



Promoting early childhood development after forced displacement

Refugee children's needs and the potentials of childcare-based interventions

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We don't want young refugee children to become superheroes, we just want them doing okay.

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Overview

Recently, large numbers of refugees from different regions of the world have been arriving in high-income countries. People were pushed out of their home countries due to prevailing circumstances of deprivation (e.g. starvation), threat (e.g., armed conflict), or chaos (e.g., political instability). Many refugee families with children in early years were among the diverse refugee populations. It was shown that experiencing forced displacement to high-income countries has comprehensive negative effects on children (Fazel, Reed, Panter-Brick & Stein, 2012). However, previous research still has limited potential to firstly inform about the specific developmental and mental health needs of refugee children in early childhood and secondly about strategies to support them after resettlement to a high-income country. The present dissertation describes investigations on these pending challenges, guided by two issues. First, we studied mental health needs and pre-academic development of young refugee children that were enrolled in a childcare-based intervention program. Second, we explored the implementation of the program and examined emerging challenges and solutions.

On the first issue, we found externalizing and social behavior problems as well as low levels of host societal receptive language skills and cognitive operations in young refugee children. Behavior problems and pre-academic skills were linked to each other via symptoms of hyperactivity/inattention. While pre-academic skills slightly increased within six months of attending the childcare-based intervention program, externalizing and social behavior problems persisted on high levels or increased even further. Moreover, levels of behavior problems were not linked to the pre-migration living environments of young refugee children, i.e. originating from war-torn or non-war torn countries. Comparisons to Turkish immigrant children in German preschools substantiated the hypothesis that behavior problems due to forced displacement impede adjustment processes to foreign contexts in early childhood. On the second issue, we found variance in the implementation of the childcare-based intervention program as such groups were established in mobile concepts, improvised settings or formal settings for childcare. Structural quality of childcare varied between the settings while process quality was consistently on high levels. Challenges as well as solutions in childcare with refugee children were respectively assigned into four domains. The domains of challenge were *interpersonal stress, feasibility and attendance, cultural and communication barriers* and *structural features of a childcare group*. The domains of solutions were *provide clear and predictable structures, involve and support parents, ensure adequate structural features,*

convey trust and feelings of competence. Findings on the second issue suggested that the childcare-based intervention program flexibly adapted to implementation contexts in order to best meet the situated needs of young refugee children and their families. Thereby, the program is needed to bridge the socio-cultural discontinuities in childcare-related customs and beliefs between the refugee families and the host countries' early education.

Overall, the present dissertation adds important evidence on how to mitigate the negative effects of forced displacement on young refugee children and on how to promote their positive development and well-being after resettlement in a high-income country. Our evidence suggests that we need to better understand the adjustment processes of newly arrived, young refugee children. After resettlement, childcare-based interventions have the potential to act as a facilitator for successful transitions into societal ecological systems of high-income host countries. Considering the increasing numbers of young refugee children who are affected by forced displacement worldwide, further evidence is urgently needed to protect and foster global societies of tomorrow.

We are still witnessing many remarkable examples of solidarity in today's world. But at the same time, we are seeing more and more borders being closed, we are seeing more and more refugees being rejected and, namely in countries of the developed world, we are seeing the opportunities for resettlement in richer countries of refugees coming from the global South being decreased in number at the present moment. And this is particularly worrying, especially when associated to forms of political populism, xenophobia, racism, in which refugees become a target, many times being accused of being part of the terror threat when refugees are not terrorists — they are the first victims of terror, they are fleeing terror; that is why they are refugees.

Antonio Guterres, June 20th 2017¹

1. Introduction

Worldwide, the number of persons of concern (i.e. refugees, returnees, stateless people, internally displaced and asylum seekers) has repeatedly reached new heights in recent years. More people than in the past also arrived in high-income countries of the Global North (Worldbank, 2018). In Europe, Germany hosts a substantial proportion since approximately 1.3 million people applied for asylum between 2014 and 2017. In many regions within the origin countries, armed-conflicts or environments of continuous deprivation have been prevailing for several years (e.g. Syria, Iraq, Afghanistan, Eritrea). Public systems, e.g. education sectors and health care services, are under severe pressure. Such situations have enormous impact on a countries' children. For those children who were subsequently affected by displacement, the general incidence of physical and mental health issues is increased (Fazel, Wheeler & Danesh, 2005) and academic achievement is on low levels (Sirin & Rogers-Sirin, 2015). However, education and health both provide important resources for positive development and function as processes of adjustment after-resettlement in exile. While around one third of all persons of concern were estimated to be under 18, data demonstrated that a

¹ <https://www.un.org/sg/en/content/sg/press-encounter/2017-06-20/secretary-generals-press-conference-un-headquarters>

proportion of 14.6% of all newly registered asylum-seekers in Germany are even below the age of 6 (BAMF, 2016). Former crises have shown that the majority of refugee children will remain in exile countries for at least several years (UNHCR, 2018). Hence, especially the young refugee children will experience a substantial part of childhood development in environments of displacement. The refugee hosting countries are obligated to make particular efforts promoting the development and education of refugee children. Beyond reducing immediate suffering on an individual level, effective investments in the upcoming generation may also contribute to reconstructing deprived and war-torn societies. High-income countries, such as Germany, have larger capacities to gain knowledge on this pending challenge and to set up actions, especially for supporting young refugee children after resettlement.

Little research has yet investigated early intervention programs for young refugee children even though such efforts are essential for the refugee families as well as the receiving countries to successfully cope with the short- and long-term consequences of forced displacement. The present dissertation contributes to this research demand by addressing two pending issues. First, the developmental as well as mental health needs and trajectories of young refugee children residing in after-resettlement contexts of high-income countries are investigated. Evidence on this issue contributes to guide interventions towards the specific needs of young refugee children. Second, need-oriented approaches on how to create early interventions for newly-arrived refugee children are studied by exploring the implementation of a childcare-based intervention program in the largest federal state of Germany. Discussing both issues amidst psychological state-of-the-art research from other countries, the present dissertation contributes to tackle one of the most important challenges of today – mitigating global disparities of future generations that have been affected by forced displacement.

To set the stage for this dissertation, definitions, theories and the socio-historical context of Germany framing the outlined investigations are depicted in the introduction. First, we describe definitions for characterizing refugee populations and suggest conceptual approaches for intervention-planning targeted at refugee children. Second, an ecological-based perspective is introduced and the two issues of this dissertation are embedded into previous literature. Third, the socio-historical context of Germany with a focus on its history of immigration and policies is described as all investigations were conducted within this country.

1.1 Legal and psychological definitions of ‘refugees’

The United Nations organization proposed the umbrella term “people of concern” when referring to people who are affected by forced displacement. This term encompasses those people who are legally recognized fleeing conflict or persecution (refugees), who returned to a home land after a substantial time spent in exile (returnees), who are denied a nationality and hence lack opportunities of civil participation in a country of residence (stateless people), who flee within national borders (internally displaced people) and those who apply for international protection in a country of residence (asylum-seekers). In fact, refugees are formally those people of concern, who were officially granted asylum in a country of residence. In most countries of residence, protection and access to social welfare is not fully provided until the refugee status has officially been granted. However, the numbers of people who have obtained refugee status are likely to vary across different countries depending on the national immigration and asylum policies. To internationally support forcibly displaced people in countries of residence, the ‘Convention Relating to the Status of Refugees’ proposed a consensus for the refugee status according to the given definition (UN General Assembly, 1967, p. 14).

A person who owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.

Rather abstract, this definition leaves room for interpretation by the host countries, and thus, decisions on granting the refugee status are mainly made on a case-by-case basis. According to the German policies, the refugee status is granted to asylum-seekers for the following reasons: religious, racial, or political persecution; displacement as a consequence of war (but not civil-war); persecution due to gender and sexual orientation. Notably, economic hardship and escape from environmental catastrophes are not yet included. For the large and heterogeneous group of non-refugee immigrants, experiences of poverty or adversity might have similarly contributed to their either voluntary or involuntary decision to emigrate.

The complex defintory approaches to refugee populations demonstrated that psychological researchers have to be especially thorough in characterizing the specific groups

of interest when conducting research. As global mobility has fundamentally increased and diversified over the past decades precision is not only required regarding their reasons for migration but also regarding their demographic characteristics. Backgrounds of the people who internationally migrate vary regarding their levels of education, socio-economic statuses, demography, motivations to relocate, and experiences of migration. Distinctions between immigration by choice and to flee are often more fluid than dichotomous and, in some but not all cases, the decision to migrate is the result of consideration and freedom of choice. Moreover, in home (as well as exile) countries people have different capacities for adapting their ways of living in response to changes in their environment. For instance, capacity for adjustment is determined by the available resources, age, prospects for quality of life, family constellations, education (especially language skills), physical health, individual traits, and mental states. In the present dissertation we focus on those people, who involuntarily relocated beyond their national borders. Despite the various legal approaches to definitions, we consider them as ‘refugees’. For scientific purpose we substantiate this understanding by a recent psychological framework. Echterhoff, Hellmann, Back, Kaertner, Morina and Hertel (under review) characterize refugees by their experiences of forced displacement (*Perils-and-Antecedents-of-Refugee-Integration Framework [PARI]*). That is, a high degree of losing control due to push-factors leading to migration is distinctive for refugees. Such experiences of ‘forcedness’ can either be objective due to coercing events, or subjective in nature such as cognitions of inevitability (Chimni, 2009). Adverse life events before and over the course of forced migration are assumed to influence the capacities for socio-cultural and psychological adjustment even after resettlement in a host country. Additionally, the PARI-framework proposes that the residents’ perceptions of refugees’ forcedness were suggested to moderate processes of integration after resettlement via the psychological climate (i.e., perceived) and the presence and enforcement of immigrant policies (i.e., legitimated). While the psychological climate determines socio-cultural challenges in host countries, legitimated challenges concern applying for asylum, perspectives for resettlement and work permits (see Laban, Gernaat, Komproe, van der Tweel & De Jong, 2005).

