DISSERTATION

Psychische Belastung und Substanzkonsum geflüchteter Menschen – Die Rolle der sozialen Ökologie

Mental distress and substance (mis)use among refugees - a matter of social ecology

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List of abbreviations

CoC	Country of Origin
FGD	Focus group discussion
OR	Odds Ratio
PHQ	Patient Health Questionnaire
PTSD	Post-Traumatic Stress Disorder
RA	Rapid Assessment
SSI	Semi-structured interview

Abstract

Mental distress and substance (mis)use among refugees is often discussed as determined by pre-migration traumatic experiences, such as violence and war. By applying the ecological framework of refugee distress (Miller & Rasmussen, 2017), the dissertation presented, shifts the perspective from pre-migration experiences to the social ecology, i.e. the setting of everyday life, provided to refugees in Germany, Lebanon, and Turkey. Unlike the pre-migration experiences, this setting remains modifiable, while continuously producing suffering. Tracing the roots for mental distress and substance (mis)use within the social ecology of refugees in countries of refuge allows for deriving structural prevention measurements. With this aim, two studies were conducted and integrated within the mixed-method synopsis presented. The examination of displacement-related stressors through a transnational lens, employing a mixed-method approach embedded in a theoretical framework is a novel contribution to the field of research.

Study 1, the qualitative assessment (Hertner et al., 2023), includes 108 semi-structured interviews (SSI) and ten focus group discussions (FGD) with key persons. The qualitative content analysis identifies as associated with increased substance (mis)use: insecurities regarding the legal status, the lack of prospects and meaningful activities, being accommodated in refugee shelters, family separation and aspirations to belong to a community. In Study 2 (Ruhnke et al., 2024), survey data from 2491 Syrian respondents in Lebanon and Turkey are employed to transnationally compare factors within the social ecology of refugees that influence mental distress (defined by a PHQ-8 sum-score >10). Syrians residing in Lebanon reported more adverse living conditions, including unemployment, poverty, discrimination, and social isolation, and a greater prevalence of mental distress (26%) compared to respondents in Turkey (15%). Between the two study contexts, the predictive value of single factors of refugees' social ecology, as included in the logistic regression analysis differs not only in magnitude, but also in the effect's direction. For instance, poverty, day-to-day work, unemployment, and family support reveal varying predictive values and relationship, while social isolation and discrimination emerge as significant predictors in both countries.

The observed differences between the countries of refuge examined (Germany, Lebanon, and Turkey) lead to the conclusion, that the link between social ecology and substance (mis)use or mental distress cannot be painted with a broad brush but needs to be

nuanced to account for the individual, local, community and national context. Such an approach is crucial not only in research and psychosocial practice, but also from a policy perspective as it underlines the significance of implementing measures aiming at reducing displacement-related stressors and improving refugees' social ecology in the countries of refuge.

Zusammenfassung

Psychische Gesundheit und (missbräuchlicher) Substanzkonsum Geflüchteter werden oftmals als Folgen von traumatischen Erlebnissen vor der Migration, wie beispielsweise Gewalt und Krieg, diskutiert. Durch die Anwendung des *ecological model for refugees distress* (Miller & Rasmussen, 2017) verschiebt die vorgestellte Dissertation den Fokus von den Erlebnissen vor der Migration hin zur sozialen Ökologie, d.h. den alltäglichen Lebensumständen, die Geflüchtete in Deutschland, dem Libanon und der Türkei geboten werden. Im Gegensatz zu den Erlebnissen vor der Migration sind diese Lebensumstände veränderbar, während sie fortwährend Leid produzieren. Die Ursachen psychischer Belastung und (missbräuchlichen) Substanzkonsums zu erforschen, die in der sozialen Ökologie der Geflüchteter in Aufnahmeländern eingebettet sind, ermöglicht es strukturelle Präventionsmaßnahmen vorzuschlagen. Hierfür wurden zwei Studien durchgeführt und in einer Mixed-Methods-Synopsis integriert. Die theoriegeleitete, transnationale Erforschung Migrations-bezogener Stressoren im Rahmen eines Mixed-Method Ansatz stellt einen neuartigen Beitrag zum Forschungsfeld dar.

Studie 1, das qualitative Assessment (Hertner et al., 2023), umfasst 108 semi-strukturierte Interviews (SSI) und zehn Fokusgruppendiskussionen (FGD) mit Schlüsselpersonen. Die qualitative Inhaltsanalyse identifizierte einen unsicheren Aufenthaltsstatus, einen Mangel an Perspektiven und sinnvoller Beschäftigungen, die Unterbringung in Gemeinschaftsunterkünften, familiäre Trennung sowie den Wunsch *Dazuzugehören*, als assoziiert mit einem erhöhten Substanzkonsum. Studie 2 (Ruhnke et al., 2024) verwendet die Umfragedaten von 2491 Syrer*innen im Libanon und in der Türkei. Syrer*innen im Libanon, im Vergleich zu jenen in der Türkei, bewerteten ihre Lebensumstände in puncto Arbeitslosigkeit, Armut, Diskriminierung und sozialer Isolation, schlechter und berichten häufiger von psychischer Belastung (26% vs. 15%). In der logistischen Regression zeigt sich, dass sich zwischen den beiden Kontexten Prädiktoren in ihrer Relevanz aber auch in der Richtung des Zusammenspiels mit psychischer Belastung unterscheiden, z.B. für Armut, Arbeitslosigkeit und familiäre Unterstützung. In beiden Ländern treten soziale Isolation sowie Diskriminierung als signifikante Prädiktoren auf.

Die Unterschiede zwischen den untersuchten Aufnahmeländern (Deutschland, Libanon und Türkei) führen zum Schluss, dass das Zusammenspiel zwischen sozialer Ökologie und (missbräuchlichem) Substanzkonsum bzw. psychischer Belastung Geflüchteter nicht

pauschal betrachtet werden kann, sondern erst durch das Einbeziehen des individuellen, lokalen, gesellschaftlichen und nationalen Kontexts valide wird. Eine entsprechende Sensibilisierung ist in der Forschung, aber auch im Rahmen psychosozialer Angebote mindestens ebenso relevant wie die Umsetzung von politischen Maßnahmen zur effektiven Verbesserung der sozialen Ökologie Geflüchteter in den Aufnahmeländern.

1 Introduction

Migration is constantly discussed as a socially relevant topic. Concerning refugee migration, the evolving public discourse creates relatively stereotypical images of refugees, vulnerable and traumatized, radicalized and criminal, or taking advantage of the German welfare system (1–4). While the focus is usually put on refugees' pre-migration traumatic experiences, such as violence and war, the discourse seldomly considers how the provided setting in countries of refuge might amplify mental distress. The emphasis on the pre-migration trauma does acknowledge refugees' suffering, but reveals it primarily as a psychological wound, usually diagnosed as Post-Traumatic Stress Disorder (PTSD) (5,6). As much as this approach uncovers their suffering, it individualizes and decontextualizes it (5,6), giving the same effect as not acknowledging the psychological impact of the policies and lived realities in the receiving countries. For decades, scholars of Public Health promote the "Health in All policies" approach and the policy-oriented framework of social determinants of health emphasizing the impact of exogenous factors on health and demands healthier policies, not only, but as well for refugees (7).
By applying the ecological framework of refugee distress (8), the dissertation presented, examines the setting of every-day life of refugees in Germany, Lebanon and Turkey, and reveals factors associated with mental distress and substance (mis)use[1]. It thus contributes to shifting the perspective from pre-migration experiences to mental health risks embedded in the context provided in countries of refuge.

1.1. Theoretical frameworks

Contemplated from a biomedical approach, mental illness is driven internally by the physical basic configuration of the human brain and body. Similarly, psychology treats mental illness as an internal deficiency in the psyche or the mind of a person. Within the bio-psycho-social model of well-being, widely acknowledged among medical doctors, psychiatrists, psychologists, and researchers, external, social causes of mental illnesses are

[1] Throughout the synopsis the term (mis)use refers to any kind of substance use, regardless of the respective psychiatric diagnosis. Relying on the universality of medical terms comes with the risks of misunderstandings or misinterpretation due to the culturally and socially informed nature of the concepts (9–11). Speaking about (mis)use thus includes recreational and excessive substance misuse, substance abuse, or substance use that pathologically qualify for addiction "regardless of the type of substance (i.a., legal, illegal, pharmaceuticals)" (9).

incorporated, in addition to biological and psychological causes. However, the implementation of its clinical implications remains challenging (12,13).

From a sociological perspective, determinants of mental health are situated outside the person, in the person's social situation or the environment, while mental illness is thus a "breakdown, in the face of overwhelming environmental stress" (14, p.106). Environmental stress is not equally distributed in the population but amplified by race, class, gender issues and their intersections, neither is mental illness (14–16).

The conclusion to be drawn from these perspectives is that mental health must be shaped by both, internal and external factors. Thus, studying mental illness from an interdisciplinary perspective allows for analysis of the underlying mechanisms of systematic, not randomized distribution of mental illness and distress among the population (e.g. 17–19)).

1.1.1. Immigration as a social determinant of (mental) health

For decades, immigrants have been a population of particular interest worldwide. In the Post-World-War-II era the discipline of transcultural psychiatry was established, as a decolonizing project in the Anglo-American sphere under the significant influence of social psychiatry (20). In particular, with regards to people migrating from *non-Western* to *Western* countries, scholars and psychiatrists unanimously agreed "about the effects of social phenomena on the increase of mental illness" ((21) as cited in (20)). Even though particularly connected to the person's social situation and environment, external factors were reduced primarily to cultural differences (17,20). Within such an essentializing cultural framework, migration primarily from the African continent to the West was argued to cause disturbing effects on the mental health of the immigrants, due to their inability to adapt to the Western culture, dating back to the colonial term of 'detribalization' (20). Immigrant's mental health could only be reestablished, if they returned to their home countries, prompting, for instance, UK deportation campaigns in the 1950s and 60s (20). Nowadays, the approaches to comprehend mental health among immigrants shifted from cultural to more structural frameworks, discussing immigration itself as a determinant of health (17). The World Health Organization (WHO) (22,23) or the International Organization of Migration (IOM) (24), which both promote globally the incorporation of identified social determinants of health into clinical practice and policy, likewise operate within these structural frameworks (17,25). However, the effect of immigration on health is still mainly being discussed as mediated by restricted access to healthcare facilities due to structural barriers (17), such as language, culture or trauma (26,27). In line with Castañeda et al

(17), I argue that expanding these structural frameworks to include a holistic examination of the immediate effects of the lived realities of immigrants, their social situation, and environmental factors (including for instance, racism, legal and socio-economic status) on their mental health and distress is still needed.

1.1.2. Social ecology and refugee distress

Research on the mental health of refugees, a specific sub-population of immigrants, expected to have left their countries of origin due to political violence, armed conflict, or war, has mainly been concerned with the effect of the factor “traumatic experiences”. Quantitative research has successfully substantiated a dose-effect-relationship, showing more and more direct or intense traumatic experiences prior to migration to determine higher levels of mental illness or distress, commonly assessed as PTSD or depression[2] (30). Despite the strong correlations found, Kenneth E. Miller and Andrew Rasmussen conclude from several empirical studies, that war exposure only accounted for 1% to 25% of variance in PTSD symptoms recorded among refugees (30). Based on these findings, the authors concluded that it is imperative to include the social situation and environment of refugees in the countries of refuge to better understand how their mental health and distress is shaped (30).

Studies interested in the predictive value of external factors embedded in the post-migration context on migrants’ mental health and distress usually refer to them as post-migration or post-displacement stressors (see Chapter “1.2. Current state of Research”). While being widely used, these terms lack a clear definition (31). Furthermore, describing the lived reality of a person as the multitude of stressors might disregard their interactions as well as the resources individuals have embedded in their lived realities. In contrast, the concept of social ecology allows for a capturing of the full extent of a person’s lived reality, their setting of everyday life, while it acknowledges experiences of discrimination or social marginalization as structural violence and considers mental health from the individual to the macro level, as well as on the level of family functioning and the broader community (30,32).

[2] At this point I would like to emphasize the questionable validity of assessing traumatic experiences only as psychiatric diagnosis, such as PTSD and depression. The PTSD diagnosis in particular is continuously being criticized for its decontextualization and lacking sensitivity for the cumulative dimensions of trauma (5,28,29).

Based on this evidence and critique, Miller and Rasmussen developed the ecological model of refugee distress (8). As displayed in Figure 1, the model does not disregard exposure to armed conflict or traumatic events prior to migration. It shifts the focus to refugees' social ecology in the countries of refuge paying tribute to the empirical evidence that the addition of post-migration stressors, especially in high income countries, significantly improves the explanatory power of statistical models predicting refugees' mental distress compared to models accounting for trauma-exposure only (30,33–38). As per Miller and Rasmussen (2017), displacement-related stressors, ranging from minor daily stressors to potentially traumatizing events, are impactful due to two basic assumptions. First, daily stressors are salient and - upholding the idiom "constant dripping wears the stone" – steadily erode psychological coping and functioning (28,29). Second, changing the social ecology is beyond the control of the individuals affected, especially when it comes to legal status or family separation. As displayed in Figure 1, Miller and Rasmussen specify the social ecology by listing several prominent displacement-related stressors, without claiming refugees' social ecology would be limited to such.

For both studies summarized in the present synopsis, the ecological model of refugee distress (8) served as the underpinning theoretical framework.

The link between family functioning, refugees' social ecology and individual mental health included in the original model originates from the specific expertise and research interest of the authors but is not studied in the presented publications.

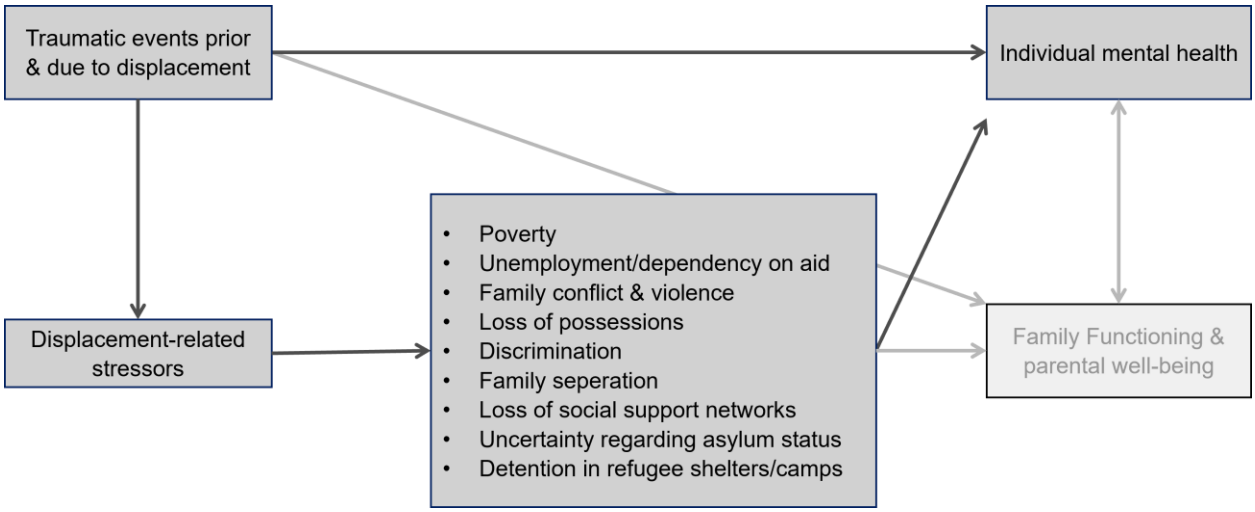

Figure 1: Ecological model of refugee distress as proposed by Miller and Rasmussen, 2017. Own illustration, with greyed out family functioning and parental well-being, as this path is part of the original model but not being studied nor discussed in the synopsis.

1.2. Current state of research

In general, refugees are assumed to show higher levels of PTSD and other trauma sequelae than other migrants or the population in hosting countries (e.g. 39,40). The strand of research assessing the effects of displacement-related stressors on mental distress, PTSD, depression and anxiety disorders is vast. Several systematic reviews and meta-analysis were published in the last years (37,41–45). Investigating diverse refugee populations all over the world, negative associations between different mental health outcomes and perceived discrimination (35,43–48), social isolation and loneliness (33,46,49), difficulties with the receiving country's language (43,50), reported uncertainty regarding the asylum or visa status (34,43,48,51,52), asylum-related detention (42,53), inappropriate accommodation (37,43) unemployment (41,43,49,50,54,55) and more generally poverty (33,37,46,56–58) just as much as the loss of social status (59) were reported. In addition, negative effects of family separation (38,43,60), family conflict (61,62) and poor social support (38,48) are evident.

In contrast to PTSD, depression and anxiety disorders, research which assesses the effects of displacement-related stressors on refugees' substance (mis)use remains rather limited. In addition, research existing mainly focusses on estimating prevalences (9,63) and specific subgroups or type of substances (64). Studies going beyond prevalence estimation, suggest substance (mis)use among refugees to be a coping mechanism for dealing with post-migration stressors such as boredom and frustration (10), trauma and displacement pressure (65–67), family separation, or the lack of employment (10,68,69). However, the studies presented throughout neither systematically examine refugees' social ecology at large nor do they base their analysis on a particular theoretical framework.

1.3. Research gap and question

Beyond estimating prevalences of psychopathology, it seems necessary to examine lived realities, conceptualized in both studies as the social ecology of refugees (8), and to comprehend why, they emerge as mental distress or substance (mis)use. Tracing the roots of mental distress and substance (mis)use allows for adequate addressing of refugees' needs. From these insights structural prevention measurements can be derived, clinical practice adapted, and policy changes implemented.

Study 1, the qualitative Rapid Assessment (RA) on substance (mis)use in Germany (9) aims to identify determinants of substance (mis)use embedded in the social ecology of

refugees[3] in eight study-sites, each combining rural and urban areas, all over Germany. The RA methodology was chosen as it has been proven effective and successful in researching hard-to-reach communities and stigmatized phenomena of interest, such as substance (mis)use (70,71). The qualitative assessment allows for an in-depth understanding of various determinants embedded in refugees' social ecology and how they interplay.

Despite most refugees residing in low-income countries, studies concerned with the impact of post-migration stressors on the mental health and distress of refugees are often being conducted in high-income countries. Respective evidence from middle- or low-income countries has not been assessed yet (63). Therefore, Study 2 (72), a large-scale survey on mental distress among Syrian refugees used data collected in 2020/21 to identify the determinants of elevated mental distress in Turkey and Lebanon.

Whereas Study 1 investigates refugees from diverse countries of origin in one country of refuge (Germany), Study 2, to our knowledge, represents the first empirical study investigating the social ecology and comparing refugees from one country of origin (Syria) in two countries of refuge inside the Middle East (Lebanon and Turkey). The two studies and their mixed-method integration within the synopsis presented contributes to strengthen a transnational and context-specific understanding of mental distress and substance (mis)use among refugee populations.

[3] Throughout the research presented in Study 1, the term "refugees" does not refer to a legal definition, but to a heterogenous group of "forcibly displaced populations, including forced migrants, undocumented migrants, asylum seekers, and recognized refugees, as they share the commonality of 'perceived forcedness' to emigrate" (9)

2 Methods

2.1. Study 1: Qualitative Rapid Assessment on Substance (mis)use in Germany being a matter of refugees' social ecology (Hertner et al., 2024)

2.1.1. Rapid Assessment and Sampling

Hertner and colleagues (2023) conducted Rapid Assessments (RA) in eight study-sites consisting of one metropole region and adjacent rural areas. Each RA was kicked-off with a broad literature research including grey literature and newspaper articles to gather multi-source knowledge on the topic and relevant key persons. Subsequently local networks of refugee aid and addiction care services were examined. Outreach was conducted and key persons, defined as persons knowledgeable regarding the lived realities of refugees (mis)using substances, invited for interviews. Once in touch with a knowledgeable person, snowball-sampling was applied. Key persons were considered as such, regardless of their belonging to the community of substance (mis)using refugees. Thus, key persons included professionals in addiction care or refugee aid services, policy makers and employees in law enforcement, as well as volunteers or private persons in regular contact with substance (mis)using refugees.

2.1.2. Data Collection

During data collection, key persons were never asked to disclose their own substance (mis)use. They were only asked to share information on refugees (mis)using substances in their surroundings. Neither the type of substances, nor the legal situation of the refugees was specified (see Footnote 3), resulting in reports on a diverse population reaching from illegalized people to asylum seekers and recognized refugees. Due to the timing of the study and the overall approach of the PREPARE project[4], we asked the key persons to focus on people having arrived after 2015.

Data collection took place between May 2019 and September 2021. For the chosen method of semi-structured interviews (SSI) an interview guideline covering the following topics was created: characteristics of refugees (mis)using substances, type of substances

[4] PREPARE (Prevention and Treatment of Substance Use Disorders in Refugees) was a research-intervention project funded by the German Federal Ministry of Education and Research (BMBF) started in 2019. The data presented here emerged within Subproject 1: Assessment of Substance use and principles of good practice in support services.

(mis)used, and factors affecting the substance (mis)use (e.g. motives, availability). One trained student-interviewer was operating under close supervision of the coordinating researchers at each study-site.

SSI with an average duration of 60min were recorded and transcribed verbatim, leaving out person- or institution related information for data protection reasons. Almost all SSI were conducted in German, only two in Farsi with the assistance of a professional German-Farsi interpreter.

In total, 108 SSIs were conducted. The key persons were affiliated with one or several institutions, as displayed in Table 1.Ten interviewees mentioned biographic experiences as refugees. In total, 34 SSIs delivered insights on substance (mis)using refugees in rural areas.

Table 1: Number of key persons with whom semi-structured interviews were conducted, listed by their backgrounds. Table modified from Hertner et al., 2023.

