessive fear and anxiety in response to stress (Dark et al., 2022; Olff & Langeland, 2022; Ramikie & Ressler, 2018). For instance, interpersonal factors on the level of relationships and the societal level have been proposed, such as women being more often affected by victim blaming (Goldberg & Freyd, 2006; Grubb & Harrower, 2008; Van der Bruggen & Grubb, 2014), or females being less encouraged to confront their fears and therefore

being more vulnerable to avoidant behavior after trauma (Christiansen et al., 2014; Graham et al., 2020).

However, intersections of culture and gender are rarely investigated, and the underlying mechanisms are not yet well understood. It has been suggested that at least some of the differences observed in the prevalence of PTSD might be due to the traditional roles and expectations of women and men, which may vary by culture (Gavranidou & Rosner, 2003; Norris et al., 2001). Specifically in hard-to-reach populations, small sample sizes often do not allow for gender-sensitive analyses, which poses an essential limitation to the generalizability of the results of transcultural research. The intersectional framework lays the theoretical and methodological foundation for including gender in cultural clinical research. It can also help to challenge assumptions and biases that may exist within the field of trauma research and broaden our understanding of the complex and interconnected nature of trauma.

5.4.4 Open science practices

On a more general level, open science practices may be of particular relevance to enhance more comprehensive approaches in the field of cultural clinical research. Open science practices encompass a range of initiatives, including preregistration of study protocols, sharing of data and materials, and open-access publishing, all of which contribute to the integrity and reliability of research findings. By fostering an environment of openness and collaboration, open science practices can help to mitigate cultural bias in research, leading to more robust and reliable scientific findings. It is important to note that while these practices can help reduce bias, they should be used in conjunction with other strategies to promote cultural diversity and inclusivity in research. In the

following, three examples will be given of how cultural clinical science can benefit from open science practices.

Pre-registering study designs: Transparency and reproducibility of study results are crucial for ensuring the validity and generalizability of findings across different cultural contexts. Pre-registering study protocols can help mitigate the risk of cultural bias in research. By establishing a predetermined plan for data collection and analysis, researchers are less susceptible to unconscious cultural biases or selective reporting of findings that support cultural stereotypes or preconceptions, thereby promoting objectivity and validity of the results (Ferguson & Heene, 2012).

Making study materials freely accessible: Furthermore, documentation and availability of study designs and materials, particularly translations of study materials and questionnaires, aid the reproduction of results in several cultural contexts. Cultural clinical research often involves adapting assessment tools and measures to different cultural and linguistic contexts to ensure their appropriateness and validity. By making these translations publicly available, researchers enable others to replicate and validate study findings in diverse populations, thus confirming the stability and consistency of findings across varied cultural settings. Moreover, it allows researchers from different cultural backgrounds to scrutinize the materials, thereby reducing the chance of cultural bias.

Harmonizing data collection and sharing data: Methodological approaches that consider the complex interrelationships of cultural issues often require large data sets. These can be difficult to obtain, especially in countries with limited resources or where the safety of researchers and participants is at stake. Harmonizing data collection and data sharing policies

facilitate collaboration and the pooling of data sets from different cultural contexts, allowing researchers to conduct larger studies with greater statistical power and generalizability. This can be particularly beneficial when studying marginalized populations that are generally underrepresented in the data, such as participants identifying as trans or non-binary in terms of gender (Peters et al., 2023; Rioux et al., 2023), but also when using intersectional frameworks.

In the context of cultural clinical research, where understanding the complex interplay between cultural factors and mental health outcomes is paramount, open science practices offer opportunities to enhance methodological rigor and promote inclusivity while at the same time reducing the risk of cultural bias. However, despite the potential advantages, open science practices are not yet well established in the field of cultural clinical research. Cultural clinical research often involves especially vulnerable populations, such as patients or participants, who are persecuted for political reasons, which may raise ethical concerns about data sharing and participant privacy. Researchers may hesitate to share data and materials openly due to confidentiality or safety issues. Furthermore, cultural and linguistic diversity among research participants can complicate efforts to standardize data collection procedures and translate study materials for broader dissemination. Addressing these challenges will require concerted efforts from researchers, funding agencies, and academic institutions to promote a culture of openness and transparency in cultural clinical research.

5.5 Practical implications

Aside from implications for future research, several practical implications may be drawn from this thesis's results. In the following paragraphs, these will be discussed separately for causal beliefs about PTSD and for acculturation in refugee youth.

5.5.1 Causal beliefs about PTSD in psychotherapy and psychosocial services

Incorporating the understanding of causal beliefs into clinical practice can enhance the quality of both diagnosis and treatment not only in transcultural settings but potentially for all patients. Practitioners should be aware of the multitude of possible causes that patients may consider to be the cause of their symptoms – often with several coexisting beliefs. While the results suggest that laypersons' causal beliefs largely overlap with risk factors identified by recent clinical research, this may not necessarily be true for specific clinical encounters.