Amidst the PARI-framework, traditional models of migration (e.g., Sluzki, 1979) are likely to fall short of describing the psychological processes within refugees, as the preparation phase (i.e. negotiating push and pull factors) is characterized by coercion, the act of migration poses higher risks for perils, and the after-resettlement context poses refugee-specific challenges. Consequently, it is questionable whether refugees have comparable pathways

throughout the resettlement stages especially because of varying levels of forcedness (i.e., arrival, decompensation, reorganization). To shed light on this highly relevant field of research, more evidence on refugee experiences and indicators for adjustment and integration processes after resettlement is needed. Such evidence contributes to substantiating new theoretical perspectives and, at the same time, to create effective interventions for mitigating the negative effects of forced displacement.

1.2 Imperatives of intervention planning for forcibly displaced children

The present dissertation focuses on children who experienced forced displacement. Irrespective of their legal status, United Nations considers equal rights to all children under the age of 18 worldwide by the “Convention on the Rights of the Child” (UN General Assembly, 1989). All UN member states ratified this convention except for the United States of America. The ratifying countries guarantee access to basic needs, state-paid education and health care to all children residing within their national borders and irrespective of the legal status. Due to high global mobility, additional resources and specific interventions are needed to adhere to the Convention on the Rights of the Child especially for the large numbers of refugee children residing in host countries. This is a challenging ambition for at least three reasons. Firstly, conflicted nations pushed an enormous number of children out of their home countries in a short period of time (UNHCR, 2018). Secondly, refugee children and families often have lower social and financial resources and are often mentally affected by adverse experiences related to forced displacement (Porter & Haslam, 2005). Thirdly, culturally-diverse refugee families experience resettlement stress, i.e. they need to go through asylum procedures, adapt to new social norms as well as practices and to learn a foreign language (Ekblad, 1993; Laban et al., 2005). Creating interventions for refugee children hence needs thorough planning in order to best meet the specific needs and achieve highest efficiency due to the finite resources provided by hosting countries. Therefore, research evidence is obligated to guide interventions.

Mitigating the negative effects of forced displacement on children requires focal points when planning targeted interventions. As refugee children can have diverse and specific needs, the first issue for intervention planning is to decide on a rationale for selecting a more distinct target group. The selectivity and efficiency of specialized interventions is especially pressing when resources are limited and a large group of refugee children is in need. Hence, ethical principles can offer guidance. Following a utilitarian concept to determine selectivity and efficiency (i.e., achieving the largest extent possible of doing good), interventions need to

address a large group of refugee children in need, with high potentials for improvements, who expectedly have the best prognosis for sustaining effects, and who are unable to help themselves unfold their own potentials. Consequential to this logic, the present dissertation targets young refugee children below school age. Large numbers of young refugee children recently arrived in high income countries such as Germany (BAMF, 2016). In their early years, these children are highly dependent on their caregivers by the time they experience forced displacement. In early years, however, intervention programs demonstrated higher efficacy and sustainability for those children who grow up in risky environments (e.g., children in poverty; Campbell, Ramey, Pungello, Sparling & Miller-Johnson, 2002; Heckman, Moon, Pinto, Savelyev & Yavitz, 2010).

Based on a similar ethical rationale, secondly, the cornerstones that constitute the planned intervention under investigation need definition. We already described the target group, i.e. refugee children before school entry. Further cornerstones concern the context of the interventions, a theory of change, selection of primary outcomes that are addressed and the agents who administer the intervention. Previously, school- and community intervention programs in high-income countries have been under investigation that promote different domains of psychological functioning in older refugee children (Tyrer & Fazel, 2014). Small to large effects on mental health variables were found for diverse forms of interventions, e.g., psychoeducation, creativity and arts, reflective exercises and processing of past experiences and interpersonal skills (self-soothing and social competence). Moreover, initial evidence on theories of change on academic and socio-emotional development for school-based interventions in contexts of violence was provided by Aber et al. (2017). It was found that caring and supportive schools and teachers as well as predictable and cooperative learning environments influenced subdomains of numeracy and socio-emotional skills. Moreover, early interventions for younger children in low- and middle-income countries were also studied (Engle et al., 2011). There is evidence that early interventions substantially enhance early learning and school readiness of children-at-risk and extending their enrolment rates can substantially reduce long-term costs for a society (Heckman, Moon, Pinto, Savelyev & Yavitz, 2010). On the other hand, intervention quality has potentials for improvements (i.e. the design, curriculum, parental involvement, training for childcare professionals).

Regarding the proposed cornerstones, however, we yet lack evidence on childcare-based intervention programs in environments of high-income countries that the promote adjustment,

development and integration processes of refugee children below school entry. Tackling this dearth in intervention research, the present dissertation provides evidence on how newly arrived refugee children adjust to and benefit from childcare-based interventions. Thus, preliminary evidence for the effects of such interventions can be elucidated.

1.3 Studying the impact of forced displacement on refugee children

To finally set the stage for the present dissertation, we need a theoretical framework for studying the effects of forced displacement on young children. Such a framework requires meeting two conditions. First, it must be compatible to the proposed understanding of ‘forcedness’ (i.e. involuntary transitioning into a foreign environment) and, second, suited to inform intervention planning. Bronfenbrenner’s ecological systems theory meets both requirements and provides an adequate level of investigation. Bronfenbrenner (1985) proposed that psychological adjustment and childhood development is embedded within interacting proximate and distal environments, i.e. a system of ecological layers. Interacting ecologies are embedded within each layer (e.g., internal attributes, family constellations, community contexts, broader societal environments). This framework was previously used to describe environments of children affected by forced displacement (Betancourt, 2005). Such an ecological perspective proposes that forced displacement impacts children through fundamental changes in their ecological systems. The changes are driven by disruptions during premigration and subsequent transitions (via the migration journey) into the specific ecological systems of resettlement settings. Within the framework, we can describe constellations of interacting ecologies on different ecological layers within diverse after-resettlement contexts, e.g. high- vs. low-income countries and, also, over the time-course of forced displacement after resettlement. As it is not possible to cover all ecological systems of refugee children within one piece of empirical work, early childhood development and distress of refugee children in ecological systems of high-income countries are focused in the present dissertation. From a methodological standpoint, however, ecological-based perspectives propose that evidence on children within diverse resettlement environments has constraints for universal generalizability due to varying ecological systems. After-resettlement, the needs of young refugee children residing in high-income countries are still understudied as such ecological systems provide distinctive patterns of protective and risk factors. A better understanding of the contextually-influenced needs of refugee children is vital for the creation of adaptive interventions that are

targeted at refugee children. The next paragraph therefore outlines determinants of the specific ecological systems for young refugee children after resettlement in high-income countries.

It is important to mention firstly that adverse experiences before resettlement also need consideration in after-resettlement contexts, as these can have sustaining influence on refugee children. Such perils include pre- and peri-migration experiences of threat (e.g., exposure to or witnessing violence, detention of caregivers, bereavement), deprivation (e.g., food insecurity, separation or from caregivers, no child-oriented livelihoods, to have no access to education) or chaos (e.g., undirected mobility, loss of living routines; Bronstein & Montgomery, 2011; Capps & Newland, 2015; Eruyar, Maltby & Vostanis, 2018; Nielsen et al., 2008; Montgomery, 2008;). According to ecological systems theory, the refugee children resettle in foreign ecological systems after arriving in high-income countries. On microsystem levels, the livelihoods, home and education environments provide proximal ecologies that interact with the refugee children, partly via the families. Housing conditions, lacking resources, levels of family functioning and acculturative stress (especially the language barrier) and discontinuities in child-rearing pose specific challenges on this level. More distally, the exosystems of high-income countries interact with the refugee children via migration policies (e.g., asylum procedures, temporary accommodation, mandatory relocations, working restrictions) and the provision of social welfare services (availability and access to health care, education and specialized support services). On macrosystem levels, differences in ethno-cultural orientations and the perceived significance between diverse refugee populations and host-societies fundamentally determine the extent of joint efforts towards integration. Based on this macro-system perspective, host-society residents convey a social climate reflecting their desired adaptation processes towards the refugee families and their children.

In sum, previous research suggests that forced displacement causes dysfunctional interactions between refugee children residing in high-income countries and the encountered ecological systems. As this dissertation is now conceptually set, the two issues of investigation are hereafter elaborated.