Key persons' professional backgrounds (multiple options possible):				**Expertise from:**		
Professional in addiction care services	Professionals in refugee aid services	Local policymakers, representatives of law enforcement institutions	No further specified individual contact with refugees	Urban areas	Rural areas	Self-reported 'refugee'
41	46	18	13	74	34	10

Insights obtained from the SSIs at each study-site were processed by the coordinating researchers and presented in Focus Group Discussions (FGD) to a selected group of key persons from as diverse (professional) backgrounds as locatable in each instance. FGD participants might previously have been interviewed in a SSI. The participating key persons discussed, differentiated, and complemented the insights presented. FGD served as a tool to validate the preliminary results. In literature such an approach is referred to as communicative validation (73) or member checking (74). Separate FGD for the urban and rural areas were conducted for those study sites where independent networks could be identified (Berlin and Hamburg). Four FGD took place in person, further six online via Zoom due to travel and contact restrictions during the Covid-19-pandemic. Minutes of the in total ten FGD with five to ten participants were taken by a person not having participated or even assisted in the FGD. As for the SSI, person or institution related information were omitted for data protection reasons.

At any step of data collection, key persons provided their written informed consent before participation and audio-recordings were deleted immediately after transcription. Data processing, storing and deletion aligned with the EU General Data Protection Regulation.

2.1.3. Analysis

Qualitative content analysis was applied (73) to the SSI transcripts and FGD minutes using MAXQDA version 2020 (75) as the analysis approach is known for its efficacy in structuring big amounts of qualitative data. The analysis was conducted, discussed, and modified amongst a team of three researchers. Before starting the analysis, the three main topics covered in the interview guideline were deductively added as themes to the coding scheme in the MAXQDA file. A fourth theme was added to grasp differences between rural and urban contexts. For further distinction, expectable categories were added subordinate to the respective theme, e.g. the categories "*age*", "*country of origin*" and "*gender*" subordinate to the theme "*characteristics of refugees (mis)using substances*" (see Figure 2) and "*motives*" or "*situation in Germany*" subordinate to the theme "*factors affecting substance (mis)use*" (see Figure *3*).

The independent coding of three randomly selected documents[5] per researcher started with adding text segments to the respective themes, or to the subordinate categories. Afterwards, coded text segments were compared and discussed between the researchers. The coding scheme was differentiated and modified by adding further inductively derived categories as well as codes adding the specifications (e.g. "*male*", "*female*" "*queer*") to the categories (e.g. "*gender*"). For the purpose of intersubjective rules-based codes, memos were added, and the written coding agenda was enhanced continuously. These steps enabled the coding scheme not only to capture qualitative insights but to also carefully quantify frequencies of the categories and codes. Coding continued independently with the newly emerged coding scheme, but whenever in doubt, the team discussed, re-evaluated, and adapted the scheme to ensure it adequately describes the data. Each adaptation required the re-coding of the already coded documents. The continuous discussions among the team accounted for summative and formative reliability checks (73). The team discussions in which researchers of diverse professional and personal backgrounds and seniority discussed the research and guided the analysis can be classified as peer-debriefings (76).

[5] SSI transcripts and FGD minutes were treated equally in the analysis.

2.2. Study 2: Large-scale survey on mental distress in Turkey and Lebanon (Ruhnke et al., 2024)

2.2.1. Sampling

The data used for the regression analysis on mental distress among Syrian refugees in Turkey and Lebanon (72) was retrieved from the 2020/21 wave of a survey panel established within the TRANSMIT research project. As in Turkey, it was the first wave of the panel survey, all respondents were freshly sampled. In Lebanon, panellists, having agreed after their first interview in 2019 to participate again in the next survey wave, were reached out to. Further respondents were sampled as refreshment sample in the same way as in 2019.

In both countries, areas with an expectably high density of registered Syrian refugees were identified. In Turkey official data was derived from the Presidency of Migration Management (Ministry of the Interior, Turkey, 2024) and, due to unavailability of official data in Lebanon, proprietary data of the survey institute was consulted instead. In Lebanon, these identified areas include rural regions, whereas in Turkey only the first and second largest municipality in the respective region was considered. From there, districts, blocks and starting points for the Random Walk Technique were drawn randomly (78,79). The applied combination of stratified area sampling and random walk aims for representative samples where registry data is unavailable.

Whether a respondent and household were identified as Syrian, or Turkish host community was defined by the nationality of the self-identified household head. For the analysis of determinants of mental distress, we used data from respondents of Syrian households aged 18 and above and who had arrived in the respective country of refuge after 2011. Respondents were eligible if housed in private households. This applied to the vast majority of Syrians in Lebanon, where no formal camps where established (80), and Turkey, where less than 2% of refugees live in refugee accommodation centres (81).

2.2.2. Data Collection and Measurements

The structured interviews were conducted by trained interviewers in Arabic using Computer-Assisted personal interviewing. Participants provided their informed consent before answering any of the questions. Data processing, storing and deletion aligned with the EU General Data Protection Regulation.

Due to the broad research interest of the project, the interviews included various blocks on the respondents' demographics, household structure, the socio-economic status, migration biographies and aspirations, but also queries on multi-level well-being. Interviews lasted on average 60 to 90 minutes.

An 8-item version of the Patient Health Questionnaire (PHQ), translated to Arabic by the respective survey institute, was used to assess the frequency of various symptoms associated with depression over the past two weeks on a 4-point-Likert-scale (0 = not at all; 3 = nearly every day). The PHQ is conceptualized as a screening instrument for depression and as such well-established. Still, as a self-assessment instrument it is expected to overestimate depression rates (82,83), therefore it is better seen as a general indicator for mental distress.

2.2.3. Analysis

A logistic regression analysis, based on the ecological model of refugee distress (8) was conducted in R version 4.0.5 (84) including the following displacement-related stressors: discrimination, poverty, unemployment, social isolation and healthcare accessibility. In addition, we controlled for socio-demographic variables (gender, age, marital and education status, time since arrival).

Respondents were considered as living in *poverty*, if they stated that they could not afford food or basic goods (e.g. educational expenses, electricity) in the past four weeks. *Discrimination* was assessed with two binary variables, indicating whether the person had experienced disadvantages in the past two years due to their citizenship or religion. Again, with binary variables, social isolation was assessed on three different levels: One variable indicating whether the respondents felt a *sense of belonging to the local community*, another one whether they *felt welcome in the neighbourhood*. The third variable assessed whether they could - beyond those family members in the own household - *rely on family support in their current place of residence* through at least one close non-household member of the family (e.g. children, parents, siblings) residing in the same municipality.

As the PHQ-sum score was not meeting the criteria of normal distribution, a binary outcome variable based on the clinical cut-off definition of the PHQ-8 (82) was chosen

instead of the continuous sum-score. Respectively, elevated mental distress was assumed for respondents with a PHQ-8 sum-score of 10 or higher[6].

Missing values among the coefficients were imputed with the *mice package* using Multivariate Imputations by Chained Equations (MICE) procedure (85). Adjusted odds-ratios within 95% confidence intervals and clustered standard errors are reported. For the latter, clustering happened in urban areas on the neighbourhood level, and in rural areas on the level of the respective village.

[6] Sum-scores below 10 clinically indicate minimal or mild symptoms, sum-scores above 10 indicate moderate or severe symptoms of depression.

3 Results

3.1. Study 1: Qualitative Rapid Assessment on Substance (mis)use in Germany being a matter of refugees' social ecology (Hertner et al., 2023)

The determinants of substance (mis)use embedded in the social ecology of refugees referred to in Hertner et al., 2023, emerge primarily at the intersection of Theme 1: *Characteristics of substance (mis)using refugees* (Figure 2) and Theme 3: Factors affecting substance (mis)use (Figure *3*). Those factors affecting the substance (mis)use among refugees in Germany, that draw back to the general and substance- or (mis)use-related situation in the countries of origin were not the focus point of Hertner et al. (9). Codes and categories referred to within the text are printed in italic.
First, a summary on the characteristics of refugees (mis)using substances and the motives is provided. Afterwards, the themes are synthesized and the link between refugees' social ecology and the observed substance (mis)use are traced to their roots.

3.1.1. Characteristics and motives of refugees (mis)using substances

Throughout all eight study-sites, the main reported characteristics of refugees (mis)using substances are being male gender, being younger than 30 years, living in Germany without families and being housed in refugee shelters or youth welfare living facilities, in case of adolescents. When differentiating subgroups of refugees (mis)using substances, key persons frequently referred to people from different countries of origin. Most commonly interviewees mentioned refugees from Afghanistan, Iran and Syria (in descending order). However, the RA also offers insights into the lived realities of substance (mis)using queers and women, refugees living in Germany with families, and refugees from other countries or continents of origin.
The FGD and the analysis made evident that highlighting these characteristics in describing those refugees (mis)using substances, who were noticed by key persons, is falling short of understanding why they display such behaviors. Large parts of the SSI and FGD were dedicated to explain the motives behind these patterns. Our data shows that by far the most frequently reported motive for refugees to (mis)use substances was to *cope with any kind of mental distress,* followed by *experiencing a certain sense of belonging to a community by (mis)using substances, taking drugs because of boredom and a lack of more meaningful activities and to have fun, party and check it out*. In some SSI cases of

manifest addiction and respective craving emerged as motives, others were reporting refugees to (mis)use substances for *self-medicating various kinds of somatic pain*.

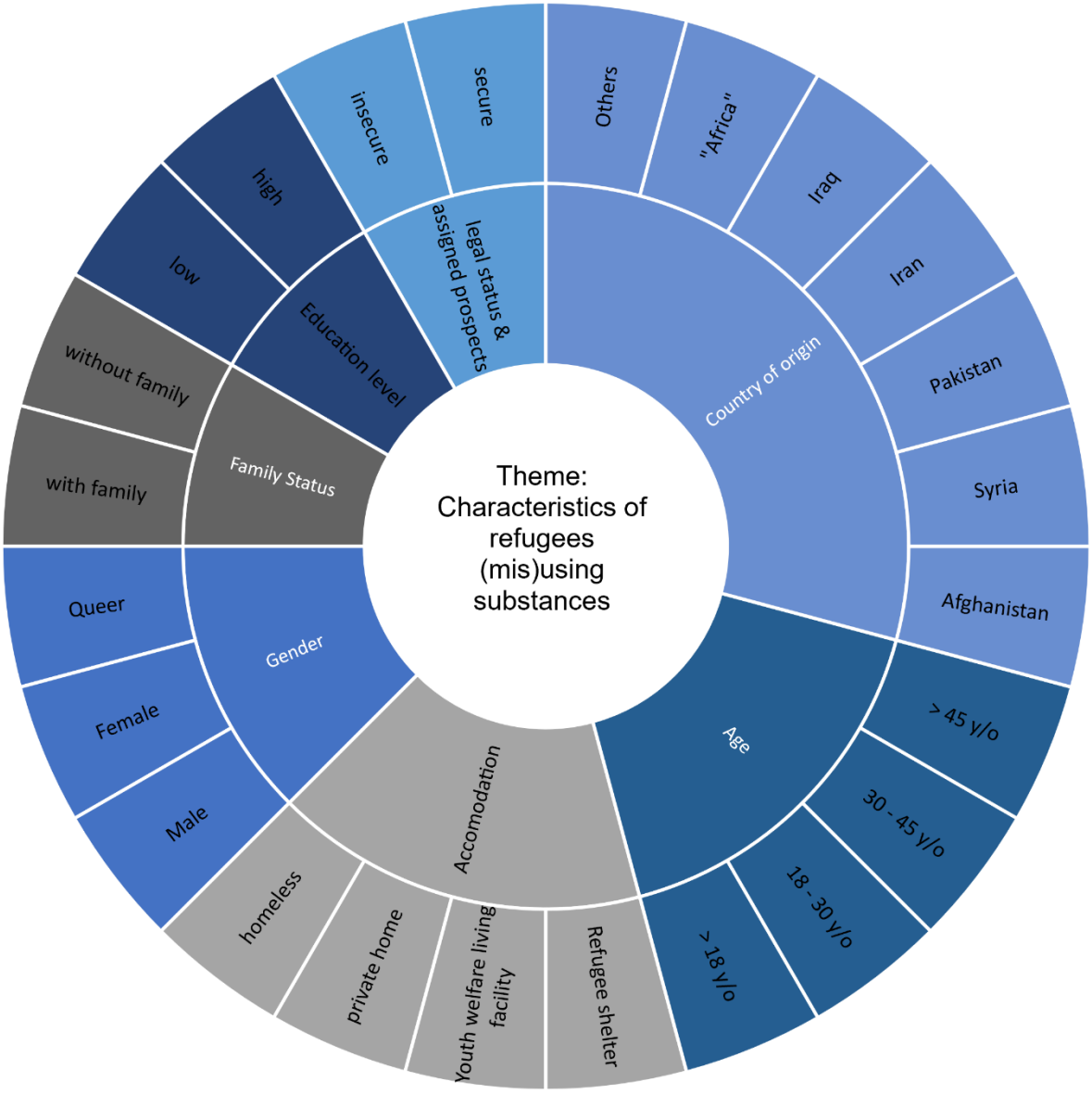

Figure 2: Theme "*Characteristics of refugees (mis)using substances*" sunburst chart (own illustration), visualizing the coding scheme applied to interview transcripts and focus group discussion minutes. Theme and all categories (inner circle) printed in white were derived deductively.

The analysis identified the following three prominent pillars of the social ecology described as relevant in shaping refugees' substance (mis)use. Thos pillars help comprehending why those refugees surface with mental distress, boredom, and substance (mis)use.

3.1.1. Pillar 1: Prospects and opportunities

To have relatively little opportunities and prospects in Germany (described as part of the *lived experience of being a refugee in Germany*) was a commonality amongst those reported as (mis)using substances by key persons of all (professional) background in urban and rural areas:

> *„Where there are few prospects, where there is a lot of despair, there is often a high level of substance use, and the harder the situation and the less prospects there are, the higher I would estimate the risk [for substance use].“*[7] *(9)*

The opportunities and prospects were specified by a broad set of factors, including the *uncertain perspectives regarding their own legal status and long-lasting asylum procedures,* and the *rights and opportunities awarded to a person by their legal status.* Key persons thereby refer to the right to apply or hope for successful family reunification, being awarded a work permit, engage in other meaningful activities, such as vocational training or integration/language courses or to have the opportunity to access healthcare facilities. The situation refugees encounter in Germany is being experienced as *posing excessive demands* on them, especially when it comes to administrative tasks, dealing with institutions, authorities, and language. The reality of restrained opportunities and prospects in comparison to what better life had been imagined and aspired to in Germany, leads to *disappointment*. These limited opportunities and prospects put a significant burden on the everyday life. Giving this situation the self-regulating effect of using substances might seem to outweigh the possibly negative effects of substance (mis)use:

> *“They know that it [substance use] is filthy, but it’s not filthier than the situation they’re in at all.” (9)*

Furthermore, the data provides evidence that positive changes regarding opportunities and prospects might alleviate substance (mis)use. Especially key persons in contact with teenagers reported how creating a profound future perspective was associated with lower levels of substance (mis)use:

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[7] Quotes used in were translated back and forth from German to English by two independently operating persons not engaged within the project to grant accurate translation (9).

> *“So if they have prospects and a path that they can follow, then smoking pot no longer plays any role at all, for 2/3 of those who did it before. So, it really drops rapidly then and, uhm, is also stopped by itself.” (9)*

3.1.2. Pillar 2: Housing conditions and their socio-spatial features

Refugees’ *housing conditions* are a dominant issue reported to affect substance (mis)use. Living in refugee shelters is being discussed as a *characteristic of those (mis)using substances* (Theme 1), as well as a *factor affecting substance (mis)use* (Theme 3). Key persons assumed the systematic lack of privacy and autonomy in refugee shelters beyond the individual’s control, to place an immense level of distress on inhabitants. Especially when they would want to but cannot distance themselves from those (mis)using substances.

> *„Especially when I’m sitting in a facility like that for a long period of time, uhm, I am only allowed to cook at certain times, only allowed to take a shower at certain times, only allowed to do laundry at certain times, I don’t have anything to do all day, uhm, then there are factors that actually, uhm, eventually put pressure on the psyche, and can not only increase the use of addictive substances but actually also lead to a change in mood.“ (9)*

> *„But the other flatmates in this room [...], they want to [...] smoke, smoke pot, consume, listen to music and that is often a problem for them. They don’t want to be in this room anymore, and they want somehow, either somewhere else or a single room for themselves. But this is not available at all.“ (9)*

In addition, the data conveys the image of a remarkably high availability of illicit substances in refugee shelters. On the one hand, key persons assume that drug dealing is explicitly happening in and around shelters. On the other hand, it is assumed that, due to the limited privacy, fellow housemates might know about intimate issues of each other, such as insomnia or nightmares, and recommend substances, potentially without informing about the risks of substance-related problems, out of their own “positive” experiences:

> *“And the initial contact worked [...] via people from one’s own culture, one’s own language, who then said, ‘You’re so sad, you’re under so much stress. Have a smoke!’ And some had an idea about what they were consuming, and others did not.” (9)*

In contrast, very little insights on the substance (mis)use of refugees living in private accommodations could be gathered. It remains unclear, whether refugees in private households do not (mis)use substances, or if they were not (anymore) reached by refugee aid or addiction care services and whether therefore key persons were not knowledgeable about this subgroup.

When referring to adolescents (mis)using substances, it emerged that living or having lived in youth welfare living facility was associated with *supportive staffing conditions*, for example, relatively strict rules and close supervision by the professionals working there. In the analysis, this emerged as a *protective factor* against substance (mis)use.

In terms of housing conditions, especially amongst the key persons drawing on experiences and knowledge from rural areas, socio-spatial features of refugee shelters emerged as another factor affecting substance (mis)use among the inhabitants. Key persons associated the remote locations of refugee shelters in rural areas (“in the middle of the forest without Internet” or “at night, [it] is really very dark here already on [the] street”, (9)) with restrained autonomy, restricted mobility, and very few activity options. Since this setting increases boredom and distress, substance (mis)use was perceived as fairly prevalent, although illicit drugs were still perceived less available compared to urban areas.

> *“Community accommodations [...], are mostly in a relatively rural area and not so well connected. Which is also often a problem. [...] Then there is only one bus then and then. [...] The less self-determined one lives, the more one consumes, as one can imagine, that it is simply a stress factor.” (9)*

The combination of these features with the relatively poor accessibility to addiction care, prevention or (mental) healthcare - in particular for refugees with poor German skills - are further suspected to maintain substance (mis)use as a dysfunctional coping strategy.

Evidence from one urban study-site refers to a harmful socio-spatial feature illustrating the respective social ecology in a very graphical sense. Among both, SSI and FGD, it was discussed how the mere opening of a youth welfare living facility in close proximity to the

city's open drug scene increased the prevalence of minors and adolescents (mis)using illicit drugs significantly in comparison to other living facilities.

3.1.3. Pillar 3: Social Support and Community Belonging

Social support and likewise social isolation from families and local communities were reported to affect refugees' substance (mis)use in various ways. The topic whether living in Germany without close family members would enhance substance (mis)use was dominant in our data. The underlying mechanism was described as dyadic. First, the substance (mis)use was a consequence of a loss of responsibility, structure and "*social control*" (9) which families usually provide:

> *"Those who don't have any family at all, attachment and control go missing" (9)*

Vice versa, the data conveys, that living in Germany with close *family members (and social networks unrelated to substance (mis)use in general) functions as a protective factor*. For instance, our data points out that women (including trans-women) being without their family in Germany, (mis)use alcohol, cannabis and illicit drugs. In comparison amongst women with children and partners none other than the (mis)use of pharmaceuticals is being observed. The second part in family separation's association with facilitated substance (mis)use is related to coping with distress evolving from loneliness, yearning for and worry about those left behind.

Amidst family separation and the disruption of social support networks, *searching for a certain sense of belonging* evolves beside *coping with mental distress*, as a predominant motive for substance (mis)use. When it comes to the use of illicit drugs, for instance, our data offers insights, that besides the higher substance availability, the desire for a sense of belonging (e.g. to open drug scenes) pulls refugees registered in rural areas occasionally or permanently into the urban areas even though they risk losing their accommodation, social benefits or even encounter legal consequences due to violations of restrictions on their freedom of movement (e.g. stepping out of the administrative district they are officially registered with).

Another example for the link between belonging and substance (mis)use discussed throughout the SSI are migrant communities well-established in Germany since decades (e.g. from Iran). These communities are described as providing access to substances not widely available in Germany (e.g. Opium). By upholding substance-related practices

popular in countries of origin, a sense of belonging is created for those who have just recently arrived.

In terms of belonging to the local host community, equal affiliations with substance-related peer-trends are also being discussed. Especially among teenagers and adolescents joining peer-trends of (mis)using cannabis and alcohol is perceived as making them feel belong to the host youth.

> *“I think it’s also because, in the usual contexts, such as school, they were also integrated here [...], and then they did what the others were doing (laughs). So, you could also see it a bit as, well, integration in the traditional sense. They also did what was typically available here at this point.” (9)*

In contrast, feelings of non-belonging and their link to substance (mis)use were elaborated in one FGD. Key persons assumed that high prices and discrimination at the doors of nightlife venues and the subsequent non-belonging to the nightlife community isolated refugees from respective peer-trends or substances, such as ecstasy pills.