Moreover, this thesis's findings indicate factors that may shape causal beliefs, which may help practitioners consider structural differences between patients and avoid misunderstandings. It could be confirmed that cultural factors, such as the country of residence, can significantly shape causal beliefs about PTSD. It is important to consider these findings when treating patients from countries other than one's own country. However, while apparently cultural factors can lead to differences in causal beliefs, healthcare practitioners should be careful not to overlook other influential factors. For instance, gender or personal history with an illness seem to play a significant role in shaping causal beliefs about PTSD. Practitioners should be aware of these structural differences to avoid, for instance, gender-related biases in encounters with clients. A balanced approach that considers both systematic differences and individual factors concerning

culture, gender, and individual experiences can provide a more nuanced and effective framework for understanding and addressing causal beliefs in mental health care. By reducing cultural and gender-related biases, this approach can ultimately lead to more personalized and effective treatment strategies for patients.

5.5.2 Fostering mental health in refugee youth during the acculturation process

Concerning acculturation processes in refugee youth, the study provides valuable insights into the mental health needs of refugee youth and offers practical recommendations for interventions. The findings underscore the importance of social inclusion and language acquisition in promoting mental health among refugee youth. Facilitating opportunities for social interaction and providing language classes can help young refugees build social networks, communicate effectively, and navigate their new environment, all of which potentially can contribute to improved mental health outcomes.

The study further highlights the need for culturally sensitive and trauma-informed (mental health) services for refugee youth. Almost all refugee youth participating in the study reported having experienced at least one traumatic event, with an average of nine traumatic events per youth. Given the association between traumatic exposure and PTSD symptoms, it is crucial that caretakers and educational institutions are trained to support traumatized refugee minors adequately and that low-threshold interventions are available and easily accessible for minors at risk. Additionally, the study emphasizes the importance of cultural sensitivity in contact with refugee youth living with their families. The results show that almost all youth had a high acculturation orientation towards both their heritage culture and the German culture. Respecting and including the heritage culture may, therefore, be essential for clinical interventions to be

effective. Specifically for refugee youth living with their families, the role of family dynamics in the acculturation process should be considered in interventions to help families navigate the challenges of acculturation together.

Furthermore, the study points to the need for gender-sensitive approaches in mental health interventions for refugee youth. Recognizing that risk and protective factors for mental health symptoms may differ between girls and boys, interventions should be tailored to address the specific needs of each gender. This may include targeted interventions and services that address the specific living circumstances and challenges of refugee girls and boys. These findings can inform policies and programs aimed at improving the mental health of refugee youth, ultimately contributing to their successful integration and well-being in their new communities.

5.6 Conclusion

Dealing with the consequences of traumatic experiences is a major challenge for global mental health worldwide, with low- and middle-income countries being disproportionately affected by adversities due to, for example, violent conflicts, oppression by authoritarian regimes, or natural disasters caused by climate change. In contrast, most trauma research is conducted in (English-speaking) high-income countries. It is, therefore, vital to better understand both common factors and differences to ensure the best possible care in regions of the world where resources are scarce. Researchers must guard against cultural bias in their work. Overemphasizing visible differences, such as ethnicity, can lead to an inflated perception of cultural influence, potentially overshadowing other significant factors. While recognizing the importance of cultural aspects, it

is essential not to overlook potential biases and to consider a broader range of influential factors in cultural clinical research.

This thesis contributes to this aim by suggesting several methodological approaches that address problems in current research. Assessing several facets of culture can be a valuable addition to group comparisons based on nationality or ethnicity, which are still widely used in cultural clinical research and do not attend to cultural influences' complexity. It is equally important to implement suitable methodological and statistical approaches, which allow a nuanced understanding of this complex topic.

The results of this thesis indicate that particularly interactions of culture and gender should be considered in cultural clinical research. Future research should expand these considerations not only to gender but also to other characteristics such as race, class, age, disability, or sexual identity. Intersectional approaches in cross-cultural research can lead to a better understanding of the interrelationships between several factors influencing cultural differences. Acknowledging cultural similarities as well as differences by addressing these issues in a methodologically sound manner provides great potential to improve research in transcultural settings. This ultimately opens avenues to address disparities in mental health care and to advance global mental health.

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Curriculum Vitae

For reasons of data protection the curriculum vitae in not available in the online version of this dissertation.

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Publications

Publications with * are part of this thesis.

Haering, S.[#], **Meyer, C.**[#], Schulze, L., Conrad, E., Blecker, M., El-Haj-Mohamad, R., Geiling, A., Klusmann, H., Schumacher, S., Knaevelsrud, C. Engel, S. (in press). Sex and gender differences in risk factors for post-traumatic stress disorder: a systematic review and meta-analysis of prospective studies. *Journal of Psychopathology and Clinical Science.*

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Selbstständigkeitserklärung

Hiermit versichere ich, dass ich die vorgelegte Arbeit selbstständig verfasst und keine anderen als die angegebenen Hilfsmittel verwendet habe. Die Arbeit ist in keinem früheren Promotionsverfahren angenommen oder abgelehnt worden.

Berlin, Mai 2024

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