1.4 Issue 1: Understanding the effects of forced displacement on young refugee children resettled in high-income countries

While previous research has set a strong focus on children's psychopathology due to adverse experiences, other outcome domains have much less coverage. Notably, mental health demonstrates a universal criterion for studies on the effects of forced displacement on

heterogeneous refugee populations, while other outcome domains and indicators need additional specification with regard to the specific refugee population that is under investigation. The PARI-concept (Echterhoff et al., under review) overall subsumes such population-specific outcomes under the umbrella term *processes of integration*. Focusing on refugee children before school entry, such population-specific indicators for processes of integration are related to early childhood development, e.g., school readiness, socio-emotional learning, enrolment rates into education, family involvement into education.

Extending the scope of outcomes beyond mental health in after resettlement contexts, however, mental distress can also be considered as a moderator for other outcome domains. Hence, mental health and population-specific outcomes are both considered in the present dissertation and therefore described here. For mental health, the premigration traumatic experiences are determinants after resettlement (Silove, Steel, Baumann, Chey & McFarlane, 2007). Considering that refugees experienced high levels of ‘forcedness’, internal determinants for mental health problems in after-resettlement periods were additionally suggested. These are an external locus of control, insecurity, feelings of alienation and loneliness (Li, Liddell & Nickerson, 2016; Lindencrona, Ekblad & Hauff, 2008; Ryan, Benson & Dooley, 2008). Furthermore, post-migration stressors have been linked to mental health problems of refugees after resettlement in high-income countries (Laban et al., 2005). While such stressors have been primarily investigated in adult populations, ecological perspectives propose at least indirect effects on children via dysfunctional interactions in home environments. However, fewer studies have directly addressed stressful ecological dynamics and consequences of forced displacement that take effect on refugee children residing in high-income countries (Fazel, Reed, Panter-Brick & Stein, 2012). An epidemiological review recently summarized findings on the mental health needs of refugee children residing in high-income countries (Kien et al., 2018). Overall, up to a third of these children are estimated to be affected by mental health problems. Refugee children in the considered studies demonstrated increased prevalence rates for posttraumatic stress disorders [19.0-52.7%], depression [10.3-35.0%], anxiety disorders [8.7-31.6%] and emotional and behavioural problems [19.8-35.0%]. Due to substantial inter-study variations Kien et al. (2018) did not apply meta-analytic methodology. Notably, the review found varying rates for different methods of assessment (clinical interviews vs. self-report questionnaires) and characteristics of the after-resettlement contexts within the high-income countries (e.g., stable settlement, access to schooling, social support). In line, a recent study by our research group (Buchmüller et al., 2018) on the mental distress of preschool age

refugee children found that increased levels of internalizing problems were reported by parents (i.e. for the home environment) but not by childcare teachers (i.e. for education settings). Conversely, externalizing problems were more strongly pronounced by childcare teachers. Hence, more ecologically-based views on the psychological consequences of forced displacement are likely to account for some heterogeneity in previous findings on mental health syndromes of refugee children (Villanueva O’Dirscoll, Serneels & Imeraj, 2017). Contributing to evidence on the mental health needs of refugee children in distinct after-resettlement ecologies, this dissertation examines young refugee children within education settings.

Beyond coping with mental health problems, mastering forced displacement is a far more comprehensive challenge for young refugee children. Few studies have directly addressed forced displacement as a source of early life stress. Referring to research on childhood adversity, early life stress impedes mental health, childhood development and academic achievement via intertwined pathways (McCoy, Raver & Sharkey, 2015; Teisl & Cicchetti, 2008; Pechtel & Pizzagali, 2011). Earlier experiences were discussed to have more sustaining effects on maturation of neuronal metabolisms, neuroanatomical maturation and epigenetic programming (Chugani, Behen, Muzik, Juhasz, Nagy & Chugani, 2001; Hart & Rubia, 2012). Even though outcomes beyond mental health, e.g. motors for population-specific processes of integration, are yet understudied for young refugee children, more multidimensional outcome perspectives are especially relevant for early intervention planning (Kaplan et al., 2016).

High-income countries have better capacities to mitigate the negative consequences of forced displacement for young refugee children after resettlement. Promoting mental health, positive development and academic achievement strengthens such motors for successful integration processes. Although designated intervention programs for refugee children were not yet under investigation, early interventions for other children in at-risk environments demonstrated convincing effects on such domains (Campbell et al., 2002; Reynolds & Temple, 1998). However, three issues need additional consideration for specialized intervention planning seized at young refugee children. First, the refugee children are highly diverse and reside in different livelihoods, even in high-income countries. It is hence questionable whether ‘one-size-fits-all’ approaches are capable to sufficiently meet the individual needs of all refugee children. Second, high-income countries provide specific socio-cultural ecologies, especially education systems that require distinctive sets of skills. Enrolment into early education may hence imply to experience discontinuities and high demand when transitioning

from home to education contexts for many young refugee children. Third, specialized interventions cannot address development and academic achievement as independent outcomes due to the high rates of mental health problems among refugee children.

In sum, intervention planning requires designated studies on young refugee children within after-resettlement contexts of high-income countries in order to identify their specific needs and the most effective approaches to support the children.

1.5 Issue 2: Creating early interventions for forcibly displaced children in high-income countries

To date, evidence on psychological interventions for refugee populations is biased towards psychopathological indications (Cummings, 2017; Tyrer & Fazel, 2014), compensation rather prevention (Weine, 2008), and a knowledge-base that was originally derived from Western populations (Henrich, Heine & Norenzayan, 2010). Empirical foundations of preventive group-level interventions for diverse refugee children promoting the psychological functioning are still scarce and often limited to practitioners' knowledge in the field. For instance, Ager, Stark, Akesson and Boothby (2010) investigated field work practices of humanitarian agencies providing care and protection for children in crisis settings. Using a Delphi consensus methodology, the research group identified nine principles for interventions that are geared towards refugee children. These are 1) [joint] agency strategy [as more agencies are in the field], 2) community engagement and participation, 3) understanding children's needs, 4) monitoring, evaluation and research, 5) considering gender, 6) separated children, 7) children associated with fighting forces, 8) [providing] schooling and education, and 9) [regaining] livelihoods. While the promotion of empowerment and resilience is a universal principle, all other principles pronounce emic perspectives, and ambitions to embed strategies locally with links to the situated challenges and adversities. In line with ecological systems theory, these findings suggest that interventions need to consider the dynamic interactions of the children's ecologies. As described earlier, the ecological systems of refugee children in high-income countries differ from other after-resettlement contexts (Betancourt, 2005; Betancourt & Khan, 2008). Hence, creating evidence-based interventions requires specific knowledge and multi-methodological research approaches. To date, interventions for newly arrived refugee children in high-income countries have not yet been in the focus of psychological research.

Adopting an ecological perspective, the importance of early interventions settled in education for mitigating negative effects of forced displacement have been emphasized. In after resettlement contexts, these were supposedly most important for restoring predictability and social support (Aguilar & Retamal, 1998; Elbedour, Bensel & Bastien, 1993). Group interventions in education contexts are discussed to bolster academic abilities, socio-emotional adjustment and, at the same time, to intensify refugee children's social networks after resettlement. Thus, need-oriented and ecologically-embedded interventions may provide young refugee children and their families with important resources to cope with resettlement stress and promote positive development. Serving a relevant research demand, the second issue of the present dissertation investigates how childcare-based interventions for forcibly displaced children in high-income countries are created. Analogous to previous work for settings of crises (Ager et al., 2010), we studied the specific challenges and solutions from practitioners' perspectives in a childcare-based intervention program of a high-income country that is geared towards refugee children.

Due to the large numbers of forcibly displaced children who recently arrived in high-income countries, it would have been unethical to wait for evidence-based and validated interventions before starting the implementation of specialized intervention services. Despite lacking evidence, however, service quality should be as high as possible in order to achieve best efficiency. In the current situation, intervention research is therefore required to adopt a bottom-down oriented research approach. That is, ongoing programs need investigation in order to gain knowledge on effective intervention practices and, at the same time, to provide feedback to the programs under investigation. Analogously, previous studies investigated ongoing group interventions with young refugee children for trauma coping (Prior & Niesz, 2013; Rousseau, Benoit, Lacroix & Gauthier, 2009), facilitation of home to preschool transitions (Dachyshyn & Kirova, 2008) and negotiating culture (Lauritsen, 2013; Kalkman & Clark, 2017). Linking evidence from previous studies and the preceding issue of this dissertation, a specialized intervention program was examined regarding the specific needs of newly arrived refugee children in high-income countries for the last part of the present dissertation. Overall, the second issue thus lays important groundwork for creating early interventions for newly arrived refugee children in environments of high-income countries.

1.6 Germany's history of immigration and its current state of immigration policies

Investigations of the present dissertation were conducted in Germany. Historically, Germany can be considered as a country of immigrants. Its current population with a history of migration (i.e., personal experiences of immigration, descendants of first-generation immigrants) is approximately 20 percent of the total population. Following World War II, Germany experienced several periods of immigration and resettlement. During the 1960s and 1970s, guest workers from Mediterranean countries, mainly Turkey and Italy, settled in Germany. Many of these pioneer immigrants did not return after several years of work, as it was originally assumed, but settled permanently with their families in Germany. Later on, immigrants from Eastern countries immigrated timely around the fall of the Soviet Union (1980s) and the subsequent Perestroika. In the following years, refugees from the Balkan Wars arrived in Germany. Between 2015 and the end of 2017 approximately 1.4 million people mainly from Middle Eastern countries arrived in Germany. Even though numbers are not unprecedented, the short period of time poses major challenges to Germany as well as to all European countries (Statista, 2018).