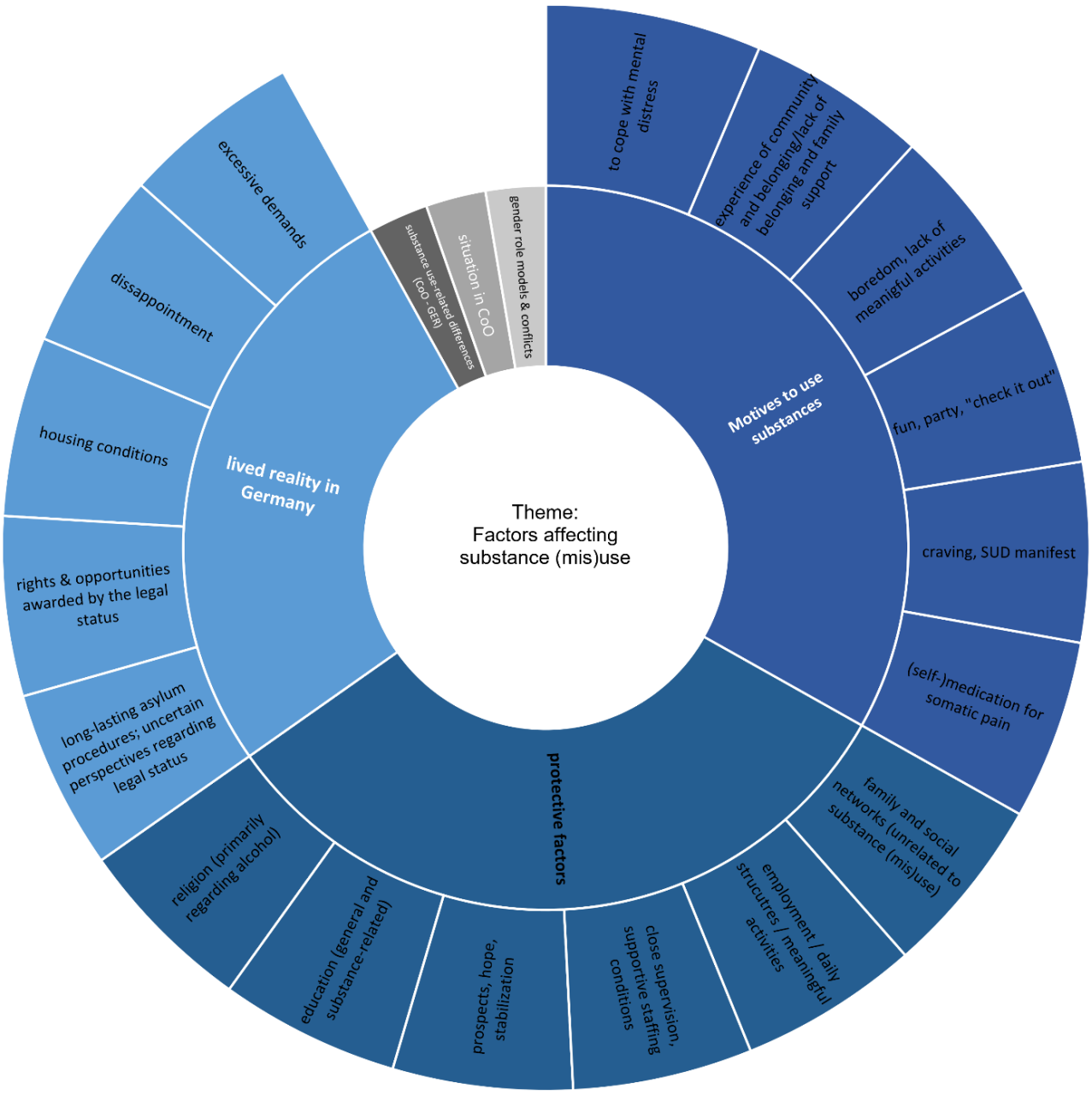

Figure 3: Theme "*Factors affecting substance (mis)use"* sunburst chart (own illustration), visualizing the coding scheme applied to interview transcripts and focus group discussion minutes. Theme and all the categories (inner circle) printed in white were derived deductively. The grey categories (*substance- and use-related differences between countries of origin (CoO) and Germany*, *situation in CoO* and *gender-related role models and role conflicts*) are neither reported in the Hertner et al., 2023 nor in the synopsis as they evolved when examining gender-differences and dynamics or more substance (mis)use specific dynamics, which was not the focus of these works.

3.2. Study 2: Large-scale survey on mental distress in Turkey and Lebanon (Ruhnke et al., 2024)

3.2.1. Respondents

In the analysis, a total of 2491 respondents with an average age of 34.0 years were included, 1127 respondents from Lebanon and another 1364 from Turkey. Syrian respondents had lived in the host country since an average of 7.1 years. Overall, women (44.8%) are slightly underrepresented in the sample. An overview of the demographic and socioeconomic characteristics by study context is displayed in Table 2. Relevant socio-demographic differences between the study context emerge in terms of educational background. In Turkey 46.3% of the survey respondents reported to have never attended school or to have left school without a certificate, whereas among the survey respondents in Lebanon this share of 62.7% is considerably higher.

Elevated mental distress, the variable of interest, is prevalent for 19.9% of the respondents with considerable differences between the study contexts, displayed in Figure 4. Compared to Turkey (15.1%), significantly more respondents in Lebanon suffer from elevated mental distress (25.6%). Among Syrian refugees in Turkey, 6.7% rejected to answer the questions on mental distress. Those non-responders are more likely to be male, in employment, well-educated, and less likely to have experienced discrimination than the responders. In contrast, the share of non-responders in Lebanon is relatively low (2.0%). With Cronbach’s alpha of 0.93 and 0.87 for the sample from Turkey and respectively Lebanon, a very good reliability of the used PHQ-8, as a measure for mental distress, can be assumed.

Table 2: Demographic and socio-economic characteristics by study context. Table modified from Ruhnke et al., 2024.

	Lebanon (N=1127)	Turkey (N=1364)	Overall (N=2491)
Demographic Characteristics			
Age			
Mean (SD)	33.5 (10.4)	34.5 (11.7)	34.0 (11.2)
Median [Min, Max]	32.0 [18.0, 85.0]	32.0 [18.0, 85.0]	32.0 [18.0, 85.0]
Female	550 (48.8%)	567 (41.6%)	1117 (44.8%)
Married	897 (79.6%)	1006 (73.8%)	1903 (76.4%)
Missing	0 (0%)	2 (0.1%)	2 (0.1%)
Years since arrival			
Mean (SD)	7.36 (1.99)	6.77 (1.64)	7.06 (1.84)
Median [Min, Max]	8.00[1.00, 10.0]	7.00[1.00, 10.0]	7.00[1.00, 10.0]
Missing	16 (1.4%)	250 (18.3%)	266 (10.7%)
Socio-economic characteristics			
Educational attainment			
Never attended	159 (14.1%)	147 (10.8%)	306 (12.3%)
Some school	548 (48.6%)	484 (35.5%)	1032 (41.4%)
Middle school certificate	254(22.5%)	241 (17.7%)	495 (19.9%)
High school certificate	95 (8.4%)	239 (17.5%)	334 (13.4%)
More than highschool	61 (5.4%)	210 (15.4%)	271 (10.9%)
Missing	10 (0.9%)	43 (3.2%)	53 (2.1%)
Household poverty	911 (80.8%)	543(39.8%)	1454 (58.4%)
Missing	6 (0.5%)	7 (0.5%)	13 (0.5%)
Neighborhood not in good condition	445 (39.5%)	339 (24.9%)	784 (31.5%)
Missing	21 (1.9%)	16 (1.2%)	37 (1.5%)
Employment status			
Unemployed	682 (60.5%)	584 (42.8%)	1266 (50.8%)
Employed	138 (12.2%)	304 (22.3%)	442 (17.7%)
Day laborer	292 (25.9%)	470 (34.5%)	762 (30.6%)
Missing	15 (1.3%)	6 (0.4%)	21 (0.8%)
Social Isolation			
Lack of sense of belonging	434 (38.5%)	262 (19.2%)	696 (27.9%)
Missing	9 (0.8%)	4 (0.3%)	13 (0.5%)
Not feeling welcome in neighborhood	199 (17.7%)	94 (6.9%)	293 (11.8%)
Missing	29 (2.6%)	4 (0.3%)	33 (1.3%)

	Lebanon (N=1127)	Turkey (N=1364)	Overall (N=2491)
Family member in same city	382 (33.9%)	305 (22.4%)	687 (27.6%)
Missing	9 (0.8%)	8 (0.6%)	17 (0.7%)
Separated from spouse or child	39 (3.5%)	30 (2.2%)	69 (2.8%)
Discrimination			
Discriminated based on citizenship	852 (75.6%)	587 (43.0%)	1439 (57.8%)
Missing	11 (1.0%)	38 (2.8%)	49 (2.0%)
Discriminated based on religion	551 (48.9%)	361 (26.5%)	912 (36.6%)
Missing	14 (1.2%)	27 (2.0%)	41 (1.6%)
Healthcare Access			
Difficulties seeing a doctor	863 (76.6%)	670 (49.1%)	1533 (61.5%)
Missing	26 (2.3%)	2 (0.1%)	28 (1.1%)

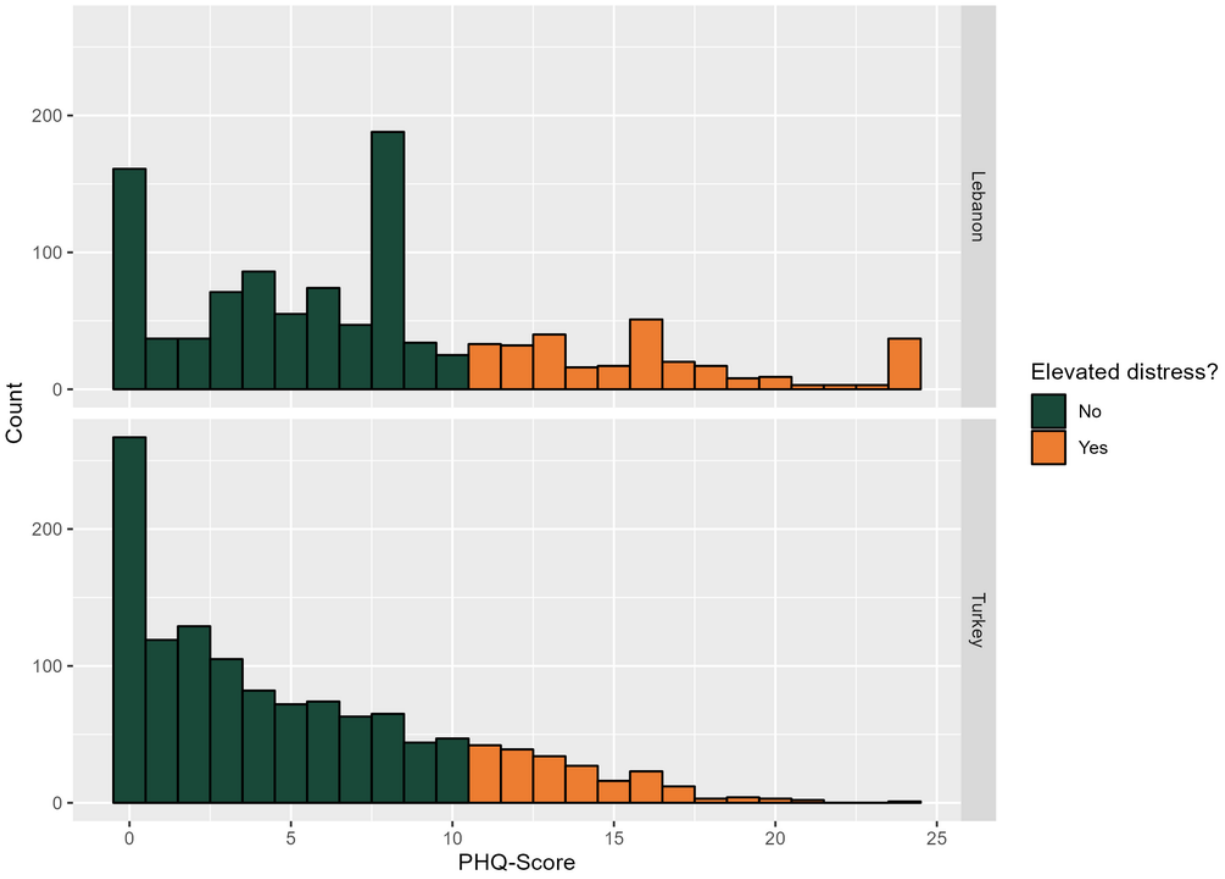

Figure 4: Distribution of PHQ-sum-scores by study context. Modified colored version of original figure from Ruhnke et al., 2024.

3.2.2. Social ecology of survey respondents in Lebanon and Turkey

According to the empirical literature presented and the study setting's constraints, the respondents' social ecology was conceptualized along the displacement-related stressors of discrimination, poverty, unemployment, social isolation, and healthcare accessibility. Descriptive statistics by study context are displayed in Table 2.

Remarkable differences in the lived realities of respondents between the study contexts are observed, especially in the economic situation. In Lebanon, most survey respondents is considered poor (80.8%), meaning not able to afford food or other basic goods. 60.5% of respondents are unemployed and 25.9% are working under usually precarious and unsteady conditions as day-laborers. In Turkey, the poverty rate lies at 39.8%, this is lower in comparison, but still remarkably high. 42.8% are recently unemployed and around one third (34.5%) are considered day-laborers.

Beyond the economic situation, family separation (assessed as being separated from spouse and/or children) rarely occurs among the survey respondents (0.7%). However, only 27.6% of respondents reported to be able to rely on further family support by other close relatives living in the same city (i.e., children, parents, siblings), but outside their own households. These replies indicate that family separation might still be of matter for the majority. In addition, social isolation on the neighborhood level (11.8%), and the local community level (27.9%) was experienced. Similar to discrimination based on citizenship (57.8%) or religion (36.6%). Both types of discrimination are more prevalent in Lebanon. In both contexts, many respondents (61.5%) experience difficulties seeing a doctor.

3.2.3. Logistic regression on the social ecological determinants of mental distress

Logistic regression was conducted to estimate whether and how the various components of refugees' social ecology are associated with the likelihood to suffer from mental distress. The analysis revealed significant differences between the study contexts. Adjusted Odds-Ratio estimates are displayed in Figure 5.

Overall, the demographics controlled for are only weakly associated with mental distress among the survey respondents. In Lebanon older respondents and those only recently arrived in the country, are slightly more likely to experience mental distress. In contrast, in Turkey only gender is somewhat significantly associated with mental distress. As such men, compared to women, are less likely to suffer from mental distress. Consistent among both study contexts is the observation that, a higher level of education tends to

be associated with lower levels of mental distress. However, compared to individuals who never attended school, the association plays out significantly only in Turkey, but not in Lebanon.

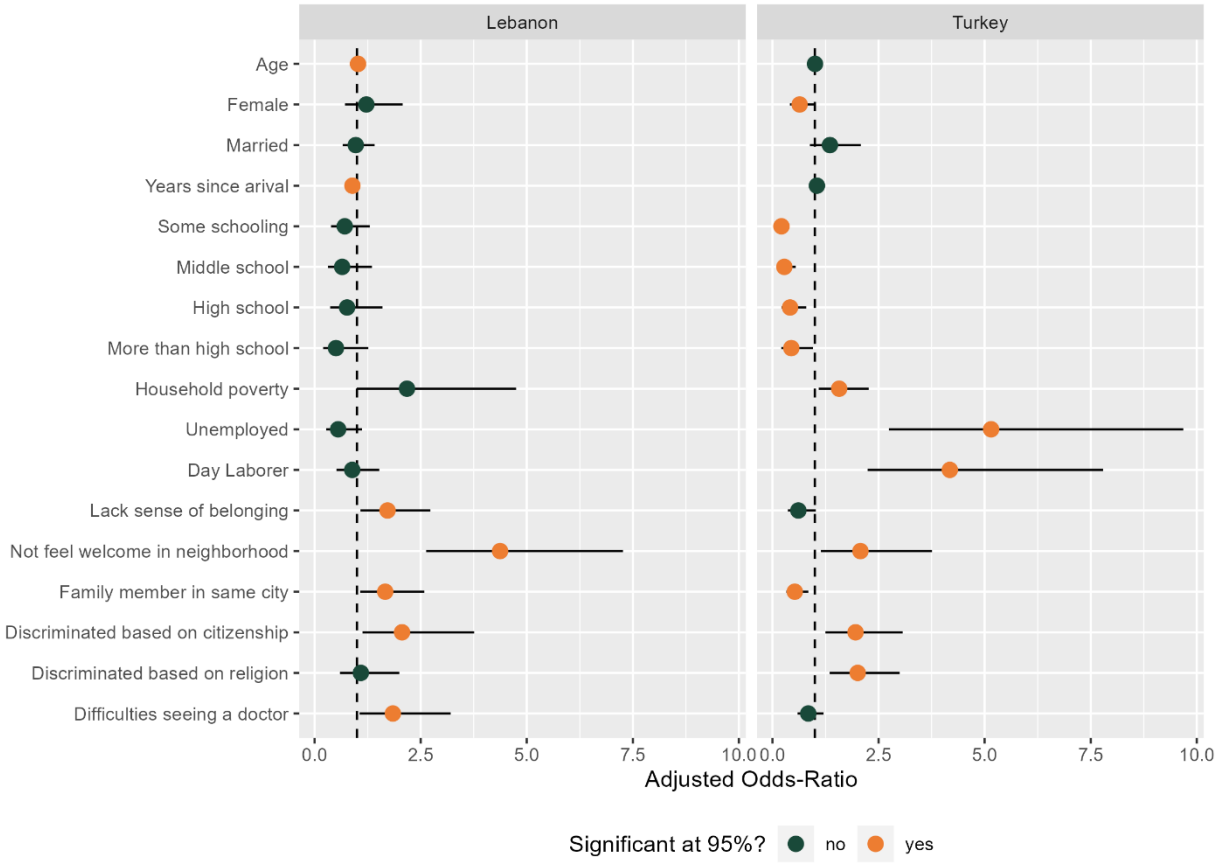

Figure 5: Coefficients of logistic regression for probability of elevated mental distress presented as Adjusted-Odds Ratios with 95% confidence intervals, standard errors clustered at Primary Sampling Unit. Coloured version of the original figure in Ruhnke et al., 2024.

We did not only observe differences between the study-contexts in regards to the economic situation of the survey respondents, but they also appear to be differently associated with mental distress. Whereas in Lebanon neither poverty nor unemployment or precarious employment significantly influences one's likelihood of suffering from mental distress, in Turkey all these factors are associated with elevated mental distress. For instance, compared to those being employed, those working as day laborers or being unemployed have about three (318%) and respectively four times (415%) higher odds of suffering from mental distress. Regarding the non-significant associations between poverty and mental distress in Lebanon, the relatively small share of the study sample not living in poverty-stricken households must be considered.

Interestingly, family support plays out ambiguously. In Turkey, respondents with close relatives in the same city display 47% lower odds of mental distress, whereas in Lebanon family support and mental distress are positively linked, suggesting that having a close relative in the same city increases the odds of mental distress by 66%.
Furthermore, either of the above-mentioned types of discrimination, and social isolation are linked significantly positive to mental distress. Compared to those feeling welcome, social isolation on the neighbourhood level increases the observed odds of elevated mental distress by 337% in Lebanon, and 107% in Turkey. Regarding social isolation on the local community level, the positive association plays out significantly in Lebanon only. In both study contexts, those experiencing discrimination due to their citizenship compared to those without these aversive experiences are about two times more likely to suffer from mental distress (OR Turkey: 1.96, OR Lebanon: 2.06). Additionally, in Turkey equally increased odds (OR 2.01) of mental distress are observed among those experiencing discrimination based on religion compared to those who do not.
Finally, impaired healthcare accessibility in Lebanon is associated with being more likely to suffer from mental distress. In Turkey the association is shown as insignificant.

3.2.4. Differences in mental distress between Turkey and Lebanon - an effect of selective migration?

In order to considerably strengthen the evidence base for refugees' social ecology determining their mental distress, we ran a further analysis to examine whether the observed differences in mental distress between Lebanon and Turkey could be a mere effect of selective migration driven for example by prior war-exposure in Syria. As the survey did not assess pre-migration war-exposure, an approximation was applied. Given the fact that the Syrian war was not equally devastating in all Syrian regions, we approximate the war-exposure with respondents' province of birth[8]. As shown in Table 3, geographical selectivity of war-exposure does not seem to be the driver for differences in mental distress between Syrian respondents in Turkey and Lebanon, as respondents from same provinces of birth now living in Lebanon reported more often elevated mental distress compared to respondents now living in Turkey.

[8] Province of last residence in Syria was not assessed in the 2020 wave of the panel survey. Therefore, respondents' province of birth was used as an approximation.

Table 3: Prevalence of mental distress by province of birth. Original table from Ruhnke et al., 2024

	Lebanon		**Turkey**	
	Prevalence PHQ > 10 (%)	Sample Size (N)	Prevalence PHQ > 10 (%)	Sample Size (N)
Damascus	22.5	78	20.0	96
Aleppo	27.9	173	15.9	805
Raqqa	43.6	104	6.1	139
Idlib	22.7	163	22.1	180
Latakia	16.7	12	26.5	39
Hama	17.4	123		0
Homs	12.7	150		0
Daraa	25.3	85		0
Deir El Zor	44.4	87		0
Hasakah	33.3	24		0
Rif-Dimashq	22.1	78		0
Other	39.6	49	15.5	104

4 Discussion

With the aim to identify determinants embedded in the social ecology of refugees in countries of refuge and to comprehend why they surface with mental distress or substance (mis)use two studies, one qualitative, one quantitative, were conducted and integrated within the mixed-method synopsis presented.

A qualitative assessment - Study 1 (9) - including 108 semi-structured interviews (SSI) and ten focus group discussions (FGD) with key persons, on the social ecology of refugees in urban and rural Germany was conducted. The application of the ecological model of refugee distress (8) adds to the scarce empirical evidence examining substance (mis)use among refugees comprehensively within a theoretical framework. The data reveals a predominant influence on the observed substance (mis)use by factors at place in the countries of refuge, such as prospects and opportunities to build a dignified life in Germany, of housing conditions, social support and of community belonging. Insecurities regarding the own legal status, the lack of prospects and meaningful activities, accommodation in refugee shelters, family separation and aspirations to belong to a community are associated with increased substance (mis)use. Beyond the mere identification of risk factors, the underlying mechanisms motivating substance (mis)use were traced to their roots, but also complementing protective factors embedded in the social ecology were observed.

In contrast to Study 1, Study 2 (72) examined only Syrian refugees privately housed as a rather homogenous and moreover randomly sampled group of respondents, but in two countries of refuge, Lebanon and Turkey. It represents the first empirical study investigating the social ecology of Syrian refugees transnationally in the Middle East. The aim of a logistic regression analysis using data from 2491 respondents was to transnationally compare the two study-contexts with regards to the determinants of mental distress in the social ecology of privately housed Syrian refugees. We revealed elevated mental distress, indicated by a PHQ-8 sum-score above 10, as being more prevalent among Syrians residing in Lebanon (26%) compared to Turkey (15%). These descriptive differences are very unlikely an effect of selective migration. Furthermore, Syrians residing in Lebanon reported more adverse living conditions, including unemployment, poverty, discrimination, and social isolation compared to the survey respondents in Turkey. Between the two study contexts, the predictive value of single factors of refugees' social ecology on mental distress, as included in the logistic regression analysis, differs not only in magnitude, but

also in the effect's direction. For instance, having other close relatives beyond those in the own household living in the same city appears as a burden to the mental condition of refugees in Lebanon. In contrast, in Turkey, as well as in Study 1 (9), family support emerges as a resource negatively associated with mental distress and substance (mis)use. This is confirmed by other study results (86,87).

Moreover, economic features of the social ecology, such as poverty, precarious day-to-day work and unemployment, emerge as harmful to refugees' mental condition in Turkey (72) and are in literature widely acknowledged as such (33,37,41,43,46,49,50,54–58). While these were also evident in Study 1 (9), they do not play out significantly on the mental distress of refugees in Lebanon. Other studies have also previously shown this lack of correlation among Syrian refugees in Lebanon (88,89). We assume this to be an effect of a political and economically more challenging situation in Lebanon, which endures a particularly severe economic crisis that has intensified since 2019. Amidst the wide-spread economic deprivation in Lebanon, possibly, refugees may not evaluate their individual situation as particularly disadvantaged in comparison to the host community. Therefore, it might appear less harmful to their mental condition compared to other contexts, in which the own relative status in society might be evaluated as an effect of social isolation, or discrimination, which prompts depreciated self-concepts (90).

Adding further evidence to the harmful effects of discrimination and social isolation on mental health (33,35,43–46,46–49), Study 2 (72) identifies discrimination, and social isolation on either the neighbourhood or the community level as major risk factors for refugees' mental condition in Lebanon and Turkey. Thus, we suggest that beyond the individual's dire social ecology, national migration policies, legal constraints, macroeconomics, the political situation in the countries of refuge, just as the public stance towards migrants are mirrored in refugees' mental distress. Overall, these results indicate that a holistic, context-specific understanding of mental distress among refugees and its determinants is called for, instead of assuming universal effects or plainly surmising that receiving contexts would be homogenous all over the world (91).

In addition, Study 1 (9) shows, that even within one country of refuge differences in the social ecology of individuals and how they evoke mental distress and substance (mis)use must be considered. Systematic differences in the prospects and opportunities to create a dignified life in Germany, hope for family reunification or to engage with meaningful activities evolve between refugees from different countries of origin due to the legal status of a refugee being predominantly determined by countries being defined as safe countries

of origin (92,93) Asylum-related factors, such as visa insecurity or long-lasting asylum procedures are widely acknowledged risk factors for mental health (34,43,48,51,60).

In the same way did differences between rural and urban regions and socio-spatial features of refugee shelters emerge in Study 1 (9). Influences of the social ecology on substance (mis)use were shown to play out differently for refugees of different gender, age and educational background, just as much as among non-refugee populations generally (94). Overall, these results point at the heterogeneity of refugee populations within one national context, their mental health issues and how those are being shaped by social ecological factors. The results of Study 1 thus strengthen the conclusion emerging from Study 2 (72). The link between social ecology and substance (mis)use or mental distress respectively cannot be painted with a broad brush but needs to continuously account for the individual, local, community and national context.

In the following, I want to particularly highlight the social support and belonging that emerges on different levels (family, neighbourhood, local community) as predominantly shaping refugees' social ecology and mental distress in both studies (9,72). Interestingly, family separation for the refugees surveyed in Germany was a dominant issue (9), whereas in Lebanon and Turkey respondents had almost all stayed united with their spouses and/or children (9,72). However, given the pronounced migration aspirations among Syrian refugees in Lebanon and Turkey (95,96), it is possible that respondents included in Study 2 have family members who already made their way to Europe and hope to reunite the family there. Even though Study 2 (72) does not particularly provide evidence that those left behind in Turkey or Lebanon suffer from this family separation, Study 1 (9) found it to be among the identified risk factors for substance (mis)use. Reuniting with or founding a family emerged as a protective factor. These findings are in line with results of a longitudinal study showing reunification of nuclear family members to be positively associated with mental health in general (87). In order to improve the social ecology of refugees separated from their families, legal obstacles to family reunification should be scrutinized and unnecessary hurdles removed.

According to the results of Study 1, the geographical location of shelters was an impactful component of refugees' social ecology in regards to social support and belonging on the neighbourhood level (9). Furthermore, determinants for substance (mis)use in Germany were often related to the accommodation in refugee shelters which impose a significant lack of privacy and restricted autonomy (9). Distress amplified by such housing conditions has been extensively described in previous research (30,97,98). The preventive potential

of decentralised and private housing for the well-being of refugees in Germany was demonstrated (43). In contrast, in Lebanon and Turkey only refugees in private households were surveyed (72). This does not allow to compare distress provoked by the different housing conditions. Though privately housed, still a third of the Syrian refugees in Turkey and Lebanon were not satisfied with the condition of their neighbourhood, the majority though felt welcome (72). Adequate housing and a positive perception of the neighbourhood are acknowledged determinants for the ability of feeling at home (56). Given the fact that the primary sampling units for the random walk in Study 2 (72) were selected in neighbourhoods known for a high density of Syrians residing there, the respondents might feel a certain sense of belonging to the quite Syrian-influenced neighbourhood, which might mitigate the lack of contact with the host community. However, those not feeling welcome in their neighbourhoods were remarkably at risk for mental distress. Social and financial constraints might still force them to stay put under precarious conditions in these neighbourhoods. Especially in Turkey, the housing crisis overburdening Syrian refugees is being widely acknowledged (99,100).

In addition, lacking a sense of belonging to the host community emerges as a risk for mental distress in Lebanon, but not in Turkey (72). This might be an effect of a long-standing history of transnational ties between Syria and Lebanon. Also a shared language works as a core facilitator to establish contact with a host community (56). If in Lebanon, despite the same language of Syrians and Lebanese, establishing social bridges and links (56) with the host society remains unsuccessful, it might bear a more harmful impact to the individual mental condition than in Turkey, where language barriers are an obvious justification for lacking a sense of belonging to the Turkish society.

In terms of community belonging, substance (mis)use cannot only be regarded as a coping behavior for the mental distress non-belonging provokes, but must also be considered a potentially maladaptive but tempting pathway to ”increase acceptance and belonging to the host country” (101) through compliance with local substance use related norms. Feelings of non-belonging must thus not only be considered as facilitating but as well as sustaining substance (mis)use (102). If gone too far, refugees might not only experience social isolation and discrimination due to being perceived a refugee but as well due to being perceived a substance (mis)user.

Strengths and weaknesses of the studies

The RA methodology in Study 1 (9), aiming to provide broad insights through interviewing key persons about substance (mis)use among refugees, instead of reaching out to substance (mis)using refugees directly, comes with limitations while still proving effective in gathering multi-perspective and holistic evidence. Although language interpreters were available for SSIs and recruiting activities were heavily targeted at refugees with substance (mis)use experiences or their relatives to talk about the phenomena of interest, only very few were reached. Consequently, the assumption of refugees (mis)using substances, being a hard-to-reach population for research e.g. due to fear of legal consequences (103), can be seen as confirmed. Further limitations in the data of Study 1 (9) emerge primarily with regards to the described severity of substance (mis)use observed. The inclusion of key persons beyond clinical backgrounds makes it invalid to rely on the terms used (e.g. addiction, abuse). Since ample measurements of communicative validation, reliability checks (73) and peer-debriefing (76) in the research design of the qualitative assessment and analysis were implemented, still high levels of dialogical intersubjectivity in the interpretation of our data can be assumed (9).

For Study 2 (72) especially limitations in terms of social desirability must be considered. The random walk technique allowed for a randomised sample, but led to people being surveyed in their homes, often in the presence of other family members. This can be seen as a potential hindering factor for honesty due to social desirability. In particular, the PHQ-items on experiences of mental distress might have prompted shame and eventually more conservative evaluations of own distress. The relatively higher share of respondents rejecting to answer the questions on mental distress in Turkey compared to Lebanon might be explained by Syrian refugees in Lebanon being particularly reliant on humanitarian aid programs and therefore being familiar with having their needs and mental distress assessed. Consequently, they might emphasize their suffering and needs. This must be considered when transnationally comparing prevalence of mental distress, as refugees in Lebanon might tend to respond to structured instruments, like the PHQ-8, more generously. Regarding the PHQ-8, it must be noted that it showed good reliability among both populations even though not the official Arabic version, but a self-translated, non-validated version was used.

With regards to the application of the ecological framework of refugee distress (8), it must be considered that the framework contributes significantly to a comprehensive

understanding of refugees' mental distress by adding refugees' social ecology in the countries of refuge to the formerly predominant focus on pre-migration exposure to traumatic events, violence or armed conflicts. However, both studies (9,72), focussed only on the social ecology in countries of refuge only and did not assess pre-migration experiences. In Study 1 (9), due to the third-person approach, such assessment was not feasible. For the large-scale survey among Syrian refugees in Lebanon and Turkey (72), the project team consciously decided against asking for pre-migration trauma due to the risk of re-traumatization without the resources to offer appropriate psycho-social support. To approximate war-exposure, we assessed the data for distributional differences in mental distress by region of birth, indicating people from same regions still showing higher levels of distress in Lebanon compared to Turkey. This strengthens the evidence that rather than war-exposure, the recent social ecology is determining mental distress in the sample.

Although application and testing of the full model is recommended, I would encourage researchers to scrutinize their interest "to collect stories of pain and humiliation" (104), when it comes to assessing pre-migration traumatic experiences. This comes with reflecting on implied power dynamics and weighing the benefits and risks such potentially harmful assessments might bring, considering the large volume of evidence existing on the impact of post-migration stressors and social ecology on mental health. Shifting the focus to the impactful factors in the social situation and environments of the countries of refuge is immensely constructive as these – unlike the pre-migration experiences of trauma and war – remain modifiable while continuously producing mental suffering.

Implications for future research, policy, and practice

Both studies call for a context-specific understanding of mental distress and its determinants embedded in the social ecology of refugees. Thus, it is encouraged for future research to take an interdisciplinary stance and examine the bigger pictures, oscillating the focus between the individual and the context individuals are embedded in. With regards to substance (mis)use, such an approach could investigate the substance (mis)use when migrating from one substance use-related, normative reference frame to another. Likewise, it could be interesting to systematically compare the determinants of mental distress among refugees between high-, middle- and low-income countries.

Strong implications emerge from the evidence of the two studies regarding policy measures being able to improve prospects to build a dignified life (e.g. in economic autonomy), social support and a sense of belonging for refugees to foster their mental condition. The recent public discourse and rising anti-refugee sentiments in Germany (105), Turkey (106) and beyond, can thus pose an immediate risk to refugees' health – even if they are not directly experiencing verbal or physical attacks.

As such, shifting the perspective towards acknowledging the social ecology in the countries of refuge remarkably challenges common prevention and treatment approaches by calling for re-contextualization of psycho-social problems (19,107,108). Consequently, it appears inadequate to respond to mental distress and substance (mis)use among refugee populations with treatment approaches only addressing behavioral and individual factors. Multi-service approaches, offering not only psychotherapy and medication, but assisting e.g. with case-management or social work approaches in addressing housing and financial problems or offering human encounters and (self-help) groups to allow certain experiences of community and social support are therefore to be recommended (8,12,109). Besides policy-change and more holistic clinical practices and services the accessibility of healthcare services is still an issue for refugees, in low-, middle and even high-income countries. Therefore, beyond improving policies granting access to healthcare services, research on, and especially the dissemination of, strategies how to reach and treat refugees in mental health and addiction care facilities must still be a major concern (109,110).

5 Conclusions

Mental distress and substance (mis)use are a matter of refugees' social ecology, shaped among others by social support and belonging. This is revealed by the integration of a rapid assessment on refugees' substance (mis)use in Germany (9) together with a large-scale survey among Syrian refugees in Lebanon and Turkey (72). The systematic transnational and mixed-method examination of displacement-related stressors within a theoretical framework is novel to the field of research. Emerging differences between the countries of refuge examined (Germany, Lebanon, and Turkey), lead to the conclusion that the link between social ecology and substance (mis)use or mental distress respectively cannot be painted with a broad brush but needs to continuously account for the individual, local, community and national context. Thus, the cumulated evidence calls for accurately accounting and sensitizing for the local context in research, policy, and psycho-social practice. Regarding care and treatment, holistic and interdisciplinary approaches are therefore encouraged. Policy measurements reducing displacement-related stressors and effectively changing refugees' social ecology for the better must be implemented to function as structural prevention measurements.

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Statutory Declaration

I, Laura Hertner, by personally signing this document in lieu of an oath, hereby affirm that I prepared the submitted dissertation on the topic “Mental distress and substance (mis)use among refugees - a matter of social ecology” [Psychische Belastung und Substanzkonsum geflüchteter Menschen – Die Rolle der sozialen Ökologie], independently and without the support of third parties, and that I used no other sources and aids than those stated.
All parts which are based on the publications or presentations of other authors, either in letter or in spirit, are specified as such in accordance with the citing guidelines. The sections on methodology (in particular regarding practical work, laboratory regulations, statistical processing) and results (in particular regarding figures, charts and tables) are exclusively my responsibility.

Furthermore, I declare that I have correctly marked all of the data, the analyses, and the conclusions generated from data obtained in collaboration with other persons, and that I have correctly marked my own contribution and the contributions of other persons (cf. declaration of contribution). I have correctly marked all texts or parts of texts that were generated in collaboration with other persons.

My contributions to any publications to this dissertation correspond to those stated in the below joint declaration made together with the supervisor. All publications created within the scope of the dissertation comply with the guidelines of the ICMJE (International Committee of Medical Journal Editors; http://www.icmje.org) on authorship. In addition, I declare that I shall comply with the regulations of Charité – Universitätsmedizin Berlin on ensuring good scientific practice.

I declare that I have not yet submitted this dissertation in identical or similar form to another Faculty.

The significance of this statutory declaration and the consequences of a false statutory declaration under criminal law (Sections 156, 161 of the German Criminal Code) are known to me.

Date Signature

Declaration of your own contribution to the publications

Laura Hertner contributed the following to the below listed publications:

Publication 1: Hertner, L., Stylianopoulos, P., Heinz, A., Kluge, U., Schäfer, I., & Penka, S. (2023). Substance (mis)use among refugees as a matter of social ecology: Insights into a multi-site rapid assessment in Germany. Conflict and Health, 17(1), 1. https://doi.org/10.1186/s13031-023-00499-9

Contribution (please set out in detail):

- Project coordination and monitoring of data collection and management
- Lead in qualitative content analysis with respect to the research question of the article
- Drafting a first complete manuscript including all Figures and Tables; managing the German-to-English translation (and back-translation) of the in-vivo quotes
- Reviewing the comments and recommendations of all co-authors and implementing them into the manuscript
- Leading the Review process with the Peer-Reviewers and Editors of the Journal Conflict & Health

Publication 2: Ruhnke, S., Hertner, L., Köhler, J., & Kluge, U. (2024). Social ecological determinants of the mental distress among Syrian refugees in Lebanon and Turkey: A transnational perspective. Social Science & Medicine, 116700. https://doi.org/10.1016/j.socscimed.2024.116700

Contribution (please set out in detail):

- Implementing the Miller & Rasmussen model as theoretical frame to analyze the data
- Restructuring, shortening, and focusing of a drafted manuscript (primarily Sections “Introduction” and “Discussion”)
- Initial drafting of the Section “2.1. Study Design and Sampling” and “2.2. Ethics and Data Protection”
- Interpretation and contextualization of the results and limitations; Initiation of further data analysis together with Dr. Simon Ruhnke
- Reviewing the comments and recommendations of all co-authors and implementing them into the manuscript
- Leading the Review process with the Peer-Reviewers and Editors of the Journal Social Science and Medicine

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Signature, date and stamp of first supervising university professor / lecturer

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Signature of doctoral candidate

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Conflict and Health

RESEARCH Open Access

Substance (mis)use among refugees as a matter of social ecology: insights into a multi-site rapid assessment in Germany

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Abstract

Background Previous research concluded that substance (mis)use is increasing among forcibly displaced populations. Nevertheless, little research has been conducted within a social ecological framework aimed at identifying and understanding the factors affecting substance (mis)use embedded in the post-migration context in high-income countries. The present study aims to develop an understanding of the links and underlying mechanisms between refugees' social ecological determinants and substance (mis)using behavior.

Methods Rapid assessments (RAs), including 108 semi-structured interviews and 10 focus group discussions with key persons from various professional, and personal backgrounds, were carried out in German urban and rural areas. The RA approach of interviewing key persons and not solely refugees that (mis)use substances allowed us to gather multi-perspective knowledge on this sensitive topic. Qualitative content analysis was applied, aiming at identifying determinants of substance (mis)use embedded in the post-migration context of refugees and understanding the underlying mechanisms.

Results One main result of the data suggests that the link between refugees' countries of origin and their postmigration substance (mis)use is not as direct as often assumed. It is observed that refugees' prospects and opportunities in receiving countries (e.g., work permits) undermine this commonly reproduced link. Further determinants are related to living conditions in German refugee shelters and social relations with peers and families. The influence of refugees' living conditions can be summarized as potentially increasing substance availability and distress, whereas family separation produces a loss of control and responsibility, increasing the risk for substance (mis)use. Peers' influence on substance (mis)use was reported to reflect a search for a sense of belonging.

Conclusions Given that refugees who (mis)use substances have limited to no control over the factors identified in our study to be associated with substance (mis)use, common treatment and prevention approaches are challenged. Furthermore, we recommend aiming for a holistic comprehension of refugees' substance (mis)use by expanding the focus beyond individuals to the social ecological context in any attempt, including prevention, treatment, research, and policy.

Keywords Alcohol, Drugs, Refugees, Social ecology, Refugee shelters, Work permit, Ecological model of refugee distress

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Background

The prevalence of increased substance use and substance use disorder (SUD) as a consequence of war and (armed) conflict has become evident in previous research [1–4]. According to Greene et al. [5], this is due not only to SUD co-occurrence with exposure to traumatic events, distress, and general mental health problems but also to increased drug availability as a result of the "breakdown of social norms around substance use" (p. 17) or the failure of government control [4].

In addition to effects on substance use, conflicts and crises trigger migration. Humans in unbearable situations leave their homes, willing to move away in search of safety. Due to coercion, force, or compulsion triggering the migration process, it must be acknowledged as forced migration [6]. Increasing continuously from year to year, in May 2022, the number of forcibly displaced people reached 100 million, which exceeds 1% of the global population [7].

Due to the increasing number of displaced people and their vulnerability to substance use and SUD, it seems important to examine substance use within displaced populations. However, evidence of increased substance use among displaced populations compared to non-displaced populations is weak [1, 8]. Horyniak et al. [2] concluded that the estimates of hazardous/harmful alcohol use are heterogeneous, ranging from 4 to 36%, alcohol dependence from < 1 to 42%, and for not further specified drug dependence from 1 to 20%. In this systematic review, the majority of studies examined prevalence estimates of substance use disorders among refugees and asylum seekers in high-income countries (USA, Central Europe). It seems evident to Horyniak et al. [2] that heterogeneity in prevalence estimates results from the heterogeneous contexts receiving countries provide to arriving individuals. It must be acknowledged that the receiving context is shaped by regionally varying substance availability, substance use patterns, and social habits [9, 10]. However, the post-migration realities of refugees,[9] including asylum legislation, and living circumstances must be considered (cf. [12]). In research, it is too often mistakenly surmised that receiving contexts all over the world are homogeneous [13]. Considering the importance of country-specific contexts, this paper focuses on the contexts of urban and rural Germany and attempts to unravel the factors that might induce increased substance (mis)use.[10] Accordingly, this paper aims to answer the following question: Is there an increased risk for postmigration substance (mis)use embedded in the German post-migration context, and what are the underlying mechanisms? Post-migration stressors and their effects on mental health have been acknowledged in holistic approaches of psychosocial [17] or public mental health perspectives [18, 19], even if their effects have been underestimated for a long time. For instance, within the ecological model of refugee distress, Miller and Rasmussen [20] shifted the emphasis on examining mental health issues among forcibly displaced populations away from pre-migration experiences to the post-migration social ecology of refugees. Social ecology refers to factors at multiple levels that shape the setting of everyday life. A systematic review by Li et al. [21] emphasizes the predicting value of postmigration stressors and their complex interplay on refugees' mental health. One specific factor among refugees' social ecology is the process of obtaining a recognized residence permit. Its impact on psychological well-being was shown in the duration of asylum processes [22], visa insecurity (e.g., due to residence permits limited in time) [23, 24], and asylum-related detention [25, 26], significantly increasing the risk of psychiatric problems. In contrast, Chen et al. [27] found no negative impact of asylum process–related stressors on mental health. Nevertheless, they showed resettlement-related stressors, such as loneliness, economic issues, and discrimination, to be strong correlates for mental health outcomes. For the German context, in particular, a recently published systematic review scrutinizes factors embedded in the German postmigration setting harmful to refugees' mental health [28]. Across the 13 studies included, the authors identified the following factors to be significantly related to refugees' mental health outcome variables: asylum status, accommodation, occupation, family, language, integration, and discrimination.