The national history of migration (often reflected in national migration policies), social welfare policies, and the national resources (financial as well as spatial) constitute basic determinants of the extent to which refugee-hosting countries offer support to newly arriving refugees and grant civic participation. On this purpose the Migrant Integration Policy Index (MIPEX, 2015) classifies the socio-political conditions for immigrants and refugees in European countries. It reflects the domains: labor market mobility, family reunion, access to education and health, political participation, permanent residence, access to nationality, and anti-discrimination. Germany has one of the more favorable environments for immigrants and refugees in the European Union (ranked at 10 of 38; Huddleston, 2015). Notably, equal access to education for immigrant and refugee populations falls behind the other indicators for Germany. Consistently, recent analyses of the German Institute for Economic Research demonstrated that immigrant and refugee families are less likely enrolled in German early education services (Gambaro, Liebau, Peter & Weinhardt, 2017).

1.7 The Bridging Project Program in North-Rhine Westphalia

Addressing this disparity, the Ministry for Children, Families, Refugees and Integration [MKFFI] of the largest federal state in Germany, North-Rhine Westphalia [NRW], established a new policy on specialized childcare for refugee children in 2015. This policy provides

funding for childcare-based early intervention groups targeted at refugee families, called the Bridging Projects [BPs]. BPs intended to promote the educational and mental health needs of newly arrived refugee children before school entry. Attendance is fully subsidized for the refugee families by the state of NRW as BP organizers receive a flat rate of 30€ per hour for caretaking of one to five children. The program was extended to the year 2020 (MKFFI, 2015). By hosting one quarter of all refugees in Germany, this state policy reaches a substantial number of refugee children and families residing in Germany. It is estimated that around 10,000 refugee children and their families in NRW benefit yearly from this policy. Notably, this policy sets few guidelines for the implementation of BPs. The Center for Child and Family Research at Ruhr-University Bochum received a research grant in 2016 by the MKFFI to monitor the BPs and to investigate the refugee children's development, mental distress and refugee families' needs in after-resettlement environments in NRW. This applied research project has set the formal stage to investigate the pending issues that are addressed in the present dissertation. The first issue about the needs of recently arrived refugee children in settings of education addressed attendees of a subgroup of BPs with high childcare quality. For the second issue, the focus of investigation was set on the implementation of BPs, e.g., the emerging challenges, the BPs' correspondence to the needs of children and families after-resettlement and its embeddedness into the state-subsidized early education services.

1.8 Summary

The present dissertation contributes to mitigating the negative effects of forced displacement on young refugee children who are displaced to high-income countries. Therefore, the following investigations acquired evidence on refugee children's mental health and developmental needs, early childhood teacher's experiences with refugee children and implementation varieties within a childcare-based intervention program that is targeted at refugee children.

The first issue, on child-level, addresses the developmental and mental health needs of newly arrived refugee children in education contexts of high-income countries. Education contexts put specific demands to children as guided peer interactions and non-parental as well as professionalized caregiving are likely unfamiliar to the young and forcibly displaced children. We assessed indicators for early childhood development and mental distress of refugee children within education contexts in order to gain better insights into the effects of forced displacement and to inform intervention planning on the specific needs. The second

issue, on the intervention-level, intended to directly inform intervention planning for young refugee children after resettlement in high-income countries. Therefore, childcare teachers reported challenges and solutions in childcare-based interventions with newly arrived refugee children. By linking this evidence to findings on the first issue, the quality of the BP program in NRW was examined according to the standards of daycare centers.

Overall, the present dissertation contributes to create evidence-based interventions for young refugee children after resettlement in high-income countries. We therefore embedded this set of investigations into environmental frameworks, used an understanding of ‘forcedness’ to psychologically characterize refugee populations and focused on a distinguished ecology (i.e. the early education within high-income countries). The enclosed research articles are all published, under revision or submitted to peer-reviewed journals by the time of the dissertation’s submission. Given the overarching research goals, the articles addressed the following four guiding questions.

Issue 1

Understanding the effects of forced displacement on young refugee children resettled in high-income countries

- 1) *What are the mental health needs of newly arrived refugee children in education contexts of high-income countries?*
- 2) *What are the pre-academic and mental health trajectories of newly arrived refugee children in education contexts?*

Issue 2

Creating early interventions for forcibly displaced children in high-income countries

- 3) *What are the specific challenges in childcare-based early interventions that are targeted at newly arrived refugee children?*
- 4) *Do the childcare-based interventions in Germany address the specific needs of the newly arrived refugee children?*

2. What are the mental health needs of newly arrived refugee children in education contexts of high-income countries?

Original Research

Mental Health Needs of Refugee Children in Specialized Early Education and Care Programs in Germany

Thimo Buchmüller | Hanna Lembcke | Francesca Ialuna | Julian Busch | Birgit Leyendecker

Abstract

Refugee children are at risk to develop mental health problems, which have rarely been investigated in educational contexts. We conducted three studies in childcare programs for refugees in Germany. Children's behavior was assessed by educators on site ($n = 84$) and online ($n = 50$) using a two-stage-cluster sampling and on site ($n = 107$) using complete samples. In Study 1 and 2, children showed elevated attention problems ranging from medium to large effect sizes, $r = 0.2$ and $r = 0.5$, respectively, and aggressive behavior problems ranging from small to large effect sizes, $r = 0.1$ and $r = 0.5$, respectively, when compared to norm data. In Study 3, children showed elevated peer-problems, $r = 0.5$. Future research needs to investigate whether these problems are a consequence of adapting to a novel context or a precursor of a psychopathology caused by risk factors in the context of forced displacement.



Mental Health Needs of Refugee Children in Specialized Early Education and Care Programs in Germany

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Refugee children are at risk to develop mental health problems, which have rarely been investigated in educational contexts. We conducted three studies in childcare programs for refugees in Germany. Children's behavior was assessed by educators on site ($n=84$) and online ($n=50$) using a two-stage-cluster sampling and on site ($n=107$) using complete samples. In Study 1 and 2, children showed elevated attention problems ranging from medium to large effect sizes, $r=0.2$ and $r=0.5$, respectively, and aggressive behavior problems ranging from small to large effect sizes, $r=0.1$ and $r=0.5$, respectively, when compared to norm data. In Study 3, children showed elevated peer-problems, $r=0.5$. Future research needs to investigate whether these problems are a consequence of adapting to a novel context or a precursor of a psychopathology caused by risk factors in the context of forced displacement.

Keywords Refugee children · Early education and care · Mental health · C-TRF · SDQ

Introduction

In 2017, more than 68 million people were forcibly displaced worldwide, half of them being children [1]. During all stages of the migration process, numerous risk factors pose a major challenge for children's positive development, including the experience of organized violence, the loss of attachment figures, the disruption of formal education, and parents' psychological problems such as PTSD [2]. High quality early education programs are an important protective factor, particularly for disadvantaged children, and could partly compensate for the aforementioned risk factors [3]. In order to assess their protective effect, it is necessary to assess mental health in a first step. The mental health needs of refugee children have, however, rarely been investigated in childcare settings. Our research objective is to explore these needs in German childcare centers for refugees.

The mentioned risk factors lead to an elevated risk for mental health problems. A systematic review showed that children under the age of six affected by organized violence

reported PTSD, emotional and behavioral problems, sleep disturbances, and psychosomatic symptoms [4]. Mental health problems in early childhood can have negative cascading effects leading to mental health issues in later childhood and adolescence [5]. Estimated prevalence rates of post-traumatic stress disorder (PTSD) of refugee children and adolescents in Europe range from 19% to 53% [6]. However, the absence of PTSD and other psychopathologies in the vast majority of refugees despite the exposure to several risk factors also indicates the presence of resilience processes. Early education programs can prevent negative developmental trajectories and support disadvantaged children [3]. It is crucial to assess the mental health needs of refugee children in early education programs to offer optimal care. However, only few studies have looked at mental health problems in educational settings. According to teacher reports, one quarter of young refugee children (average age: 8 years old) in the Netherlands showed mental health problems in a clinical range [7]. Similarly, refugee school children in Danish asylum centers (average age: 10 years old) showed mental health problems in a wide range of domains covering symptoms of hyperactivity, conflicts with peers, and emotional problems according to teacher reports [8]. Another Dutch study using teacher reports found elevated mental health problems in refugee school children (average age: 16 years old) [9]. Thus, our

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first research aim was to explore mental health needs of refugee children in early education programs.