Regarding substance (mise)use as a particular aspect of mental health, a small-scale survey among African refugees living in Australia exposed heavy alcohol consumption as a coping mechanism for migration-related stressors, such as boredom and frustration [29]. Nevertheless, in the field of substance (mis)use, little research has been conducted within a comprehensive social ecology framework.

[9] The term refugees used throughout the study and the article refers to the common parlance definition of the term, not a legal definition; refugees comprise different groups of forcibly displaces populations, including forced migrants, undocumented migrants, asylum seekers, and recognized refugees as they share the commonality of 'perceived forcedness' to emigrate [11].

[10] Using the term '(mis)use' in the reporting of our study, we refer to any kind of substance use, whether it is recreational, excessive, substance misuse, substance abuse, or qualifying for substance dependence and regardless of the type of substance (i.a., legal, illegal, pharmaceuticals) (c.f. [14].Thereby, we acknowledge, that empirical evidence underpins the risk of misinterpretation and misunderstandings when relying on the universal character of medical terminology to describe substance (mis)use, due to the socially and culturally informed nature of such terminology concepts [15, 16].

Most of the research aims to estimate the prevalence rates of substance use disorders among refugee populations and consequently, fails to contextualize substance (mis)use and address the impact of postmigration settings. Therefore, we argue that, due to the heterogeneity of the receiving contexts, developing an indepth understanding of the post-migration determinants of substance (mis)use is a far more suitable approach. The present study aims to fill this research gap and develop an understanding of the links and underlying mechanisms between refugees' social ecology determinants and substance (mis)using behaviors in Germany as an example of one receiving context. This approach allows us to derive measurements not only for behavior-oriented prevention of substance (mis)use but also for condition-oriented (thus, structural) prevention.

Method

Rapid assessment (RA) methodology

The implementation of the project was inspired by heterogeneous qualitative and iterative inquiries summarized under the label Rapid assessment and response (RAR) methodologies. The special features of RAR in general are to take advantage of any source of existing information, approximating the issue of interest from diverse perspectives, and not only assessing the subject but also generating a responsive intervention in a participatory manner. Due to the project's focus on the assessment aspect rather than the response aspect, it seems more accurate for the research presented to refer to the RA methodology [30]. In the last few decades, RA methods have mostly been applied in low-income countries and humanitarian settings involving displaced communities [31–33]. In the last decade, a few studies deployed the methodology likewise in high-income settings [34, 35]. These methods have been proven to gather knowledge about sensitive topics, such as substance use or HIV, whose affected populations might be difficult to involve in research [36, 37]. This results from the approach of RA data collection to acquire knowledge about a community by interviewing key persons, regardless of whether they are members of the community of study interest. This advantage provides not only increased anonymity for the interviewees. Due to RA's abundance of multi-sectoral perspectives, the use of multi-source data, and their ongoing triangulation, this method likewise enables comprehensive and in-depth examination of broad topics of research interest. Regarding substance (mis)use among refugees in Germany, a lack of willingness of refugees that (mis)use substances to participate in research on this topic was expected, for example, due to the fear of legal consequences (cf. deterrence theorizing, [38]). Such reasons have been hypothesized to likewise decrease refugees' use of addiction care services [5, 39, 40]. Therefore, applying RA in this study project seemed reasonable to evaluate social ecology determinants for (mis)using substances embedded in the post-migration context among refugees living in Germany and to understand the underlying mechanisms.

Design and procedure

The multi-site data collection was part of a five-year intervention study consortium (PREPARE), funded by the German Ministry of Education and Research. Eight RAs were conducted in the German study sites Hannover, Bremen, Leipzig, Frankfurt (Main), Cologne, Munich, Hamburg, and Berlin. Each study site included the city and adjacent rural districts, which were defined by the population density as a maximum of one-ninth of the corresponding city's population density.

Following a broad literature review that included various sources (e.g., newspapers, conferences, annual reports of addiction care services, and scientific publications), local networks, and key persons at each study site, able to provide any kind of knowledge concerning substance (mis)use among refugees, were searched for. Key persons were defined as professionals of addiction or refugee aid services in regular contact with refugees, policymakers for health and social services, and law enforcement professionals. Refugees who (mis)used substances, their family members, and stakeholders within refugee communities were likewise considered to be key persons. Following the RA methodology, at each study site, semi-structured interviews (SSIs) and focus group discussions (FGDs) were conducted with key persons from May 2019 until September 2021.

SSIs were conducted in a face-to-face setting usually at the interviewees' workplaces or public spaces (e.g., cafe) by eight trained bachelor and master psychology students (7 female, 1 male) following an interview guide. Interviews took mostly place in the German language, and only two interviews were facilitated by an interpreter (Farsi-German). The interviewers' guide included the following main questions:

- Which substances are used by refugees? Please assign the substances mentioned to one or multiple subgroups of refugees (e.g., defined by characteristics such as age, origin, gender, accommodation, and legal status)?

Table 1 Overview of SSIs and FGDs, including information about the respondents/participants

	Total	Key persons' backgrounds (multiple affiliations possible)				Expertise from		Self-reported 'refugee'
		Professional in addiction care services	Professionals in refugee aid services	Local policymakers, representatives of law enforcement institutions	No further specified individual contact with refugees	Urban areas	Rural areas	
Semi-structured interviews	108	41	46	18	13	74	34	10
Focus group discussions	10	n.a				2 +6 combined FGD	2	n.a

- Which problems do you perceive as the three most dominant substance-related problems among each subgroup?
- Which are specific factors affecting the substance use of each subgroup(s), related to e.g., their situation in Germany, the situation in their country of origin, availability, and price of substances in Germany? Which function does substance use have in the context of each subgroup?

Key persons were asked to focus on refugees who arrived in Germany after 2015. Regarding credibility, the SSIs were audio-recorded, anonymized, and transcribed verbatim following a simple transcription manual [41]. Of the two SSIs conducted with the facilitation of an interpreter, only the parts in German were transcribed.

Insights, discrepancies, and voids arising from and between the SSIs at the respective study sites were presented and discussed with local professionals in FGDs, aligning with RA methodology. The FGDs took approximately 90–120 min. Regarding credibility, FGDs were audio-recorded and detailed minutes were taken by someone other than the moderators of the FGD. The diverse FGD participants did not only validate the preliminary findings resulting from the SSIs but synthesized different perspectives and opinions discursively within their discussions. This approach stands in the tradition of communicative validation [42] or member-checking principles [43] as tools to reduce researcher bias and potentially enhance the trustworthiness and intersubjectivity of qualitative research.

Recruitment and respondents

The identified key persons were contacted and invited to participate in the RA. Furthermore, the snowballing technique was applied to contact additional key persons. A total of 108 SSIs were conducted with 41 key persons who stated they were professionals in any kind of addiction care services, 46 professionals in refugee aid services, and 18 local policymakers or representatives of law enforcement institutions. In addition, 13 key persons stated that they were in contact with refugee communities as individuals. Several interviewees were affiliated with more than one category. Among the 108 key persons interviewed, 10 brought up biographical references to their own experiences as a refugee. However, almost all of them got in touch with the project due to their role as professionals in addiction care or refugee aid services regardless of their individual flight or substance (mis) use biography. One-third of the SSIs conducted (34 SSIs) referred to expertise in rural areas. At every study site, recruitment of key persons in rural areas was more challenging, while less expertise was detected than in urban areas. See Table 1 for a summary of the SSI respondents.

Recruitment of the FGD participants followed the approach of involving participants from diverse work fields (e.g., addiction care, refugee assistance services, refugee shelter, persons specialized in working with women/LSBTTIQ*). For an overview, see Table 1. Ten FGDs were conducted. On average, seven key persons participated (min–max = 5–10). Key persons who had been interviewed in SSIs were also invited to participate in the FGD to provide further knowledge or discuss discrepant expertise with the group. However, not all FGD participants had been interviewed before. Six FGDs combined key persons from urban and rural areas. In Hamburg and Berlin, separate FGDs for participants from the city and the adjacent rural areas were implemented to investigate the differences between the rural and urban contexts. Additionally, in these two study sites, rural networks were the most accessible. Four FGDs took place in person, and six groups met online via Zoom software due to the Covid-19 pandemic.

Ethics approval and consent to participate

This research was approved by the ethics committee of the Charité – Universitätsmedizin Berlin (EA2/203/19). The questions asked did not aim for self-reporting of the respondents' own substance (mis)use but always addressed the key persons' knowledge of substance (mis) use of refugee communities in Germany in general or of indicated subgroups (third-person perspective). Key persons participated voluntarily and, first, were thoroughly informed about the objectives and methods of the research, and, second, gave their informed consent to confidentiality, data storage, and processing by signature. When transcribing the SSIs and taking the minutes of the FGD any kind of personal or institution-related information was omitted. Minutes and transcripts were pseudonymized by a letter from A to H referring each to one study site, an additional "L" if the interview referred to expertise from a rural area and a serial number. Audio records were deleted immediately after transcription/ minutes were taken.

Analysis

Qualitative content analysis of the SSI transcripts and FGDs was applied due to its efficiency in structuring large amounts of qualitative data [44]. The analysis was conducted with MaxQDA version 2020 [45] by three young scientists with a professional psychology background (LH, PS, AM). An overview of the coding scheme is provided as Additional file 1. Before starting, a coding scheme structured by themes was deductively created based on the key questions of the SSIs/FGDs; which are the characteristics of refugees that (mis)use substances? (Theme 1), Which substances are being (mis)used? (Theme 2), which factors affect substance (mis)use? (Theme 3). Distinctions between rural and urban study sites were captured within a fourth theme. Subordinated to the themes, deductively derived categories were added to capture the different aspects of the respective theme. For example, "age", "family status" and "country of origin" were some of the categories affiliated with the theme "characteristics of refugees that (mis)use substances", whereas "motives of substance use", "situation in Germany" and "substance use related

differences between contexts of origin and receiving context" were some of the categories associated with the theme "factors affecting substance (mis)use)".

The coding process then started with three randomly selected documents from the dataset which in total included 118 documents. In the analysis, SSI transcripts and FGD minutes were treated equally. Each of the three coders coded independently. Text segments were coded with the respective category code, or, in case the segment did not fit with any of the deductively derived categories but was related to a key question, it was coded with the superordinate theme code. Afterward, codings were compared among the three coders, and categories were discursively differentiated into inductively derived, more specific codes capturing the specifications of the category. Coded text segments were accordingly moved from the category to the subordinate code. To give an example; subordinate to the category "situation in Germany", codes such as "rights and opportunities in Germany" and "long asylum procedures and uncertain perspectives" were created. Where necessary, code definitions were cherished within a code memo. Text segments coded with the superordinate theme code were screened and discussed between the coders. If new aspects of the theme emerged, a, in this case inductively derived category, was added to the coding scheme. Each adaption within the set of codes made the recoding of all documents necessary. To avoid numerous recoding loops, the set of codes was not changed after it seemed able to capture the data adequately. The final coding scheme included four themes, 13 categories, and 59 codes.

Due to a continuously enhanced coding agenda, rule-based coding among all coders was ensured, and data could be analyzed not only qualitatively but also in terms of quantifying frequencies of single categories as well as in terms of contingency between different categories. Formative and summative reliability checks [44] were implemented in permanent contact and ongoing discussions between the coders during the entire coding process. Accounting for reflexivity, the procedure of analysis and interpretation was continuously and discursively reflected among the members of the project team and researchers of different levels of seniority, professional background, and migration-related experiences within regular colloquium sessions (i.a., SP, IS, UK). This procedure can be classified as a way of peer debriefing [46], contrasting the 'member check'-like FGDs with key persons from the field. Altogether, those procedures contribute to high levels of dialogical intersubjectivity in the analysis and interpretation of our study results [47].

Results

The result section is structured in the following manner. First, the important role of refugees' prospects and opportunities within the German receiving context in the link between countries of origin and post-migration substance (mis)use is presented. Then, the relation between living conditions and substance (mis)use is examined as a matter of substance availability, evolving distress in refugee shelters, and the socio-spatial features of the respective accommodations. This is followed by a third section on the relevance of social contact. Therein, we report on the observation that the family separation increases substance (mis)use. Furthermore, we describe how social belonging is negotiated by substance (mis)use among peers. Separate presentation of the findings from SSIs and FGDs was perceived as redundant, as the FGDs were considered as resembling the general sense of the SSIs in their entirety. Regardless, wherever the FGDs brought up further or divergent aspects, the emerging of the finding from the FGD is reported as such.

Refugees' prospects and opportunities shape the link between countries of origin and post-migration substance (mis)use

Substance (mis)use was mainly reported among male refugees younger than 30 years. In addition to age and gender, key persons defined subgroups that (mis)use substances frequently by country of origin or language area (e.g., Farsi speakers). Afghanistan, Iran, and Syria were the countries of origin mentioned the most. Interestingly, when talking about refugees from African countries, key persons often did not name the country but referred to the continent. Narrations relying on continents/countries of origin suggested them to determine the pattern of substance (mis)use and substances consumed (i.a., H_8, B_4, FGD_CL). In contrast, other key persons (i.a., A_7, CL_4, B_8) completely neglected such a direct link between substance (mis)use and country of origin and offered alternative explanations: "I think I would not so much limit it to nationalities, but rather

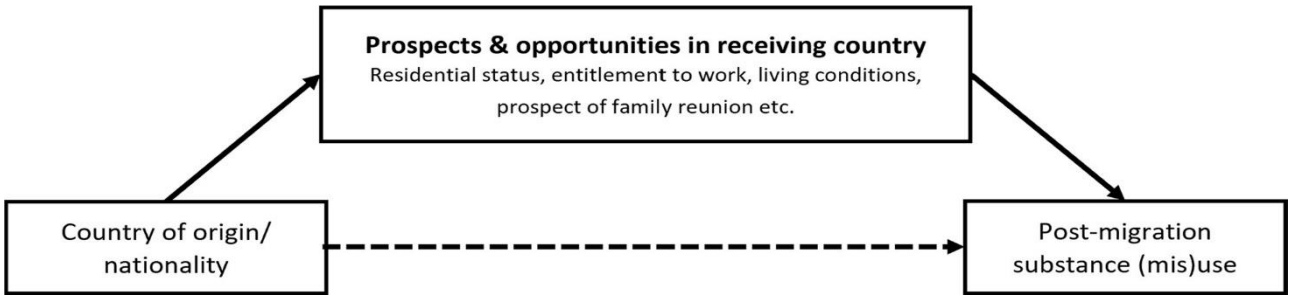

Fig. 1 Link between refugees' countries of origin and substance (mis)use in Germany shaped by the prospects and opportunities in the receiving country

to the context in which the people here move around" (F_4, Pos. 22).[11]

Within the SSIs and FGDs, this setting was specified by enduring asylum cases and uncertain perspectives (e.g.,in terms of family reunification; i.a., A_2, EL_2, FGD_C), precarious accommodation (i.a., HL_2, E_4, FGD_C) as well as limited rights and opportunities regarding meaningful activities (e.g., work permit, participation in integration/language courses, i.a., AL_4, F_5, FGD_C) and health care (i.a., CL_6, E_8, H_2). Key persons reported the link between the setting of refugees' everyday lives, and substance (mis)use equally for rural and urban areas as follows:

> *In the vast majority of cases, it is the people who are sitting at home, who are not allowed to do anything. Uhm and actually have no prospects anymore and are just waiting to see what happens and are also afraid about what happens next. (GL_3, Pos. 20) Where there are few prospects, where there is a lot of despair, there is often a high level of substance use, and the harder the situation and the less prospects there are, the higher I would estimate the risk [for substance use]. (H_6, Pos. 19)*

Especially for refugees who have little hope and few prospects, some key persons believed that what refugees are jeopardizing with substance (mis)use seems to weigh less compared to the advantages of the (mis)use (e.g., self-regulating effect): "So they know that it [substance use] is filthy, but it's not filthier than the situation they're in at all" (E_2, Pos. 98).

The post-migration settings, prospects, and opportunities described are depending on the refugees' countries of origin or their nationality.[12] Thus, as shown in Fig. 1, our data suggests the link between countries of origin and substance (mis)use to be indirect and to a large extent shaped by refugees' prospects and opportunities in the receiving country.

The link between living conditions and substance (mis)use as a matter of substance availability, distress, and socio-spatial features

In general, refugees' living conditions were dominant among the key persons' reports on refugees' substance (mis)use habits and the availability of certain drugs. The data conveys the impression that most of the refugees that (mis)use substances live in refugee shelters. In contrast, little was described about substance (mis)use among refugees who live in private spaces; potential confounding between the type of accommodation (shelter vs. private) and residential status, as described above (see Fig. 1), must be considered. The reasons for high substance (mis)use in refugee shelters surmised by the key persons (i.a., H_12, E_10, FGD_G), were in the first place related to the little privacy and autonomy entailed by life in a shelter:

> *Especially when I'm sitting in a facility like that for a long period of time, uhm, I am only allowed to cook at certain times, only allowed to take a shower at certain times, only allowed to do laundry at certain times, I don't have anything to do all day, uhm, then there are factors that actually, uhm, eventually put pressure on the psyche, and can not only increase the use of addictive substances but actually also lead to a change in mood. (CL_2, Pos. 73)*

> *But the other flatmates in this room [...], they want to [...] smoke, smoke pot, consume, listen to music and that is often a problem for them. They don't want to be in this room anymore, and they want somehow, either somewhere else or a single room for themselves. But this is not available at all. (C_8, Pos. 69)*

In addition, interviewees and FGD participants reported the remarkable availability of substances in refugee

[11] Original quotes from SSIs and FGDs are in German. As for credibility, they were translated into English by one person and then translated back to German by a second person; both persons were not affiliated with the project. The main researcher compared the original and translated German versions of the quotes and adapted the English translation where necessary.

[12] Refugees' social ecology is determined legally by their residential status. Interestingly, in Germany, the latter is significantly dependent on the asylum seeker's country of origin (e.g., due to reports on the national status related to asylum and deportation issued by the Federal Foreign Office [48] or bans on deportation related to the country of origin [49]).

shelters due to drug dealing (i.a., A_4, C_8, GL_2), as well as fellow housemates recommending substance use based on their own "positive" experiences, for example, to tackle insomnia, without explaining or knowing what the substance is and what risks it brings (i.a., C_3).

> *I think that if you don't use drugs now and you share a room with someone who does use drugs, it can either put you off or maybe lead to you being infected. So, I think that it has more to do with the social context. (F_4, Pos. 22)*

> *And the initial contact worked [...] via people from one's own culture, one's own language, who then said, 'You're so sad, you're under so much stress. Have a smoke!' And some had an idea about what they were consuming, and others did not. (A_4, Pos. 21)*

When discussing unaccompanied minors, who in Germany are usually housed in youth welfare living facilities, some interviewees identified these closely supportive living contexts as a protective factor because strict rules are applied; in contrast, community shelters were associated with far less support, supervision and rules for their residents (i.a., G_8, H_5, EL_2). Accordingly, several key persons (i.a., B_7, FGD_A, FGD_G) pointed to the age-related obligation to move into bigger community shelters, as a critical moment regarding the personal development of young adults and substance (mis)use:

> *And I think it's difficult to make the transition at all from an unaccompanied minors facility, which is very supportive and very intensive and has surely somewhat replaced the family. Most of them were simply kicked out without mercy as soon as they turned 18 [...] And that means they moved into the shared accommodation on their 18th birthday. And that was not a good transition. (E_7, Pos. 66)*

In contrast, if teenagers were believed to have succeeded in creating meaningful future perspectives, they seemed to easily quit (mis)using substances (i.a., E_2, CL_5, HL_2). This reinforces the expounded relation between refugees' social ecology and substance (mis)use:

> *So if they have prospects and a path that they can follow, then smoking pot no longer plays any role at all, for 2/3 of those who did it before. So, it really drops rapidly then and, uhm, is also stopped by itself. (C_4, Pos. 125)*

In addition to the examination of refugee shelter facilities as social ecology settings themselves, the data shows that the socio-spatial locating of refugee shelters within rural areas and likewise within cities were reported to affect refugees' substance (mis)use. Especially in rural areas, the social ecology component was emphasized for refugee shelters located, for example, "in the middle of the forest without Internet" (CL_5, Pos. 92) or in areas where "at night, [it] is really very dark here already on [the] street" (CL_5, Pos. 124). Few activities, restricted mobility, and limited autonomy were believed to increase boredom among refugees located in rural areas and thus increase substance (mis)use (i.a., CL_4, GL_5, FGD_C). These links were reported, although illicit drugs were perceived as less available in rural than in urban areas (i.a., AL_5, FGD_E):

> *Community accommodations […], are mostly in a relatively rural area and not so well connected. Which is also often a problem. Then they have to somehow; then there is only one bus then and then. (...) The less self-determined one lives, the more one consumes, as one can imagine, that it is simply a stress factor. (HL_4, Pos. 17)*

An issue frequently raised by the interviewees and taken up by FGD participants was boredom (i.a., CL_5, AL_4, FGD_F). Taken together with key persons' assumption that the deficient and poor accessibility of (mental) healthcare, addiction care, or prevention services in rural areas (i.a., GL_5, HL_1, FGD_AL), those factors were described as relevant, especially for refugees with little German language proficiency; they believed substance (mis)use to be hereby encouraged or maintained among refugees in rural areas. In addition, higher availability of substances, a sense of belonging to a community (e.g., the urban open drug scene), and health care services were described as pulling refugees either occasionally or permanently from rural to urban areas (i.a., E_7, FGD_A, FGD_CL). According to the data, refugees were surmised to do so although they would risk losing their right to accommodation, government benefits, and/or legal consequences because residential status comes sometimes with restricted freedom of movement (e.g., restricted to one administrative district; i.a., HL_2, FGD_A, FGD_CL).