Behavioral and emotional problems rise gradually with chronic exposure to conflicts [4]. This raises the question whether children from warzones differ from those who came from non-warzones. For instance, refugee children from the Middle East showed higher mental health needs when compared to children from Africa [7], which might be partly attributed to a higher war-intensity in the Middle East. Most studies focused on refugee children from warzones as the most likely victims of organized violence. Being exposed to war-related violence presents a major risk factor for children [10]. War-related traumatic events had a predictive effect on *peer-problems* and *hyperactivity*, respectively, in preschool children in the Gaza Strip [11]. Nevertheless, other refugee groups might be exposed to severe discrimination in their countries of origin [12] or suffer due to their often uncertain illegal residence status in the receiving countries [13]. Adding on to the negative effects of pre-migration risk factors the influence of post-migration risk factors needs to be considered. For instance, discrimination and family conflicts were associated with a wide array of mental health outcomes in adult refugees [14]. The recent situation in Germany offers an opportunity to explore mental health profiles of refugee children from war and non-warzones alike. In 2016 almost 745,000 people from diverse countries of origin have claimed for asylum in Germany [15]. While a majority came from war-torn countries such as Syria and Iraq, a significant number came from politically unstable countries, such as Nigeria. Though Nigeria is not a warzone, families in Nigeria fear abduction of their daughters by terror groups such as ‘Boko Haram’. Other refugees belong to the Roma minority¹ from south-eastern Europe. Roma people not only face extreme poverty, unemployment, and poor education [17], but also severe ethnic discrimination [12]. Hence, our second aim was to compare mental health needs of refugee children from war and non-warzones. Given the scarcity of studies and the complexity of shared post-migration and different pre-migration factors, we did not raise specific hypothesis regarding the direction of effects. Exploring differences in the mental health profiles between the two groups can yield valuable insights into risk and protective factors within the

groups and inform policy to adapt intervention programs to children’s specific needs.

Although it is important to study mental health needs of young refugee children, most studies have focused on older children. A recent review listed 47 studies on the mental health of refugee children [6]. Only three studies assessed children below the age of 5 years and no study included children below that age. This might be due to the fact that sampling of school-aged children is easier, because school attendance is mandatory in European countries and thus schools become an opportunity for recruitment. Recruiting younger children in regular daycare centers would not allow to draw a representative sample as well [19]. Since the year 2015 the federal government of North Rhine-Westphalia in Germany funded specialized childcare centers (‘Bridging Projects’, German: ‘Brückenprojekte’) to provide transitional childcare for refugee children and to compensate for a shortage of enrollment opportunities in regular day care centers. Bridging Projects are more likely to encompass a representative refugee population as they are free of charge, in close proximity to refugee shelters, and enrollment is possible without delay and without bureaucracy. We drew our samples from these projects, which allowed us to investigate mental health needs in a more heterogeneous and representative population of young refugee children compared to previous studies.

Methods

Study Design

We used educator reports to investigate mental health needs in educational settings for several reasons. The validity of educators and parents as informants on children’s behavior is similar [20]. Sampling of refugee parents is complex (e.g. due to different languages, deportations) and those participating will most likely be a selective group. Using educators as informants reduces this bias. Moreover, children’s behavior differs across contexts [21]. Our primary research aim is to assess the mental health in educational contexts. Educators in Bridging Projects observe children’s behavior in this context regularly and therefore appear as the best informants. In most studies on refugee children non-random sampling methods were used [6]. We conducted three consecutive studies and varied the sampling approaches (see Fig. 1). In Study 1 and study 2 a two-stage cluster sampling was used. In step 1, we strived to recruit a representative sample of projects. In step 2, educators were asked to select children according to a specific criterion. This criterion should allow a random selection to prevent a rating of the most salient children with elevated problem behaviors. At the same time educators needed to know the rated children

¹ If Roma people have previously lived in EU countries, they are not classified as refugees or asylum seekers in Germany. According to the UNHCR, however, ‘a refugee is someone who has been forced to flee his or her country because of persecution, war or violence’ [16]. Roma from eastern European countries suffer from ethnic discrimination [12] and their risk of being poor is higher than that of refugees living in the same countries [17]. Therefore, in line with other studies (for example [18]), we define Roma people as refugees regardless of whether they come from EU or non-EU countries such as Serbia.

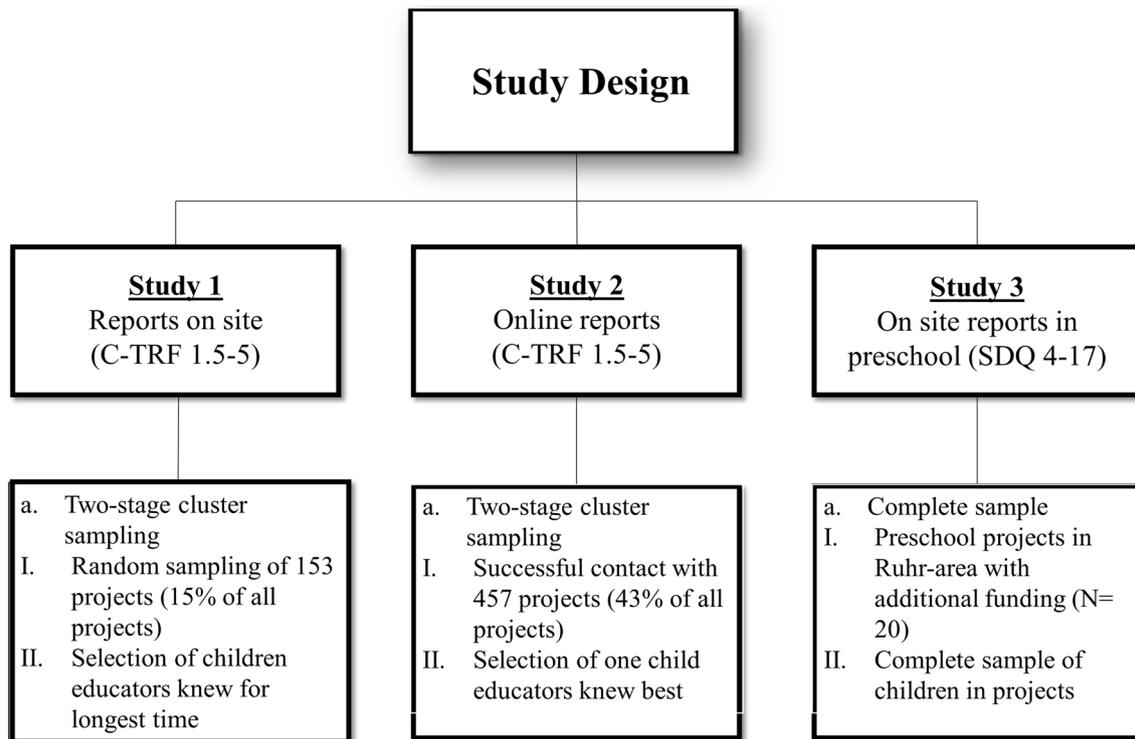


Fig. 1 Design of the three studies. The middle level of the diagram contains the screening instrument used in the respective studies and the sampling method. The bottom level contains detailed information on the sampling procedure

sufficiently well to allow a valid rating. Two criteria seemed suitable and feasible: Selecting a child that was in the project for the longest time or selecting a child the educators knew best. Both selection criteria had limitations, thus we used the time criteria in study 1 and the familiarity criteria in study 2 to counterbalance them (see Fig. 1). In Study 3, we used a complete sample of specialized preschool groups to minimize possible selection effects that might occur in study 1 and 2. The procedures for each study are described in detail in the next sections. Personal information of the children and of the educators was anonymized in all studies. All studies were approved by the Ethics Committee of the Faculty of Psychology of the Ruhr University Bochum.

Study 1

Procedure

We used a two-stage cluster sampling. First, projects were drawn from a pool of projects, then children were selected within the projects. The Federal Ministry of Children, Family, Refugees, and Integration provided a list of 1057 registered Bridging Projects and their 338 holding organizations. Using this list, we randomly requested 153 Bridging Projects to participate in our Study. We initially contacted the projects and asked the educators in charge if they were willing to participate

in a field study. A total of 42 projects participated in our Study between May 2016 and July 2017. Reasons for rejection were: no response from organizers; currently no active projects, e.g., due to relocation of refugees; or concerns of educators that the study might disturb group dynamics. Researchers of our team evaluated the projects and interviewed the educators [22]. Parents were informed by educators about the purpose of the study prior to the assessments. Information was handed out in the form of a letter which was available in relevant languages, i.e., Arabic, Urdu, English, and German. Parents who did not want their children to be screened for mental health needs were asked to inform educators within 1 week. The educator in charge of the group was asked to complete the Child-Teacher Report form 1.5-5 (C-TRF) for those children between ages 1.5 and 5 years whom they had known for the longest period of time. Data derived on the children from the 42 Bridging Projects were collapsed to ensure that it would not be possible to identify single children and to connect child data to a specific Bridging project, respectively (demographic information of children and families of Study 1–3 in Table 1).