Moreover, in urban study sites, the issue of the location of a shelter was likewise perceived as crucial and potentially affecting substance (mis)use. For instance, at one study site, several interviewees (i.a., E_4, E_7, FGD_E) reported a significant number of refugees that (mis)use substances who had arrived as unaccompanied minors and were at the time accommodated in a hostel near to the open drug scene.

Absence of refugees' families and social belonging influence refugees' substance (mis)use

Social contacts or their absence were observed to affect refugees' post-migration substance (mis)use, regardless of whether the key persons were talking about refugees in rural or urban areas. For instance, a large share of refugees that (mis)use substances was described as being in Germany without their families (i.e., children, partners, parents), just like the unaccompanied minors mentioned above. This seems to be the case as well for women; for

instance, women traveling solo were reported to (mis)use alcohol, cannabis, and illicit drugs (i.a., GL_3, FGD_G, FGD_CL), whereas women with children and partners mainly stand out due to nonmedical use of pharmaceuticals (i.e. B_4, EL_3, FGD_ AL). The former were assumed to be older than in their mid-20s, including several transwomen.

The underlying mechanism of solo traveling as a determinant of substance (mis)use was described as having two parts. On one hand, substance (mis)use was reported as a consequence of the loss of structure, responsibility, and *"social control"* (G_2, Pos. 20), previously imposed by families (i.a., C_2, DL_4, FGD_E). In other words, as described by a refugee interviewee: "Those who don't have any family at all, attachment and control go missing" (A_6, Pos. 4). On the other hand, key persons associated the absence of refugees' families with experienced loneliness, missing sorely the family members left behind and worrying about their lives (i.a., A_6, C_8, HL_1).

In addition to conditions provided by having migrated with or without family, regarding peers and how they are associated with substance (mis)use, teenage refugees stand out in our data. Interviewees reported frequently an affiliation with the age-related peer trend of (mis) using cannabis and alcohol. Several interviewees (i.a., B_6, F_8) perceived these behaviors as offering teenagers a sense of belonging:

> *I think it's also because, in the usual contexts, such as school, they were also integrated here [...], and then they did what the others were doing (laughs). So, you could also see it a bit as, well, integration in the traditional sense. They also did what was typically available here at this point. (EL_2, p. 28)*

Amid forced migration, belonging to any social group in the receiving context seems to be a relevant motive for (mis)using substances (i.a., A_3, H_2, GL_4). To give another example from the SSIs; communities built up over years in Germany (e.g., the Iranian community) were described as offering not only peer contact and a sense of belonging for refugees who had arrived recently, but also increase the availability of substances that one might not expect to be widespread in the receiving country (e.g., opium; i.a., A_5, E_2, E_11).

In contrast, regarding ecstasy pills as an illicit drug widely used by young people in Germany, there are few reports by key persons on ecstasy (mis)use by young refugees. One reason prominent in our data is the inadequacy of psychostimulants for refugees' motives for substance (mis)use. Additionally, during an FGD, participants discussed a divergent assumption related to the lack of accessibility of nightlife venues for refugees due to discrimination and the thus decreased influence of peer trends related to substance (mis)use existing in those social contexts: "It is difficult for young refugees to access party drugs due to discrimination at the doors of clubs and pubs and high prices" (FGD_G, Pos. 32).

Discussion

Altogether, 108 semi-structured key person interviews and 10 FGDs based on a multi-site rapid assessment were analyzed, aiming at identifying determinants of substance (mis)use embedded in the post-migration context of refugees and understanding their links and underlying mechanisms. As one main result, the link between refugees' countries of origin and their post-migration substance (mis)use is suggested to be not as direct as often assumed. It appears that refugees' prospects and opportunities in receiving countries undermine this commonly reproduced link. For instance, the work permit, prospects for family reunions or permanent residency as well as the individual's residential status depend on the country of origin and thus significantly shape the setting of refugees' everyday lives. Further determinants of special relevance within the substance (mis)use affecting social ecology are related to living conditions and social relations with peers and families. The role of the former can be summarized as potentially increasing substance availability and distress. Additionally, the data substantiates an interplay between refugees' (lack of a) sense of belonging and substance (mis)use.

In contrast to dominant explanatory approaches to substance (mis)use focusing on the period before migration or individual psychological conditions, the social ecological approach applied to the data acknowledges substance (mis)use as maintained and facilitated by structural factors in the receiving country. A recently published systematic review of qualitative research [40] supports our findings on the influence of peers and family separation on refugees' substance (mis)use. In addition, the authors mention the challenge of integration and the lack of education and employment as core motives for refugees (mis) using substances. Whereas they do not refer to the influence of different types of accommodation, they emphasize the risk due to the high availability of substances, for instance in Germany [50]. The negative effect of refugee shelters on substance (mis)use has been reported but the data is inconclusive about the underlying mechanism [2]. Our data suggests that it is not only the general distress and restricted autonomy imposed by life in a refugee shelter, that generally harms refugees' mental health [51–53] and fosters refugees' substance (mis)use, but also the fact that in those shelters availability of substances is particularly high. As quantitative data investigating the substance (mis)use among refugees in Germany from a social ecological stance to our knowledge, does not yet exist, our findings cannot be supplemented with quantitative studies. Nonetheless, a large number of quantitative studies identified similar factors as our study when examining post-migration stressors' impacts on the mental health of refugees in Germany in general [28] and qualitative approaches have

suggested mechanism similar to the ones suggested by our data [53].

Our findings challenge common substance misuse prevention and treatment approaches. Just as in research, their focus used to be on behavioral and individual factors of substance (mis)use. In the case of refugees and migrants, for decades, the obstacles to accessing mental healthcare services were attributed mainly to those individuals (e.g., lack of information) or their culture [54]. Therefore, culturally grounded prevention and treatment programs for specific communities were suggested [55– 57]. These approaches have in common a deficit-oriented perspective of refugees that has been criticized for years and that ignores the surrounding context conditions. Criticism of the decontextualization of social problems, previously frequently voiced in social science, is also applicable here [58–60].

Based on the findings of this study, in the first place, we first and foremost recommend substance (mis)use prevention measures to expand from behavioral to structural prevention by fundamentally changing the social ecology of refugees for the better. Therefore, the translation of the findings into policy recommendations is relevant. For example, the finding that solo travelers are at elevated risk of substance (mis)use is not particularly new [24, 40, 50]. From a strand of literature, we know about the buffering effect of family support on substance use [61–63]. For Germany in particular, a longitudinal study revealed family reunifications, with nuclear family members or siblings, to positively affect generally refugees' mental health [64]. Therefore, in the examination of refugees' social ecology, legal obstacles regarding family reunification must be scrutinized.

In a similar vein, we discussed the data substantiating how the sense of belonging to a community is offered or negotiated by substance (mis)use. This goes beyond the mere description of drinking alcohol to socialize with peers [29], as it addresses categories of identity, social belonging, inclusion, and exclusion, which especially when examining migrants/refugees, seem to play a significant role. For instance, the systematic review by Hajak et al. [28] encompasses studies pointing out loneliness and experiences of discrimination to be strongly associated with poorer mental health. Accordingly, in the words of Lindert et al. [50] we conclude, that substance (mis)use depicts an "active coping behavior to increase acceptance and belonging to the host country" (p. 22). It might be redundant to point out the maladaptive potential of such guideways to integration. In addition, it must be acknowledged that refugees that (mis)use substances face barriers when aiming for equal participation in society on two levels, being a refugee and being a substance (mis)user.

Another realm in need of policy changes identified by our study is refugee accommodation. This demand is not novel, as the distress entailed by living in a refugee shelter had been described extensively [51–53] and advantages of private and decentralized housing compared to refugee shelters on the psychological well-being of refugees particularly in Germany have been shown to be significant [28]. Our study supports the need for decentralized housing as it additionally identifies shelter accommodation as a risk of substance (mis)use. Thus, our findings point out experiences of social exclusion due to being accommodated in shelters in the socio-spatial periphery, in addition to the aforementioned influence of distress, limited autonomy, and high substance availability entailed by living in a refugee shelter. Those experiences were believed to increase boredom and in turn substance (mis)use. Similar links were described for refugees' mental health in general [53, 65]. It must be considered that once a certain affinity for substance (mis)use is developed, for example, as a coping mechanism for psychosocial distress, the risk of SUD is elevated. For instance, a recommendation underpinned by empirical findings, and informed by theory, is to prevent or quit substance (mis) use by changing social networks [66–68]. However, in practice, even when refugees are willing to change their accommodations, they may face barriers, or in the worst case be forced to stay in a social environment shaped by high substance availability. Therefore, another relevant structural prevention measure, not only, but also in terms of substance (mis)use, is to strengthen refugees' autonomy in terms of housing options as soon as possible after their arrival.

In the light of the link between limited prospects and opportunities for refugees and their post-migration substance (mis)use, the issue of boredom and restricted access to labor stood out. Interestingly, within the field of substance misuse treatment and (relapse) prevention, self-efficacy beliefs [69, 70], employment [68, 71, 72] and any other meaningful activity [73] alternative to using drugs have been generally discussed as key issues. This is opposing the fact that refugees have limited to no control over related domains e.g., long-term prospects in receiving countries, work permits, accommodation, and family reunions. This lack of control itself has been shown to harm refugees' psychosocial well-being and mental health [52]. The need for quick clarification of the refugees' prospects in Germany has been emphasized, as it appears to facilitate structural integration [53, 74].

In summary, changing refugees' social ecology for the good, aiming to offer them an opportunity to participate effectively and equally in receiving societies, seems important in terms of structural substance (mis)use prevention. Regardless of substance use, offering refugees a sense of belonging to the receiving society must be considered a macrosocial responsibility [59].

In addition to the afore-mentioned points addressing structural prevention measurements, the data is equally of value to inform behavioral prevention and treatment implications for refuges that (mis)use substances. First, the rich findings related to the influence of peers on substance (mis)use improve the planning of information dissemination approaches as prevention measures and might inform

community-based interventions [75, 76] by providing an understanding of different refugee communities and their dynamics. Second, in treatment settings, we encourage practitioners to not only focus on individuals' pre-migration experiences or assumptions attributed to their countries of origin but instead take a holistic stance and examine the multiple factors within the postmigration setting and evaluate any possibility to improve it.

Limitations and strengths

The RA conducted offers broad insight into substance (mis)use among refugees living in Germany based on diverse perspectives. Nonetheless, the third-person characteristic of interviewing key persons, regardless of their belonging to the target community, limits the data; only a minority of respondents and FGD participants drew biographic references to their own experiences as refugees and/or substance (mis)use. Even though recruitment activities aimed for the inclusion of key persons affected by their own flight and substance (mis)use experiences, and language interpreters to conduct SSIs in any other language than German were easily available, the assumption that people and in particular refugees that (mis) use substances, are hard to reach for research has been confirmed. We need an understanding of how refugees' participation in studies on substance (mis)use might be encouraged (e.g., incentives and anonymity).

Although interviewing key persons not solely of clinical backgrounds offers a more holistic view of the social ecology of refugees, it brings with it the limitation of a non-uniform use of the terms describing the severity of substance (mis)using behaviors. This made it impossible to distinguish between substance use, misuse, addiction, or any other type of SUD within the analysis. If aiming at differentiation between forms of substance (mis)use, a study must be related to a clinical diagnosis while thoroughly reflecting on the issue of cultural sensitivity of respective screening instruments [77].

In addition, our data did not allow for contrasting key persons from diverse professional backgrounds or key persons affected by (forced) migration and/or substance (mis)use themselves with other key persons. Nevertheless, the vast number of semi-structured interviews conducted and the implementation of FGD as a communicative validation of preliminary results strengthened the validity of the study.

Although this study was limited to Germany and findings are not necessarily transferable to other countries, we still tried to account for the common but incorrect assumption that post-migration settings would be homogenous [13], by using a multi-site design and comprehensive involvement of urban as well as rural areas. Nonetheless, the holistic nature of the data, offering insights into the mechanisms underlying the risk of increased substance (mis)use embedded in the social ecology of refugees in Germany, might contribute to conceptual frameworks. This should be acknowledged as a core advantage of empirical qualitative research [40].

Future research

To our knowledge, this study is one of the first to address determinants of substance (mis)use embedded in a refugees' post-migration social ecology perspective. Although within the last few years growing evidence for social determinants of mental health has been extended to refugee populations (cf. [65, 78]), this has rarely occurred in the field of substance (mis)use or SUD. We encourage researchers to examine the bigger picture by expanding the focus to the social ecological context. Future research could extend the focus on the role of pre- and post-migration social norms and attitudes toward specific substances or substance (mis)use and investigate their influence on post-migration substance (mis)use. Furthermore, the qualitative exploration in this article might be tested within a sound quantitative survey for statistical significance. In addition, future research could investigate different SUD based on diagnostic criteria while accounting for the cultural and social sensitivity of terminologies related to substance (mis)use [15, 16] and related challenges emerging when using screening instruments [77]. However, such an approach makes it necessary to directly study refugees that (mis)use substances. Therefore, it must be understood, why refugees might be reluctant to talk about their own substance (mis)using behaviors to researchers and how those concerns might be overcome. Possibly, contrasting the perspectives of e.g., key persons from addiction care and refugee aid services, might offer relevant insights and may inform interventions on how to make addiction care services more accessible to refugees.

Conclusion

The analysis of integrated data from the multi-site qualitative RA conducted highlights the relevance of examining the multi-level factors shaping the setting of refugees' everyday lives when aiming at investigating substance (mis)use among refugees. The data allow us to concretize refugees' social ecology, as displayed in the model of refugee distress [20]. Factors identified as crucially related to substance (mis)use include refugees' post-migration prospects and opportunities, accommodation, family separation, and a general wish for a sense of belonging. Given that those factors predominantly underlie integration policy frameworks, legal restrictions (e.g., on family reunions, accommodation, and work permits) should be reconsidered in light of their negative impact on mental health and substance (mis)use and related treatment costs. Moreover, general attempts applied in prevention and treatment, such as alternative activities to drugs, seem to be only slightly applicable to refugee populations because refugees have

limited to no control over domains such as work permits and living environments. Therefore, we strongly recommend aiming for a holistic comprehension of refugees' substance (mis)use by expanding the focus beyond individuals toward the social ecological context in any attempt, including prevention, treatment, research, and policy.

Abbreviations

FGD	Focus group discussion
SSI	Semi-structured interview
RA	Rapid assessment
RAR	Rapid assessment and response
SUD	Substance use disorder
ICD	International Statistical Classification of Diseases and Related Health Problems

Supplementary Information

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Additional file 1: Coding scheme applied to the Semi-structured interview transcripts and minutes of focus group discussions.

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Author contributions

Conceptualization, basic methodology and funding acquisition were carried out by AH, SP and IS. LH, the corresponding author, monitored data collection, took care of data curation, adapted and specified methodology as needed, analyzed the data, and prepared the original draft of the manuscript. PS was involved in monitoring data collection and data analysis. SP, UK and IS supervised the project and provided feedback. All authors read, edited, and approved the final manuscript.

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Availability of data and materials

Due to the persisting sensitivity of the data despite de-identification procedures as well as the lack of consent for sharing the original interview data, the transcripts of interviews and notes of group discussions cannot be made publicly available.

Declarations

Ethics approval and consent to participate

Research ethics were approved by the ethics committee of the Charité – Universitätsmedizin Berlin (EA2/203/19). All respondents and participants signed informed consent before participation in the study.

Consent for publication Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Social ecological determinants of the mental distress among Syrian refugees in Lebanon and Turkey: A transnational perspective

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Abstract

Objective: Refugees are frequently shown to have worse mental health outcomes than non-displaced populations. This fact is commonly attributed to traumatic pre-displacement experiences. While important, the focus on trauma risks overlooking the role socioeconomic living-conditions in different arrival and transit contexts can play in determining refugees' mental distress. Building on the ecological model of refugee distress, we investigate how social ecological conditions relate to the mental distress of Syrians in Lebanon and Turkey. Both countries present important spaces of arrival and transit for millions of displaced Syrians, each with a specific historical, political, social and economic context.

Methods: The empirical analysis is based on data gathered in early 2021 in face-to-face surveys among displaced Syrians in Lebanon (N=1127) and Turkey (N=1364). Individual mental distress is evaluated using the Patient Health Questionnaire (PHQ-8) score as the dependent variable in a multivariate regression analysis.

Results: Social ecological factors do not only differ in their extent of deprivation between Lebanon and Turkey. They also differ in their relationship with individual mental health outcomes. In Lebanon, limited access to the health care system and having family in the same city are major risk factors for elevated mental distress, whereas in Turkey, these are low education, poverty, unemployment as well as employment as day laborer. Discrimination and social isolation emerge as relevant predictors in both countries.

Conclusion: Based on this analysis, we argue that a context-specific understanding of mental distress amidst the social ecology refugees face in countries of refuge and transit is necessary. This approach needs to be pursued to provide adequate support and alleviate refugees' mental distress both, in the country of first refuge and after possible onward migration. In addition to clinical implications, the study

particularly highlights the important role anti-discrimination and social inclusion policies could play in promoting refugee mental health.

Social ecological determinants of the mental distress among Syrian refugees in Lebanon and Turkey: A transnational perspective

Keywords: mental health, refugees, Lebanon, Turkey, discrimination, social determinants of health, comparative studies

1. Introduction

Lebanon and Turkey are hosting a large proportion of the displaced Syrian population. The unique historical, socioeconomic contexts as well as the different migration and asylum policies of both countries, however create different impacts on refugee trajectories and their experience of inequality and social inclusion (1). In both Lebanon and Turkey, mental health is among the most pressing health needs of Syrian refugees (2). Since the beginning of the Syrian civil war, research addressing the mental health situation of Syrian refugees in the MENA region, including Lebanon and Turkey, has grown significantly. Reflecting a general trend in mental health research with displaced populations, most existing studies with refugees focuses on prevalence rates as well as risk and protective factors of commonly known mental illnesses such post-traumatic stress disorder (PTSD)Major Depressive Disorder, and anxiety disorders.

Numerous studies in different geographic contexts in high-, middle- and low-income countries show that refugees have significantly higher levels of mental health burden than respective comparison groups without (refugee) migration experience (3). Studies with Syrian refugees show high prevalence of mental disorders, which at the same time vary considerably across studies, ranging from 16-84% for PTSD, 10-49% for depression, and 49-55% for anxiety disorders (4). These wide ranges are, in part, the result of different methodological approaches in terms of sample design and related measurement instruments (ibid.). But they also suggest that the post-migration context plays an important role in determining mental health outcomes. Therefore, the alleviated mental health burden among refugees cannot be reduced exclusively - as political and academic discourses might often suggest - to pre-

displacement factors and, specifically to potentially traumatic experiences people have had in contexts of origin. In contrast, for decades researchers from different disciplinary backgrounds have increasingly encouraged a shift in thinking towards more holistic approaches on mental health of refugees (5). Accordingly, the mental health impact of armed conflict and structural violence were shown to be also decisively influenced by the conditions refugees encounter in exile (6–10). It is assumed that these conditions impact the capabilities of people having fled war and structural violence to build a new life in exile and to cope with the multiple forms of loss and potentially traumatizing experiences they might have made in different phases of their migratory process (11–13).

Multiple theoretical models have been developed to capture the influence of post-displacement factors on refugee mental health. As such, they stand in the tradition of research on social determinants of health (SDOH). These approaches have received growing attention by both researchers (14) and policy makers (15,16) over the past two decades. But only belatedly has the special role of migration-related factors in this framework been recognized (17) and particularly refugee groups remain understudied in this area (c.f. 4).

Nevertheless, there are a few initial studies that examine social and economic factors influencing the mental health of Syrian refugees in particular. For example, studies here point to increased prevalence rates of PTSD among refugees who are unable to meet their basic needs or have no access to medication (18,19). Furthermore, precarious housing situations in refugee camps increase the likelihood of developing both, PTSD and depression (20). There are conflicting findings on the link between unemployment and the mental health of Syrian refugees in the MENA region. While for example Al-Smadi and colleagues (18) found unemployment of Syrians in Jordan to be correlated with PTSD and depression, other studies (21,22) find no such association. It is clear from these few existing studies that research on socioeconomic factors influencing the mental health of Syrian refugees is still

underdeveloped. Nevertheless, the existing studies provide evidence of the importance of post-displacement living conditions in putting a clinically relevant mental health burden on Syrian refugees.

In the following contribution, we explore how the setting of Syrian refugees' everyday lives in Lebanon and Turkey affect their mental health using face-to-face survey data collected simultaneously in 2020. By building on the social ecological model of refugee distress by Miller and Rasmussen (12), this study bridges the often individualized and trauma-focused discourse on refugee mental health to a more holistic discussion on the structural inequities contributing to poor (mental) health outcomes amongst the globally displaced. Thereby, we contribute to the global mission of e.g. the World Health Organization (15,16) and the International Organization for Migration (IOM) (23) to identify and react adequately to relevant social determinants of health (SDOH), for example, by incorporating them into policy frameworks and clinical interventions (17,24). Acknowledging the well-documented influence of potentially traumatizing experiences of refugees in their countries of origin, the ecological framework emphasizes the importance of *post*-displacement stressors like poverty, unemployment/dependency on aid, family conflict and violence, loss of possessions, discrimination, separation from family members, uncertainty regarding asylum status, detention in asylum seekers center and the loss of social support networks (see Fig. 1). These post-displacement stressors are understood by the authors as daily stressors that arise from or are exacerbated by the refugee experience. They are described as consequences of structural violence and everyday structures of oppression ranging from minor stressful experiences to potentially traumatizing events and threaten individual mental health by causing stress and overwhelming coping resources of the individual and its social environment (12).

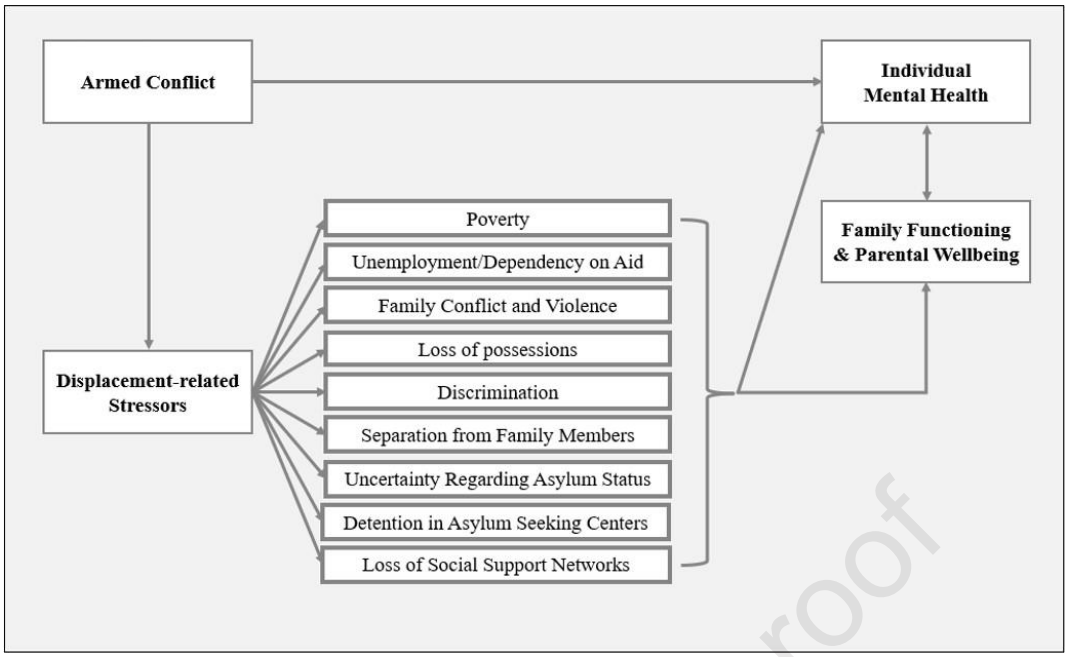

Figure 1: Ecological model of refugee distress proposed by Miller and Rasmussen (2017, p. 132). Own illustration.

To our knowledge, this study is the first work to systematically examine the influence of living conditions and experiences on the mental health burden of Syrian refugees based on a theoretical model. Based on the existing empirical literature, the model and the constraints of the study setting we include the following displacement-related stressors in our analysis: poverty (11,13,25), unemployment (11,26,27) and discrimination (6,28–33). We expand the model's treatment of interpersonal connections on the family and personal network level by also including feelings of social isolation at the neighborhood and community level. We further introduce limited access to the healthcare system as an additional displacement-related stressor. Regarding the access to adequate (mental) health care, the evident high burdens and needs of refugees are often contrasted with precarious care situations in transit and arrival contexts. Receiving adequate care at the onset of mental health conditions reduces the risk of developing long-term persisting psychiatric symptoms (34–36). Yet, especially low- and middle-income countries often have limited capacities to cope with the needs of refugee populations (37). Since the target population of the surveys used here are Syrian refugees living in private households, distress related to detention in asylum seeking centers is not

applicable. Additionally, the setting of a large quantitative survey did not allow for questions regarding sensitive information like respondents' asylum status or family conflict and violence as other family members may have been present and interviewees' trust could not be guaranteed. We also did not collect data on the loss of property but the current economic situation of households.

While most previous studies on refugee mental health focus on specific refugee groups in one geographic region at a time, we present the first multi-sited study with a transnational perspective on Syrian refugee mental health in the MENA region. In this sense, with this paper we aim to contribute to a more context-sensitive understanding of transnational experiences of mental distress among Syrian refugees both among policy-makers as well as professionals working in medical, psychotherapeutic and psychosocial care of refugees. This study can also serve as a blue-print for how to operationalize the SDOH-framework promoted in global migration governance in the field of refugee mental health and to ground it within social ecological theory.

The following sections will provide background information on the two research contexts, Lebanon and Turkey, regarding the general constitution of Syrian refugees' social ecology. As much as we know about the displacement related stressors themselves, little empirical evidence systematically linking them to individuals' mental health or distress exists. It is this link that we seek to provide with our subsequent analysis.

1.1. Setting the scene: Syrian displacement in Lebanon

Lebanon has not signed on to the 1951 Geneva Convention and its 1968 protocol (38,39). Government officials have made it explicit that Lebanon is not a country of refuge but rather a country of temporary transit for those seeking permanent refuge in third countries (39). In 2003, the Lebanese state signed a Memorandum of Understanding (MoU) with the UNHCR to ensure the processing of (non-Palestinian) refugees by the later. The MoU has since been criticized as inadequate by UN officials and human rights groups (ibid.). Consequently, the registration of displaced Syrians as refugees by the

UNHCR in Lebanon following the break-out of the Syrian conflict has no legal bearing under Lebanese law (39). In 2014, the Lebanese government adopted new policies explicitly aimed at reducing the number of displaced Syrians in Lebanon, by among other measures, establishing entry permit and residence permit renewal processes (38,39). This was followed by an order to the UNHCR in May of 2015, to halt all refugee registrations until further notice (39), leaving many Syrians without any clearly defined status.

Poverty. Amidst the severe political and economic crisis combined with the COVID-19 pandemic, poverty is a major threat to large parts of the Lebanese society. This is especially true for the Syrian population, among which 9 out of 10 households lived in extreme poverty in 2021 (40). While international organizations and humanitarian actors do provide support through cash-transfers for impoverished Syrian households (41), the funding is often insufficient leading to undesirable coping strategies such as malnutrition or child labor (40,42). Conditions are particularly threatening for the estimated 20% of Syrian refugees living in informal camp settlements and non-permanent shelters often unfit for winter temperatures (43).

Employment. Syrian workers have been a part of the Lebanese labor market, primarily in the construction and agricultural sector, long before the outbreak of the Syrian civil war (40,44). Yet, the lack of any formal protection status under Lebanese law and highly restricted access to work permits, pushes a vast share of the Syrian labor force in Lebanon into unemployment or highly exploitative work conditions (39,40). A 2020 survey among vulnerable workers in Lebanon conducted by the International Labour Organization (ILO) found an unemployment rate of 40% among Syrian respondents (45). Of those Syrians in employment, 95% reported that they work informally (ibd.), i.e. without a permit and hence without any legal protection.

Social connections, isolation and discrimination. While a shared language grants Syrian refugees some possibility of participation in Lebanese society and individual acts of hospitality and compassion undoubtedly take place, a policy response designed to avoid permanent integration of the displaced

Syrian population has isolated many economically as well as socially (43). In addition to concerns over increased competition for the country's scarce resources and economic opportunities, large parts of Lebanese society remain reluctant to welcome Syrians due to the involvement of Syrian forces in the Lebanese civil war and the subsequent Syrian occupation of the country until 2005 (43,46). Exacerbated by the dire economic conditions in Lebanon and the countries historic sectarian divisions, displaced Syrians are subjected to prejudice, discrimination and in some cases violent altercations (46). But Lebanon and Syria also share a long history of labor migration and resulting social networks that pre-dated the Syrian conflict (47) and likely facilitated social connections for new arrivals.

Healthcare access. In line with the overall strategy to encourage onward or return migration among the Syrian population, the Lebanese government defers responsibility of providing shelter, social support and healthcare access to international organizations and NGOs, coordinated by the UNHCR and the Ministry of Health as part of the Lebanon Crisis Response Plan (48). Major funding gaps for such efforts remain, creating substantial barriers to e.g. healthcare services in the largely privatized Lebanese healthcare sector (49).

1.2. Setting the scene: Syrian displacement in Turkey

Despite Turkey having signed on to the 1951 Geneva Convention, it restricts the official designation of "refugee" to asylum seekers fleeing European countries. Consequently, the status and rights of the first displaced Syrians arriving in Turkey was ill-defined. The ambiguity was largely resolved with the introduction of Law in Foreigners and International Protection (LFIP) in 2014, which established the Directorate-General of Migration Management (DGMM) and introduced the concept of Temporary Protection Status (TPS), to be applied to the displaced Syrian population in Turkey (50). While falling short of acknowledging Syrians as refugees as understood under the Geneva Convention, this legal framework does define a set of rights and responsibilities of the Syrian "guests" but maintains the strictly temporary nature of their presence within Turkey.

Poverty. Low and unstable income renders many Syrian households subject to poverty. According to reporting by the Regional Refugee Resilience Plan (3RP), 64% of urban Syrian households live below the poverty line, 18.4% live under severe poverty (51). The purchasing power of Syrians is further suppressed by a raise in prices, particularly for food stuff in the wake of a major inflationary episode in the Turkish economy (51). While assistance such as cash transfers as part of the Emergency Social Safety Net (ESSN) exist for those Syrians threatened by severe deprivation, major coverage gaps remain and some households resort to child labor (52).

Employment. Registration under TPS does not automatically grant Syrian refugees access to work permits. While the 2016 Regulation on Work Permits of Refugees under Temporary Protection allows Syrians to apply for work permits through their potential employer, the process is widely regarded as exceedingly complex and restrictive (53). Consequently, only a small number of Syrians have successfully applied for such a permit (54,55). Without formal work permits, Syrian workers often rely on informal or day-to-day work. This in turn leaves them without any social protection and subject to maltreatment and wage theft by their employers (56). Not unlike in European arrival contexts, many Syrians in Turkey struggle to find employment due to language barriers, non-acceptance of their prior qualifications and competition in low-skill employment.

Social connections, isolation and discrimination. While initially welcomed as “brothers and sisters” in Turkey, large parts of the displaced Syrian population remain isolated from Turkish society, mainly due to language barriers. As Arabic speakers, many Syrians are not only constraint in their ability to partake in Turkish society, their language preferences also easily identify them as outsiders and potential subjects of discrimination. With the protracted nature of the Syrian displacement becoming ever more evident and economic crisis leading to increased (perceived) competition for jobs and government resources (52,57), support for hosting displaced Syrians is waning in the general public and reports of discrimination and signs of anti-Syrian sentiment have increased in recent years. A survey among Turkish citizens in 2019 shows that Turkish people increasingly label Syrians as a threat rather than

people worthy of protection, as had been the case in a 2017 wave of the survey (58). During the time of data collection for this survey, the COVID-19 pandemic, and the restrictions on public life it entailed further exacerbated tendencies towards social isolation.

Healthcare access. Following the ratification of LFIP, Syrians registered under TPS are issued a registration card (*kimlik*) which, entitles the carrier to free access to education (including language classes) and healthcare (56). These services include dedicated, EU-funded migrant health centers which the Turkish government established in areas with a large Syrian population (59). These provisions are conditional on TPS-recipients remaining within their province of registration. Unregistered Syrians and those moving outside their province of registration are only eligible for emergency care (59).

2. Methods

2.1. Study Design and Sampling

The data used in this study is drawn from an ongoing longitudinal survey of Syrians living in Lebanon and Turkey collected simultaneously between September 2020 and February 2021. As part of this larger migration research TRANSMIT, the survey contains a broad set of questions on respondents' family structure, demographic and psychological characteristics, migration experiences and aspirations, economic, social, physical, and psychological well-being. In the absence of publicly available registry data, the study employed multi-stage stratified area sampling in order to achieve a representative sample of the respective Syrian populations in each country. In Lebanon, the sampling frame is constructed by dividing the country into 16 administrative regional units (strata), which are in turn divided into sub-areas based on population density and majority religious affiliation. Only subdivisions where a sizable Syrian presence can be expected based on 2015 UNHCR registration data are included in the sampling frame. In contrast to the Turkish sample, these can include rural areas. From each subdivision a block of roughly 200 dwellings and a sampling point within this block are

drawn at random. In Turkey, given its size, the sampling frame is restricted to the two largest municipalities in each region of the country, as the presence of Syrians is assumed to be highest in urban centers. Districts, blocks, and sampling points within each city are drawn at random.

Starting from each sampling point, participants are recruited using random walk sampling in both countries. The interviews are conducted in Arabic via computer assisted personal interviews that lasted between 60 and 90 minutes.

Only members of Syrian households at least 15 years of age at the time of interview where eligible for participation in the survey. A household is considered Syrian if the self-identifying head-of-household was either born in Syria or holds Syrian citizenship. To focus our analysis of social ecological factors to working age refugees, we restricted the sample to participants aged 18 and above and those arriving in Lebanon or Turkey, respectively, after 2011.

2.2. Ethics and Data Protection

Ethics approval for the survey was not required by the funders nor by the hosting institution. Respondents participated and provided oral informed consent to processing, saving and deletion of their data aligning with the EU General Data Protection Regulation before starting the interview.

2.3. Measures

As an indicator for an elevated *mental health burden* we used the 8-item Patient Health Questionnaire (PHQ-8). Items referring to the frequency of experiencing depression symptoms over the past two weeks, such as lack of energy, loss of pleasure and interest, and feelings of depression and hopelessness, can be rated on a 4-point Likert scale ranging from 0 (= not at all) to 3 (= nearly every day), with a maximum sum score of 24. The official, validated English version was translated to Arabic by the survey institute. The PHQ is an established measure for depressive disorders. We followed common practice by omitting the ninth item of the original instrument related to suicidal thoughts

(60) since adequate psychological support following this highly sensitive question could not be guaranteed outside a clinical context. PHQ sum scores are clinically used to indicate depression severity, with scores below 10 indicate minimal or mild symptoms, and scores above 10 moderate, moderately severe or severe depression (60). However, it is important to note, that such self-assessment-based symptom questionnaires are designed only for screening purposes and tend to overestimate depression rates (61,62). We use the PHQ-8 in a broader sense as an indicator for mental distress. Following the dichotomization of the clinical interpretation, with scores above 10 indicating elevated mental distress, a binary outcome variable was defined (0 = no elevated mental distress vs. 1 = elevated mental distress).

The *sociodemographic variables* controlled for in the analysis are respondent's *age, gender, marital status, education* and *time of arrival* in Lebanon or Turkey. Educational attainment is captured using a categorical measure that distinguishes between respondents that have never attended school, those who received some schooling but did not graduate, those who had graduated high school and those who received education beyond high school (e.g. university attendance).

Among the set of determinants related to the *socioeconomic living conditions of refugees, poverty* is captured by a binary variable that is equal to one if the respondent reports that in the four weeks prior to interview their household did not have enough money to afford food or basic goods (e.g. electricity, educational expenses). We consider all those respondent's to be *unemployed* that report no current occupation. Those respondents relying on often precarious and unsteady day-to-day work are captured separately as *day laborers*.

D*iscrimination experiences* were captured in two domains using two binary yes-no-variables with yes indicating respondents having been disadvantaged *on the basis of* their *citizenship or* on the basis of their *religion* respectively, in the past two years. We capture *social isolation* on three levels by considering the respondent's personal *family network*, as well as perceived isolation at the *community* and *neighborhood level*. As the results in Table 1 indicate, family separation as suggested by the

ecological model is rare among our sample and thus cannot be included in our final analysis. Instead, we use the fact that at least one close family member (spouse, child, parent or sibling) beyond respondent's households lives in the same municipality to approximate whether respondents can rely on *family support* at their *current place of residence*. Social isolation at the neighborhood level is captured using a binary variable that is equal to one if respondents *reject* f*eeling welcome in their neighborhood*. At the community level, a binary measure captures whether respondents *reject feeling a sense of belonging to their local community*.

Last but not least, individuals' *healthcare access* is introduced into the analysis with a binary indicator that is equal to one if respondents report that it would be very or somewhat difficult for them to see a medical doctor.

2.4. Data Analysis

All statistical analysis is executed in R version 4.0.5 (63). Statistical analysis of the correlation between respondents' social ecology and mental distress, controlling for sociodemographic covariates, is executed through multivariate logistic regressions. Standard errors are clustered at the level of the primary sampling unit (PSU) which corresponds to the neighborhood (urban setting) or village level (rural setting). We impute missing values in the independent variables using Multivariate Imputations by Chained Equations (MICE) using the *mice* package (64). Coefficients are reported as adjusted odds-ratios (AOR). All results are reported within 95% confidence intervals.

3. Results

3.1 Participants

A total of 2491 respondents were included in the study, with the sociodemographic characteristics presented in Table 1. The mean age was 34.0 (Lebanon: 33.5, Turkey 34.5). With a female share of 44.8%, the overall sample consists of slightly fewer women than men (Lebanon: 48.8%, Turkey:

41.6%). Three out of four participants were married (Lebanon: 79.6% Turkey: 73.8%) and the respondents had already lived in the country for an average of 7.1 years (Lebanon: 7.36, Turkey: 6.77) at time of the survey. In terms of educational background, it is shown that 53.7% of the respondents have never attended school or left school without a certificate (Lebanon: 62.7% Turkey: 46.3%), with considerably higher average educational attainment for Syrians in Turkey. Otherwise, there are no relevant differences between the two subsamples of Syrian refugees in Lebanon and Turkey in terms of sociodemographic variables.

3.2 Prevalence and distribution of mental distress

With Cronbach's alpha of 0.87 and 0.93 for the Turkey and Lebanon sample respectively, the reliability of the PHQ-8 is very good. The overall prevalence of PHQ-scores above 10 in our study population is 19.9% with considerable distributional differences between the Lebanese and Turkish samples (s. Figure 2). At 25.6% (2.0% Missing) of the sample, Syrian respondents in Lebanon display a higher prevalence compared to respondents in Turkey, where the prevalence rate is only 15.1% (6.7% Missing).

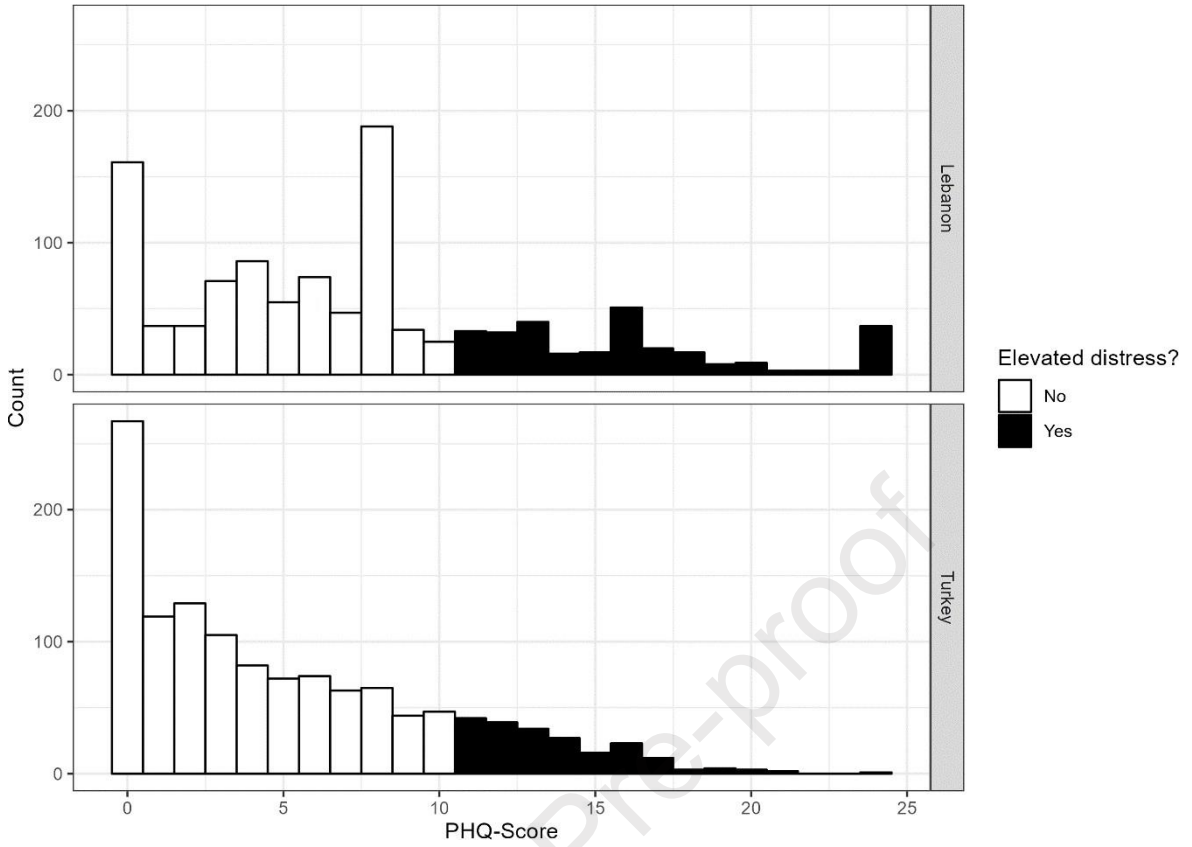

Figure 2: Distribution of PHQ-scores by survey context, Source: TRANSMIT Turkey & Lebanon Surveys 2021

Possibly, the observed difference in prevalence between Lebanon and Turkey is a result of selective migration of individuals based on their exposure to the Syrian conflict and thus of pre-migration factors. To avoided re-traumatization, the survey did not collect information on exposure to potentially traumatic events pre-migration. We thus approximate exposure to the Syrian conflict by assessing the prevalence of an elevated mental distress by respondent's province of birth (Table 1). The results in Table 1 show considerable differences in origin between the Turkish and Lebanese samples. Yet, this geographic selectivity does not appear to be driving the elevated mental distress among the Lebanese sample, as prevalence rates are also consistently higher for respondents in the Lebanese sample that were born in the same province as those interviewed in Turkey. Major provinces of birth that are only present in the Lebanese sample, such as Homs and Hama, meanwhile, display a prevalence below the sample mean. A comparison of our study sample and the 100 survey

respondents arriving in their current country of residence prior to the outbreak of wide-spread violence in Syria in 2011 (otherwise excluded from the present analysis) further reveals no significant differences in the prevalence of a PHQ-scores above 10 (based on a chi-square test of independence; see Figure S1 in supplementary Material). This provides additional evidence that conditions after arrival, rather than differential exposure to violence and trauma are determining differences in mental distress in our study sample.