Table 1 Demographic information of children and families in Study 1–3

Variables	Study 1 Mean (SD)/% (n)	Study 2 Mean (SD)/% (n)	Study 3 Mean (SD)/% (n)
Gender (boys)	59.5 (50)	40 (20)	50.5 (54)
Age (in years) ^{bc,*}	3.86 (1.18)	3.92 (1.22)	5.79 (0.85)
Children from warzones ^{abc,*}	42.9 (36)	67.9 (34)	24.3 (26)
Parents' illiteracy (Yes) ^{c,*}	13.1 (11)	3.8 (2)	1 (1)
Father present (Yes)	82.1 (69)	–	87.9 (94)
Time in Germany (in months) ^{?b,*}	–	43.87 (37.59)	25.4 (20.11)
Time in project (in months) ^{?b,*}	–	9.19 (5.52)	6.7 (4.59)

Group comparisons were conducted using χ^2 for nominal and multiple T-tests for continuous variables
SD standard deviation, *n* number of cases

* $p < 0.05$

^aDifference between Study 1 and 2

^bDifference between Study 2 and 3

^cDifference between Study 1 and 3

Table 2 Demographic information of caretakers and project characteristics in Study 2

Variables	Mean (SD)/% (n)
Gender of caretaker (female)	94.3 (50)
Age of caretaker	41.3 (11.4)
How long have you been working with children with special needs (in years)?	14.9 (10.5)
How long have you known the child (in months)?	9.2 (5.5)
On how many days per week does the project take place?	3.3 (1.4)
Child-caretaker ratio	2.3 (1.2)

SD standard deviation, *n* number of cases

Study 2

Procedure

The second Study was part of an online-survey. We were able to contact 134 of the organizations on the list provided by the Ministry, which provided contact information for 457 Bridging Projects. We contacted these Bridging Projects via email or phone, depending on the information provided by the holding organization during the year 2017. Seventy percent of the respondents ($n = 311$) confirmed that they were currently running a Bridging Project, whereas 30% (146) stated that the project had either been ended or had not started yet. The sample of our final Study was recruited from the pool of these 311 projects. An initial question ensured that those projects participating online did not participate in the field study. In the survey, educators in charge of a project were asked to complete the C-TRF 1.5-5. They were asked to base their answers on the child they knew best (see Table 2 for demographic information on educators). Again, data derived on the children from the 50 Bridging Projects were collapsed.

Study 3

Procedure

The third Study was conducted in 20 preschool Bridging Projects in four cities in the Ruhr-metropolitan area in the year 2017 and 2018. These projects received additional funding, were in close proximity to elementary schools, and specifically aimed to prepare children for the transition to elementary school. Written informed consent was obtained beforehand in families' native language (e.g., French, Arabic, English, Kurdish). Educators were asked to fill out the Strengths and Difficulties Questionnaire (SDQ) for children aged 4–17 years for all eligible children in their project (see Table 3 for demographic information of educators).

Measurements

C-TRF 1.5-5

The German version of the C-TRF for children between 1.5 and 5 years was used to assess children's mental health status

Table 3 Demographic information of caretakers and project characteristics in Study 3

Variables	Mean (SD)/% (n)
Gender of caretaker (female)	90.9 (10)
Age of caretaker	33.1 (5.7)
How long have you been working in a pedagogical role with children?	10.7 (5.2)
On how many days per week does project take place?	4.5 (1.2)
How many hours per day is the project available?	3.2 (0.7)
Child-Caretaker ratio	4.0 (0.6)

SD standard deviation, n number of cases

[23]. The questionnaire consists of 100 items encompassing behavior problems that may have occurred over the previous 2 months. The items can be categorized into six syndrome scales, which can further be grouped into Internalizing (*Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn*) and Externalizing (*Aggressive Behavior, Attention Problems*) behavior problems. Additionally, a total score can be obtained by aggregating all 100 items. Educators indicate their responses to each item on a 3-point Likert scale ranging from not true (0), somewhat or sometimes true (1), to very true or often true (2). Clinical cut-offs for the subscales were calculated according to the manual [23]. The C-TRF is a valid screening tool [20, 23]. For instance, a discriminant analysis showed that teachers using the C-TRF correctly classified 74% of children to a clinical vs. non-clinical referred group ([23], manual S.92). The proposed factor structure of the C-TRF was validated in 10 countries including non-western societies (see [[24], pp. 45–46]). Cronbach's alpha for the C-TRF in our samples were excellent (Study one = 0.96 and Study two = 0.98).

SDQ 4-17

We used the German translation of the teacher version of the Strengths and Difficulties Questionnaire for children aged 4–17 years (SDQ 4-17) [25]. The SDQ is a valid and reliable screening tool for positive and negative behaviors observed in children [26]. The questionnaire is used worldwide and shows good cross-cultural validity in western cultures with increasing evidence for validity in non-western cultures including Arabic countries [27]. The SDQ has 25 items. Each item consists of assertions on children's behavior ranging from 0 (not applicable), 1 (partly applicable) to 2 (clearly applicable). Five items each form one of the five subscales *Emotional Symptoms, Hyperactivity, Conduct Problems and Peer Problems* and *Prosocial Behavior*. A total scale can be calculated by aggregating all scales except for *Prosocial Behavior*. Children are placed into three categories for each subscale and the total scale, respectively ("Normal,"

"Borderline," "Abnormal") based on recommended cut-offs [28]. A German validation study showed that teachers using the SDQ correctly classified children with a clinical diagnoses (area under curve: 0.75) [20]. Moreover, the subscales allowed to classify children into specific diagnostic categories.

The factor structure has been replicated successful in non-clinical [29] and clinical populations [20]. Cronbach's alpha for the SDQ in Study 3 was good ($\alpha = 0.81$).

Demographic Information

For all studies we obtained demographic data on the child (age, gender, country of origin, parental literacy). In Study 1, we included the question of whether the father of the child was living with the family. In Study 2, we asked for information on the educator (age of educator, length of experience in working with refugee children, length of time educator has known child, frequency of project, child-educator ratio) and on the child (length of time in Germany and in project). In Study 3, we obtained data on the educator (age and gender, length of experience working with children, frequency of project availability, child-educator ratio) and on the child (length of time in Germany, length of time participating in project, does father live with the family).

Missing Value Analysis

Less than 1% of the C-TRF/SDQ values were missing. Little's MCAR test indicated that data were missing at random in Study 1 ($\chi^2 = 2767.08$, $p = 0.39$), in Study 2 ($\chi^2 = 432.46$, $p = 0.99$) and in Study 3 ($\chi^2 = 292.30$, $p = 0.90$), respectively. If the number of missing values falls below 5% and data are missing at random a single imputation strategy using the expectation maximization (EM) algorithm provides a better estimation than multiple imputations and increases the statistical power [30]. A case-wise analysis was conducted beforehand to exclude cases with a high number of missing values that could bias the estimations. We excluded four cases in Study 1 that had more than 39% missing values. No cases were removed in Study 2 and 3. The expectation maximization technique was applied on each subscale of the C-TRF. In Study 3 we used the recommended SPSS Syntax for calculating missing values of the SDQ [28].

Statistical Analysis

Data were processed in SPSS® 25.0 for Windows (IBM Corporation, Armonk, NY, USA). Non-parametric tests were used because subscales deviated significantly from normality (Kolmogorov–Smirnov test with $p_{exact} < 0.05$). Our statistical analysis was based on the score level (continuous or dimensional approach, respectively) instead of

Table 4 Comparison of C-TRF syndrome scales of refugee children to norm data for Study 1 [19]

Variables C-TRF syndromes	Median (<i>IQR</i>) difference	Frequency above clinical cut-off in % (<i>n</i>)	<i>p</i> -Value	Effect size (<i>r</i>)
Total score	0.85 (29.04)	17.90 (15)/	0.12	0.17
Internalizing score	−0.40 (10.60)	16.70 (14)	0.42	0.09
Externalizing score	0.25 (16.43)	14.30 (12)/	0.14	0.16
Aggressive behavior	−0.90 (11.00)	4.76 (4)	0.99 ^a	0.10
Anxious/depressed	−0.57 (3.75)	8.33 (7)	0.99 ^a	−0.07
Attention problems	0.40 (6.50)	3.57 (3)	0.25 ^a	0.22
Withdrawn	−0.55 (5.88)	8.33 (7)	0.99 ^a	0.13
Emotionally reactive	−0.30 (2.80)	3.57 (3)	0.80 ^a	0.03
Somatic complaints	−0.50 (1.20)	5.95 (5)	0.99 ^a	−0.10

IQR interquartile range, *n* number of cases, *r* non-parametric effect size

^aCorrected for multiple comparisons. Note that the higher-order dimensions were not corrected as we decided to test on subscale level. Including higher-order dimensions in the correction would mean to correct the same information twice

prevalence rates above a defined cut-off (categorical or clinical approach). The continuous approach is considered to be more suitable when studying culturally diverse samples because psychometric properties and cut-offs thereof can vary across cultural groups [31]. Still, prevalence rates were reported because they can provide insights into the clinical significance of an effect. Mental health problems in our sample were compared to (gender and age specific) representative norm scores of western societies. We used US norm data as comparison for the C-TRF [23]. Cross-cultural studies showed that German and US scores are in the same range and thus the provided multicultural norms for those two countries are the same [24]. British norm scores were used as comparison for the SDQ. They provide the most comprehensive data on teacher reports in a western society and can be divided into age and gender bands [32]. A difference score was calculated by subtracting gender and age specific norm values from the subscale scores. This score was compared to a median of zero using Wilcoxon tests ($p < 0.05$). While higher-order dimensions were reported, group differences were tested on subscale level to avoid a loss of information and to allow a screening in a fine grained manner. To examine whether coming from a country at war affected mental health outcomes, children were divided into two groups depending on their country of origin: (1) War-torn countries with a high number of victims due to organized violence, (2) Countries with fewer victims due to organized violence. War-torn countries comprised the three countries that – by far – had the largest number of deaths due to organized violence in 2015 and 2016. These countries were Afghanistan, Iraq, and Syria [33]. The second group of refugees came from diverse countries with unstable political conditions, such as Pakistan or Nigeria, or they belonged to the Roma minority. Refugee groups were compared using the non-parametric Mann–Whitney–U-test ($p < 0.05$) for each Study respectively. We used the

Holm–Bonferroni sequential method for each subscale of the SDQ and the C-TRF, respectively, to correct for multiple comparisons [34].