	Lebanon		**Turkey**	
	Prevalence PHQ > 10 (%)	Sample Size (N)	Prevalence PHQ > 10 (%)	Sample Size (N)
Damascus	22.5	78	20.0	96
Aleppo	27.9	173	15.9	805
Raqqa	43.6	104	6.1	139
Idlib	22.7	163	22.1	180
Latakia	16.7	12	26.5	39
Hama	17.4	123		0
Homs	12.7	150		0
Daraa	25.3	85		0
Deir El Zor	44.4	87		0
Hasakah	33.3	24		0
Rif-Dimashq	22.1	78		0
Other	39.6	49	15.5	104

Table 1. Prevalence of mental distress by province of birth, Source: TRANSMIT Turkey & Lebanon Surveys 2021

3.3 Descriptive statistics on socioeconomic living conditions

The descriptive evidence on the social ecology of the Syrian study population presented in Table 2 is consistent with the existing evidence reviewed in the introduction. A large share of the study population faces challenges such as poverty (58.4%), unemployment (50.8%), or discrimination based on citizenship (57.8%) or religion (36.6%). Disaggregation by study context reveals considerable

disadvantages for Syrian respondents in Lebanon; they are about twice as likely to live in a poverty-stricken household and 18% more likely to be unemployed than those in Turkey. But the disadvantage apparent in the data goes beyond economic factors. 76% of the respondents interviewed in Lebanon report having experienced discrimination based on their nationality and about half based on their religion, compared to 43% and 27% in Turkey respectively. The 77% of Syrians in Lebanon reporting difficulties seeing a medical doctor provide further indication for considerable challenges navigating the asylum setting.

	Lebanon (N=1127)	Turkey (N=1364)	Overall (N=2491)
Age			
Mean (SD)	33.5 (10.4)	34.5 (11.7)	34.0 (11.2)
Median [Min, Max]	32.0 [18.0, 85.0]	32.0 [18.0, 85.0]	32.0 [18.0, 85.0]
Female	550 (48.8%)	567 (41.6%)	1117 (44.8%)
Maried	897 (79.6%)	1006 (73.8%)	1903 (76.4%)
Missing	0 (0%)	2 (0.1%)	2 (0.1%)
Educational attainment			
Never attended	159 (14.1%)	147 (10.8%)	306 (12.3%)
Some school	548 (48.6%)	484 (35.5%)	1032 (41.4%)
Middle school certificate	254(22.5%)	241 (17.7%)	495 (19.9%)
High school certificate	95 (8.4%)	239 (17.5%)	334 (13.4%)
More than highschool	61 (5.4%)	210 (15.4%)	271 (10.9%)
Missing	10 (0.9%)	43 (3.2%)	53 (2.1%)
Household poverty	911 (80.8%)	543(39.8%)	1454 (58.4%)
Missing	6 (0.5%)	7 (0.5%)	13 (0.5%)
Neighborhood not in good condition	445 (39.5%)	339 (24.9%)	784 (31.5%)
Missing	21 (1.9%)	16 (1.2%)	37 (1.5%)
Employment status			
Unemployed	682 (60.5%)	584 (42.8%)	1266 (50.8%)
Employed	138 (12.2%)	304 (22.3%)	442 (17.7%)
Day laborer	292 (25.9%)	470 (34.5%)	762 (30.6%)
Missing	15 (1.3%)	6 (0.4%)	21 (0.8%)
Discriminated based on citizenship	852 (75.6%)	587 (43.0%)	1439 (57.8%)
Missing	11 (1.0%)	38 (2.8%)	49 (2.0%)
Discriminated based on religion	551 (48.9%)	361 (26.5%)	912 (36.6%)
Missing	14 (1.2%)	27 (2.0%)	41 (1.6%)
Lack of sense of belonging	434 (38.5%)	262 (19.2%)	696 (27.9%)
Missing	9 (0.8%)	4 (0.3%)	13 (0.5%)
Not feeling welcome in neighborhood	199 (17.7%)	94 (6.9%)	293 (11.8%)
Missing	29 (2.6%)	4 (0.3%)	33 (1.3%)
Family member in same city	382 (33.9%)	305 (22.4%)	687 (27.6%)

	Lebanon (N=1127)	Turkey (N=1364)	Overall (N=2491)
Missing	9 (0.8%)	8 (0.6%)	17 (0.7%)
Separated from spouse or child	39 (3.5%)	30 (2.2%)	69 (2.8%)
Difficulties seeing a doctor	863 (76.6%)	670 (49.1%)	1533 (61.5%)
Missing	26 (2.3%)	2 (0.1%)	28 (1.1%)
Years since arival			
Mean (SD)	7.36 (1.99)	6.77 (1.64)	7.06 (1.84)
Median [Min, Max]	8.00 [1.00, 10.0]	7.00 [1.00, 10.0]	7.00 [1.00, 10.0]
Missing	16 (1.4%)	250 (18.3%)	266 (10.7%)

Table 2. Descriptive statistics on demographic and socioeconomic characteristics by study context, Source: TRANSMIT Turkey & Lebanon Surveys 2021

5.4 Regression analysis on the association of the social ecological conditions with mental distress

Whether the social ecological characteristics of the sample described above are in fact related to the likelihood of suffering from elevated mental distress becomes clearer when studying the regression results presented in Figure 3. We will first shed light on the differences and similarities between demographic characteristics and their relation to the outcome measurement, followed by the analysis of the economic and social factors shaping refugees' social ecology.

Demographic factors across our two country samples are overall only weakly associated with respondents' mental distress. Respondents' age shows a positive and significant relationship with mental distress only in Lebanon, just as the time since the last arrival in the country. The latter correlates slightly negative, but significantly, with the mental distress in the Lebanese sample. In terms of education, the direction of the ORs consistently indicates that higher educational attainment is related to lower mental distress in both study contexts, yet the difference relative to individuals who never attended school is only significant in Turkey.

Economic factors play out differently between the Lebanese and Turkish sample. Notably, the positive relationship between household poverty and mental distress is only significant in Turkey, though this may be owed to the relatively low number of Syrians in the Lebanese sample not suffering from poverty, and the overall smaller sample size. Among respondents in Turkey, those living in poverty-stricken households have 57% higher odds of suffering from mental distress. Relative to employed

Syrians, unemployed respondents in Turkey and those finding work as day laborers show 415% and 318% higher odds of suffering from mental distress. Notably, in Lebanon, employment factors show no significant correlation with respondents' mental distress.

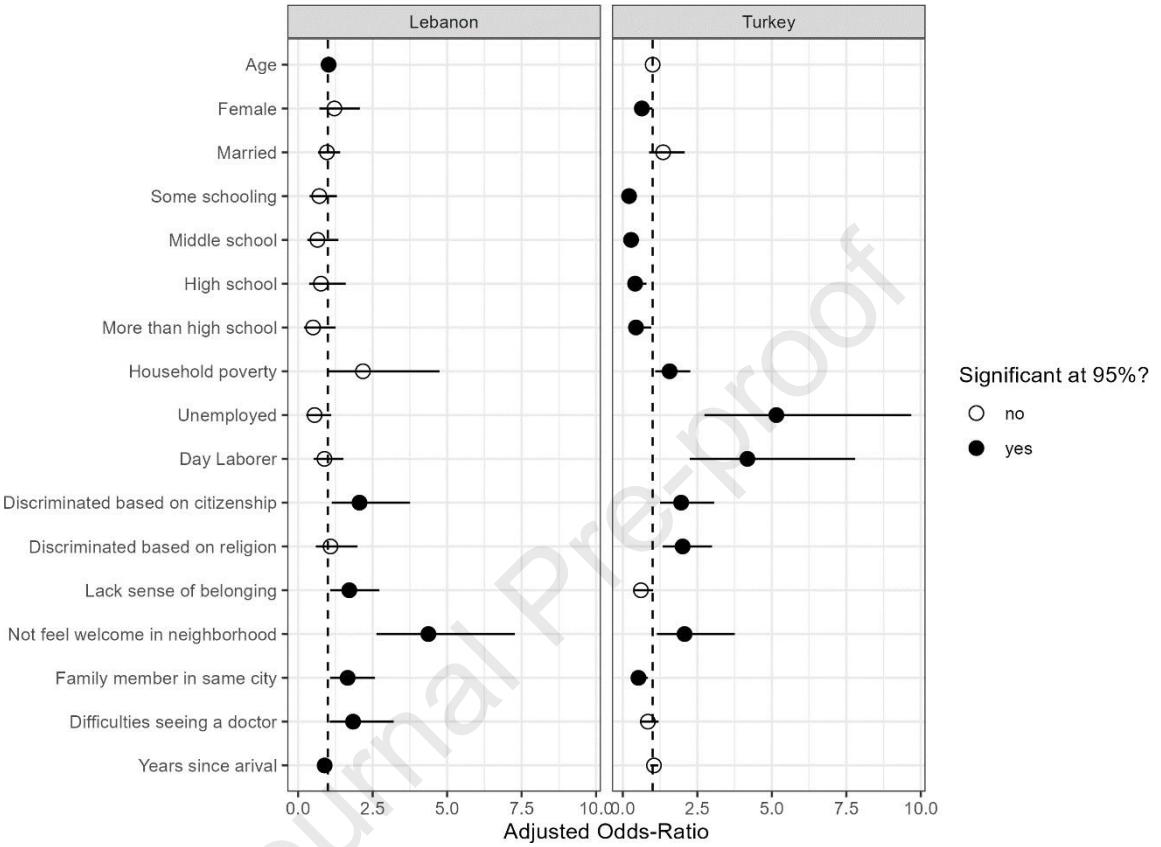

Figure 3: Coefficients of logistic regression on probability of reporting PHQ-score larger than 10 presented as Adjusted-Odds Ratios with 95% confidence intervals, standard errors clustered at Primary Sampling Unit, Source: TRANSMIT Turkey & Lebanon Surveys 2021

The analysis shows a consistently positive and significant relationship between experiences of discrimination and social isolation with individual's mental distress in both Lebanon and Turkey. In either sample respondents that have experienced discrimination due to their citizenship in the last two years display roughly double the odds of reporting a high PHQ-score than those not reporting such experiences (OR Turkey: 1.96, Lebanon: 2.06). In Turkey, discrimination based on religion displays a similar positive relationship with respondents' mental distress (OR 2.01). Meanwhile, respondents that do not feel welcome in their neighborhood display 337% higher odds of mental distress in Lebanon and 107% higher odds in Turkey relative to those that do feel welcome. Reporting difficulties

in seeing a doctor is associated with 84% higher odds of elevated mental distress for respondents in Lebanon. In Turkey the relationship is insignificant. We observe conflicting associations between an individual's family support and mental distress. In Lebanon, respondents that have at least one family member (other than the own household) living in the same city display 66% higher odds of reporting a PHQ-score larger than 10, whereas their Turkish counterparts display 47% lower odds than those without family members in the same city..

In the supplementary materials (Figure S2) we provide results from an additional analysis run on a pooled sample of respondents from Turkey and Lebanon. Because of the differences in effect-size and directionality between sub-samples, as well as underlying differences in sampling strategy, this pooled approach is not our preferred specification. It does however allow us to control for the current country of residence, which is shown to have no significant association with an elevated mental health burden, after controlling for socio-ecological factors. This result provides further evidence, that the socio-ecological model developed in this study is able to account for the sizable differences in mental health burden between Syrian refugees in Lebanon and those residing in Turkey.

4. Discussion

Building on the social ecological model of refugee distress (12), we explore how the setting of Syrian refugees' everyday lives in Lebanon and Turkey affect their mental distress using face-to-face survey data collected in the two countries between 2020 and 2021. The mental health of Syrian refugees is at risk in both Lebanon and Turkey. But with one in four (26%) study participants in Lebanon in comparison to one in six (15%) in Turkey reporting a PHQ-score higher than 10, the mental distress appears noticeably higher among Syrian refugees in Lebanon than among those in Turkey. This range in prevalence in our study is comparable to evidence provided by others, which range from 14.5% among Syrian refugees with permanent residence in Germany to 44% among Syrian refugees with uncertain future prospects in a refugee camp in Greece (65,66). Our results for Lebanon are

comparable, albeit slightly higher (3 percentage points), than in a previous study with Syrian refugees in Lebanon (67).

As described above, Syrians in Lebanon find themselves in a particularly challenging political and socioeconomic context. Not only is Lebanon currently experiencing one of the most severe economic crises the world has seen outside of war, compounded by the consequences of the Beirut explosion in August 2020 as well as the global COVID-19 pandemic. The Lebanese government also implemented a policy agenda aimed at preventing long term settlement and stable asylum conditions for Syrian refugees (39). Looking at our descriptive data, we see that Syrians in Lebanon rate their living situation worse than Syrians in Turkey do with regard to the vast majority of social ecological factors we studied: Poverty, unemployment, discrimination and social isolation. Having family support in the same city is the only dimension in which Syrian refugees in Lebanon rate more positively compared to Syrian refugees in Turkey, which is plausibly a result of the long-standing transnational ties between the two Arab Republics.

The results of the regression analysis further show that these social ecological factors do not only differ in their extent of deprivation between Lebanon and Turkey. They also differ in their relationship with individual mental health outcomes. For instance, in Lebanon, our analyses indicate that older age, limited access to the health care system, discrimination due to citizenship, as well as lacking sense of belonging and not feeling welcome in neighborhood are major risk factors for mental distress. Interestingly, having family members (other than the same household) in the same city, also displays a risk to the Lebanese sample's psychological constitution. In contrast, in the sample of Syrian refugees living in Turkey we see that being female, limited educational attainment, increased levels of poverty, unemployment as well as employment as day laborer, perceived discrimination due to citizenship and religion, and not feeling welcome in the neighborhood increase the risk of elevated mental distress. Although heterogeneous, these findings appear to be consistent with the literature outlined in the

414 introduction. Notably, in neither sample does time since arrival emerge as a major predictor of mental
415 distress.

416 However, especially the predictors differing between the two contexts deserve further examination.
417 For instance, it has to be explored why household poverty and unemployment/employment as day
418 laborer impacts the individual mental distress for Syrian refugees in Turkey, whereas this is not the
419 case in Lebanon. Even if other studies also found unemployment among Syrian refugees in Lebanon
420 not predicting their mental health (21,22), these findings conflict with the strand of literature
421 describing employment a core social determinant of (mental) health (14–16,68). Whereas cultural
422 frameworks suggest the meaning associated with poverty and (un)employment depending on culture
423 or community belonging (69), structural frameworks might offer a more comprehensive explanation.
424 Through a structural lens, the effect of unemployment on perceived mental distress could also be
425 mediated by depreciated self-conceptions, which in turn are result of relative status in society,
426 discrimination and social isolation (70). This would imply that in crisis-struck Lebanon, economic
427 deprivation is so wide-spread that individual's may not perceive themselves as particularly
428 disadvantaged. A certain entanglement with one's educational status and resulting expectations could
429 be conceivable as well. Yet, these relations and the people's perception and interpretation of their
430 own situation need further exploration.

431 Meanwhile poor access to medical care only shows a positive association with mental distress among
432 the Lebanese sample. As described above, in Lebanon Syrian's access to healthcare is largely
433 dependent on their connection to aid organization (48). This connection can in turn facilitate access
434 to other vital services, such as psychosocial support, which is unobserved in our data but affects
435 refugee mental health positively. In Turkey, where TPS grants Syrians free access to healthcare, this
436 connection to other forms of aid and support is less pronounced.

437 Regarding our findings on social isolation, we observed that not feeling welcome in one's
438 neighborhood presents as a risk factor to mental health in both contexts, whereas the association

between having family members in the same city diverges significantly between Lebanon and Turkey. We speculate that our survey respondents in Turkey assume their families in safety when in Turkey, decreasing the level of worry about them, whereas having your family with you in crisis-struck Lebanon does not correspond to a similar sense of safety. Complemented by the economic hardship of the Syrians in Lebanon, perceived obligations to financially support one's family might induce a certain level of mental distress. Furthermore, it's plausible, that the insignificant effect of discrimination based on religion observed in the Lebanese sample is a result of the sectarian system established in the country following the Lebanese civil war. Under this system, differential treatment based on one's religious affiliation, which could be understood as discrimination, is inscribed in the country's laws and social practices. As such, while more prevalent, experiences of discrimination based on religion may not be understood as a violation on the same level as in the constitutionally secular Turkey. Whether these different modes of social organization do indeed moderate the effect of discriminatory experiences on individual's mental health calls for further investigation.

Overall, our analysis demonstrates that the ecological model by Miller and Rasmussen appears as an appropriate framework to monitor the socioeconomic determinants of refugee mental health across different asylum contexts, including in countries of first refuge such as Lebanon and Turkey. It can provide empirical researchers with a useful theoretic guideline in selecting relevant context factors and prevents a narrow focus on clinical factors alone. Such a holistic view on refugee mental health aligns psychological research with the global health policy agenda of addressing the social determinants of health, particularly for vulnerable populations, in addition to ensuring high quality clinical diagnosis and care (15,16,24). Yet, despite the usefulness of the Miller-Rasmussen-Model as a theoretic basis of empirical research, this framework cannot be treated as rigid. Rather, it should be adapted and expanded based on empirical insights and context-specific conditions. Exemplary for such an expansion is the significant association of worse mental health outcomes with perceptions of social isolation and discrimination revealed by our study. Accordingly, we propose to expand the model by

explicitly including social isolation not just at an interpersonal level (e.g. family separation), but also at a societal level.

Some limitations of our study should be considered. Regarding to data collection, our data may be biased by social desirability as the data was collected in a face-to-face interview, often in the presence of other family members and not based on anonymous self-reporting. Particularly in Lebanon, many Syrian refugees are reliant on humanitarian aid and may thus be more likely to report distress to ensure further support. Given that our findings are generally in line with other reports about the situation in Lebanon (s. Section 1.1) we do not think this effect to be very large.

Due to the sensitivity and the interview setting, we did decide against the collection of sensitive information such as residence status or family violence. In a similar vein, since mental illnesses are a sensitive issue, shame about one's own symptoms of suffering may have for example led to more conservative reporting of mental distress. With 6.2%, the share of item non-response for the dependent variable is relatively high in the Turkish sample. The respondents thus omitted from the analysis are more likely to be male, educated, in employment and less likely to report experiences of discrimination than those with complete responses to the PHQ-scale, which could introduce bias in the analysis for this sample. Regarding the PHQ questions, it has to be noted a non-validated, self-translated version of the instrument was used. Yet, the data showed good reliability among both populations, Syrians in Lebanon and Turkey.

A further difference between the Turkish and Lebanese samples is the fact that the Lebanese sample is based on a follow-up as part of a longitudinal survey and thus includes 781 (31% of full sample) respondents to a previous survey wave. At 28.5% these panelists have a slightly higher prevalence of elevated mental distress compared to the full sample and bias it slightly upwards.

Generally, it should be noted that our analysis only identifies correlations between social ecological conditions and individual mental distress and should thus not be interpreted as causal inference.

4.1. Implications for policy and practice

This study provides further evidence that policy measures reducing economic hardship and increasing social support for displaced populations are essential in decreasing mental distress of this growing population. Considering the current political climate in many refugee receiving countries, the strong association of experiences of discrimination and social exclusion with mental distress found in this study is particularly noteworthy. Attempts to score political points by promoting narratives of exclusion and hostility vis-a-vis refugee populations can pose an immediate risk to the health of the affected groups.

Clinical mental health practice also stands to benefit from the insights presented in this research. Rather than treating refugees, even those stemming from the same origin context, as a homogeneous and equally traumatized group, practitioners ought to consider how the often extremely challenging social ecological post-displacement conditions impact individual's mental distress. Such holistic care approaches should go beyond a clinical perspective and strengthen interventions aiming to improve these living conditions. The conditions described in this study are not only relevant to healthcare providers in the countries of first refuge that we studied here. Many of the refugees that arrive in regions such as Europe have experienced prolonged periods of protracted displacement in Lebanon and Turkey, that likely shapes their mental health disposition and should thus be explored to ensure adequate treatment. Others still have friends and family in the respective countries and their mental distress remains connected to the conditions across borders.

5. Conclusion

By building on a social ecological framework, this study demonstrates the importance of a context-specific understanding of refugees' mental distress when seeking to understand and address their mental conditions. It explores the quantitative implementation of such a social ecological approach to refugee mental health using the pertinent case study of displaced Syrians in Lebanon and Turkey. Our

results show significant differences in mental health outcomes between Syrians in Turkey and Lebanon, with the latter being significantly more likely to suffer from elevated mental distress. Interestingly, the two displacement contexts also differ in the determination of mental health outcomes.

Yet, social exclusion and discrimination emerge as common and impactful predictors of mental distresss among Syrians in both Lebanon and Turkey and, given the climate of public refugee-scapegoating and anti-refugee sentiment in many hosting contexts, call for holistic action in both clinical practice and public policy.

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Highlights: "Social ecological determinants of the psychological burden among Syrians in Lebanon and Turkey: A transnational perspective"

- Syrian refugees in Lebanon report higher psychological burdening than those in Turkey
- The two displacement contexts differ in the determination of mental health outcomes
- Social exclusion and discrimination emerge as important predictors in both countries
- Analysis calls for holistic action in both clinical practice

Curriculum Vitae

Mein Lebenslauf wird aus datenschutzrechtlichen Gründen in der elektronischen Version meiner Arbeit nicht veröffentlicht.

Publication list

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2020

* Mehran, N., Jumaa, J. A., Hertner, L., Bach, E. V., Valensise, L., Strasser, J., & Kluge, U. (2020). Zur Beziehungsgestaltung zwischen geflüchteten Frauen und weiblichen Freiwilligen. *Fortschritte der Neurologie · Psychiatrie*, *88*(2), 76–81. https://doi.org/10.1055/a-1041-3225
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Under Review

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