Results

Study 1

The initial study consisted of 109 children (2.59 children per educator). After the exclusion of 25 children (4 due to missing values, 2 due to missing gender labels, 19 due to age beyond the age range), our final study size consisted of 84 children. Children were on average 3.86 years old ($SD = 1.18$). 59.5% of the children were boys (see Table 1 for demographic information).

Mental health needs of refugee children did not differ significantly from norm data after correcting for multiple comparisons (see Table 4). Refugee children showed a trend toward elevated attention problems. The effect size for attention problems was in a low to medium range. Furthermore, refugee children from war and non-warzones did not differ from each other on any of the subscales (see Table 5).

Study 2

After the exclusion of 36 children (33 due to age beyond the age range, 3 due to missing gender labels) our final study size consisted of 50 children. Children were on average 3.92 years old ($SD = 1.22$). The majority of the children were girls (60%) (see Table 1 for demographic information). Refugee children were found to have significantly higher mental health needs on the subscales *Aggressive behavior* and *Attention Problems* with large effect sizes (Table 6). Similarly, prevalence rates in these domains were high. Again, children from warzones did not differ significantly from those

Table 5 C-TRF war and non-warzone Study 1

Variables	Median (<i>IQR</i>) difference		<i>p</i> -Value
	Warzone	Non-warzone	
Total score	−0.37 (41.62)	−2.16 (22.67)	0.39
Internalizing score	−0.80 (11.65)	−0.80 (6.23)	0.44
Externalizing score	0.75 (21.25)	−1.50 (14.50)	0.43
Aggressive behavior	−0.10 (13.85)	−3.10 (10.26)	> 0.99 ^a
Anxious/depressed	−1.10 (3.75)	−1.08 (2.90)	0.72 ^a
Attention problems	−0.60 (7.50)	0.40 (5.14)	> 0.99 ^a
Withdrawn	−0.80 (6.50)	−0.80 (5.13)	> 0.99 ^a
Emotionally reactive	0.50 (2.84)	−0.50 (1.05)	0.18 ^a
Somatic complaints	−0.50 (2.00)	−0.50 (0.45)	0.45 ^a

IQR interquartile range

^aCorrected for multiple comparisons. Note that the higher-order dimensions were not corrected as we decided to test on subscale level. Including higher-order dimensions in the correction would mean to correct the same information twice

from non-warzones on any subscale (see Table 7). However, children from non-warzones showed a trend towards higher mental health needs on the subscales *Anxiety/Depression* and *Attention* ($p < 0.10$).

Study 3

We obtained data on 124 children from 20 different projects. After the exclusion of 17 cases (age beyond the range, missing age or gender labels) the final Study consisted of 107 children. Children were on average 5.79 years old ($SD = 0.85$) (see Table 1 for demographic information). The number of boys and girls was balanced (50.5% of the children were boys). Children in Study 3 differed from the previous studies on some demographic variables. Namely,

children were older, fewer came from warzones, and they were in the projects for a shorter period of time.

Pre-school aged refugee children in Study 3 had generally similar problem scores as those of the norm (see Table 8). While *Peer Problems* were elevated, *Emotional Problems* were lower. Prevalence rates were elevated for *Peer Problems* and for *Prosocial Behavior* (negatively pooled). Children from warzones and non-warzones did not differ (see Table 9). A post hoc analysis revealed a significant negative correlation between *Peer Problems* and length of time the child had been attending the project ($r_s(89) = -0.27$, $p < 0.05$) while the correlation with the time spent in Germany was not significant.

Discussion

Our study is among the few that assesses mental health needs of young refugee children and possibly the first to assess it in early education programs. Unlike previous studies, we did not focus exclusively on war-affected refugee children but included other refugee groups in comparable living situations. A strength of our study lies in its research design: The fact that we could partly replicate our findings across three studies with different modes of assessment (online vs. paper), instruments (SDQ vs. CTRF), and sampling methods (complete sample vs. selection of children) supports the validity of our findings. Subsequently, we will discuss two major findings corresponding with our research aims.

Our first research aim was to investigate the mental health needs of refugee children in childcare programs. Refugee children showed elevated mental health needs in study 2 and 3 and a trend in Study 1. Interestingly, mental health needs were restricted to specific domains associated with externalizing behaviors such as *Aggressive behavior*, *Problems*

Table 6 Comparison of C-TRF syndrome scales of refugee children to norm data for Study 2 [19]

Variables	Median (<i>IQR</i>) difference	Frequency above clinical cut-off in % (<i>n</i>)	<i>p</i> -Value	Effect size (<i>r</i>)
C-TRF Syndromes				
Total score*	5.65 (49.94)	31.10 (17)	0.01	0.37
Internalizing score	−0.10 (11.15)	37.70 (20)	0.38	0.12
Externalizing score*	6.25 (27.13)	30.20 (16)	0.00	0.50
Aggressive behavior*	3.70 (20.55)	11.32 (6)	0.01 ^a	0.46
Anxious/depressed	−0.15 (4.23)	5.66 (3)	0.78 ^a	0.16
Attention problems*	2.40 (7.25)	13.21 (7)	0.01 ^a	0.48
Withdrawn	−0.80 (4.25)	3.77 (2)	0.60 ^a	−0.07
Emotionally reactive	0.50 (4.00)	7.55 (4)	0.32 ^a	0.25
Somatic complaints	−0.50 (1.20)	7.55 (4)	0.70 ^a	−0.13

IQR interquartile range, *n* number of cases, *r* non-parametric effect size

* $p < .05$

^aCorrected for multiple comparisons. Note that the higher-order dimensions were not corrected as we decided to test on subscale level. Including higher-order dimensions in the correction would mean to correct the same information twice

Table 7 C-TRF war and non-warzone Study 2

Variables	Median (<i>IQR</i>) difference		<i>p</i> -Value
	War	Non-warzone	
Total score	-1.92 (44.24)	22.82 (44.58)	0.02
Internalizing score	-1.40 (10.71)	2.20 (11.00)	0.04
Externalizing score	2.65 (18.33)	13.00 (22.50)	0.02
Aggressive behavior	1.25 (13.50)	9.70 (20.30)	0.15 ^a
Anxious/depressed	-1.10 (3.90)	1.90 (3.00)	0.08 ^a
Attention problems	1.40 (7.00)	3.40 (7.50)	0.08 ^a
Withdrawn	-1.30 (3.00)	0.70 (4.50)	0.33 ^a
Emotionally reactive	-0.30 (3.50)	0.50 (4.80)	0.33 ^a
Somatic complaints	-0.50 (1.20)	-0.50 (1.70)	0.18 ^a

IQR interquartile range

^aCorrected for multiple comparisons. Note that the higher-order dimensions were not corrected as we decided to test on subscale level. Including higher-order dimensions in the correction would mean to correct the same information twice. If corrected the observed between groups difference would fall below the significance value

with other peers, or *Attention problems*. Elevated mental health needs in externalizing domains are consistent with previous studies on older refugee children in educational settings [8, 9]. Unlike the aforementioned studies, however, reviews indicated that refugee children had higher scores across a wide range of internalizing syndromes [4, 6, 35]. What may seem contradictory can partly be attributed to the fact that most studies used parent reports to assess the child's behavior. A review on young children included only two studies with other informants than parents [4]. The discrepancy between educator and teacher judgements can be explained both by the context in which the children display their behavior and by the perspective of the informants [36]. While teacher and educator ratings are correlated, teachers are on average better in predicting externalizing disorders, whereas parents are superior in predicting internalizing

disorders [20]. Furthermore, the context might reinforce certain problem behaviors or an informant could rate the same behavior as more problematic. For instance, children unfamiliar with the routines in preschool settings could show more peer-problems as they did not learn how to interact with others. In addition, teachers could rate this behavior as more problematic as it interferes with the teaching, while it might be less problematic at home. Future studies need to rate the same child by different observers to disentangle the influence of the context and the informant on the ratings, respectively.

Behavioral difficulties may represent precursors of a psychopathology. Refugee children show higher rates of PTSD [35]. *Attention problems* and *Aggressive behavior* overlap partly with the criteria of increased arousal in PTSD [37]. However, our data show no evidence for increased *Social withdrawal* or *Anxiety/Depression*, which would correspond to the core features of avoidance/numbing in PTSD. One should also keep in mind that PTSD differs in young children [38, 39]. Moreover, children exposed to multiple, cumulative traumatic events show a wider complexity of symptoms [40]. Thus, our findings could indicate PTSD, although it needs clinical assessments to investigate this further. Apart from PTSD elevated aggressive behavior can be an indication for a conduct disorder, whereas elevated attention problems can indicate an attention-deficit disorder [20]. In order to understand why behavioral difficulties may be elevated, one also needs to consider the context in which the behavior occurs. Since refugee children's early education has often been disrupted [41] problems with peers and aggressive behavior could be a consequence of fewer opportunities for learning how to interact with other children in group settings. Adolescents showed lowered self-esteem and more antisocial behavior after transition to school due to changes in social contexts [42]. Similarly, the transition from the family environment to early education programs may be a developmental challenge that causes distress, which in

Table 8 Comparison of SDQ syndrome scales of refugee children to norm data for Study 3 [26]

Variables SDQ scales	Median (<i>IQR</i>) difference	Number of children in borderline range % (<i>n</i>)	Number of children in high range % (<i>n</i>)	<i>p</i> -Value	Effect size (<i>r</i>)
Total difficulties	1.00 (8.60)	18.7 (20)	8.4 (9)	0.04	0.20
Emotional problems*	-1.50 (2.00)	4.7 (5)	3.7 (4)	0.01 ^a	-0.28
Hyperactivity	-0.20 (4.00)	9.3 (10)	9.3 (10)	0.99 ^a	-0.06
Conduct problems	-0.20 (2.00)	6.5 (7)	13.1 (14)	0.99 ^a	0.09
Peer problems*	0.80 (3.30)	12.1 (13)	21.5 (23)	0.00 ^a	0.45
Prosocial behavior	0.00 (3.70)	16.8 (18)	10.3 (11)	0.94 ^a	-0.08

IQR interquartile range, *n* number of cases, *r* non-parametric effect size

**p* < .05

^aCorrected for multiple comparisons. Note that the higher-order dimensions were not corrected as we decided to test on subscale level. Including higher-order dimensions in the correction would mean to correct the same information twice

Table 9 SDQ war and non-warzone Study 3

Variables	Median (<i>IQR</i>) difference		<i>p</i> -Value
	War	Non-warzone	
Total difficulties	− 1.00 (9.25)	2.20 (8.00)	0.19
Emotional symptoms	− 1.07 (1.00)	− 0.75 (2.00)	0.52 ^a
Hyperactivity	− 1.10 (4.00)	− 0.16 (4.20)	0.50 ^a
Conduct problems	− 0.36 (2.15)	− 0.26 (2.00)	0.56 ^a
Peer problems	0.80 (3.55)	0.69 (3.30)	0.92 ^a
Prosocial behavior	0.40 (4.00)	0.02 (3.00)	0.75 ^a

IQR interquartile range

^aCorrected for multiple comparisons. Note that the total score was not corrected as we decided to test on subscale level. Including the total score in the correction would mean to correct the same information twice

turn may lead to behavioral problems. However, a successful adaption to the new context might be accompanied by lower behavioral problems in the long term. Indeed, our data partly support this notion as *Peer Problems* decreased significantly parallel to the length of time spent in the projects. Refugee children in our studies showed behavior in a normal range on most domains. This indicates resilience processes at work. High quality early education programs may offer resources that promote children`s positive development [3]. One study showed that better classroom management was predictive for children`s self-regulatory skills [43]. Self-regulatory skills play a major role for a positive development across a wide range of domains [44, 45]. Future studies on refugees need to investigate the psychological mechanisms that can foster resilience in educational programs.

Although mental health needs were similar across our three studies, the question arises how to interpret conflicting results. Apart from *Aggressive behaviors*, Studies 1 and 2 showed elevated *Attention Problems*, while needs were restricted to *Problems with Peers* in Study 3 (and reduced *Prosocial Behavior* on the prevalence rates). The *Attention* scale (C-TRF) and the *Hyperactivity* scale (SDQ) are highly correlated [26]. This leads to the question of why elevated hyperactivity problems were not reported in Study 3. Partly, this may be the result of the educational setting. In Studies 1 and 2, we assessed children`s behavior in Bridging Projects. These settings, including rooms and material, were more provisional in nature. In addition, it was up to the parents whether children attended these projects regularly. It is thus likely that these children frequently encountered new children. This might make it difficult for children to regulate their own behavior. In contrast, children in Study 3 attended a pre-school setting with sufficient material and a stable group of children. The high pedagogical quality of these preschool settings provided a structured environment

for the children [22], which could support them in regulating their behavior and reducing hyperactivity thereof.

Our second research aim was to explore whether children from war and non-warzones differed in their mental health profiles. Refugee children from war and non-warzones exhibited similar mental health profiles in Study 1 and 3. Children from non-warzones showed a trend towards elevated *Anxiety/Depression* and *Attention Problems* in Study 2. To the best of our knowledge, there are no previous studies comparing the mental health needs of refugee children from warzones with those from non-war countries now residing in the same country. Even for children not born during forced migration, the effect of experiencing violence can be moderated by the parent`s mental health [46] or caused by prenatal stressors [47]. Refugee children from non-warzones, on the other hand, might be more likely to become victims of discrimination or political persecution [12]. The different risk factors of both groups could lead to a similar outcome, a fact commonly known as equifinality [48]. An alternative explanation for similar mental health profiles is that risk factors might be comparable. For instance, both refugee groups might have endured similar deprivation experiences (e.g., malnutrition, frequent relocation, disruption of education) before and during forced migration. In fact, the experience of deprivation in the context of war has negative effects, which are comparable to the effects of organized violence [49]. Furthermore, post-migration risk factors might be similar in both groups as well since refugee families from war and non-warzones often live in poor city districts, depend on welfare from the state, and are not likely to speak the host language. For instance, acculturation problems and competencies in the host language were better predictors for trajectories of resilience in adolescent refugees than traumatic events before migration [50]. These risk factors might have shaped the mental health needs in a similar manner because children in our studies lived in Germany during an important phase of their social–emotional development.

Limitations and Future Directions

Our study has some limitations. We used western norm data as reference values. On the one hand this seems reasonable as western children will constitute the social environment of refugee children, particularly in educational contexts. On the other hand, it is possible that a comparison to immigrant children of the same origin whose parents have lived in Germany for a longer period of time would have yielded different results and valuable insights into the acculturation process of young children. For instance, immigrant adolescents in the US showed a decrease in internalizing behaviors, whereas adolescents generally tend to show an increase at that age [51]. Furthermore, we did not control for the cultural background of

educators. Studies conducted in the Netherlands reported that the background of teachers influenced the mental health ratings of the children [52]. Children in Study 3 were older than those in Study 1 and 2. Externalizing behavior problems decrease from early childhood until adolescents [53]. Thus, an age effect cannot be excluded. However, as we compared the symptom scores to age and gender specific norm values these effects should not play a major role. Future studies could address age and gender effects in more detail by using a cohort-sequential design. Another limitation is that we obtained ratings of children's mental health by their educators only. Assessing one child from a parent and an educator would allow for a more complete picture. A further limitation is a possible selection effect. In Study 1 and Study 2 a considerable amount of projects refused to participate. If this decision was systematically influenced by program quality and program quality in turn affected mental health needs of children this would distort mental health data. This leads to the question if our results are generalizable. The generalizability needs to be addressed in two steps. First, one should ask if our samples are representative for young refugees in Germany. Studies on refugee children mostly used non-random sampling methods [6]. Refugees in young age have rarely been assessed in previous studies, which might be due to sampling issues. In contrast to regular daycare centers [19] Bridging projects are most likely representative for refugee children in Germany as indicated by the country of origin distribution in the projects [22]. By using educators instead of parents as informants and three sampling methods the likelihood of a systematic sampling bias could be reduced. It should be mentioned that children in Study 3 differed on some demographic variables, which can be attributed to the fact that children were recruited from a preschool setting in an urban area. Thus, Study 3 informs the research about the mental health of refugees in poor, urban settings, while Study 1 and 2 have a higher representativeness due to sampling projects in the whole state. Future studies need to replicate our findings with larger samples ideally recruiting families with the use of census data. If our samples are fairly representative for refugee children in Germany the generalizability of the data for refugee children worldwide needs to be addressed. Estimated effect sizes of mental health problems in refugees vary greatly across studies [54, 55]. This heterogeneity is partly caused by different protective/risk factors across populations, for instance economic opportunities in a host country [54]. Whereas our findings might be comparable to young refugee children in early education settings in high-income countries, a transfer to other contexts (e.g. family context) or developmental countries seems not advisable.

Future research should investigate the trajectories of mental health needs of refugee children longitudinally and could take four aspects into account: First, children's behavior should be assessed by integrating parent and educator reports. Second, in order to disentangle the informant bias of parents or educators with respect to differences in the child's behavior depending on its context, it is advisable to amend these reports by using observational methods within the respective environments at home or in the childcare programs. Third, research could focus on the social behavior. Investigating which factors contribute to social learning processes when a child experiences an unfamiliar educational environment would yield valuable insights that would help support the children's adaptation processes. Lastly, the impact of early education programs on refugee children's development could be investigated longitudinally. Preschool projects for disadvantaged children in the US showed considerable effects on many domains of positive development [3]. If Bridging Projects have similar effects on the development of children, they could be regarded as a useful program to offer high-quality education environments for vulnerable minority groups when enrollment opportunities in regular day care centers are scarce.

Conclusion

Repeatedly, scientists have pointed to the urgency of responding to mental health and educational needs of war-affected children [41]. Even though education and mental health are closely interrelated, the mental health of refugee children in childcare programs has been largely neglected. Refugee children in our studies showed mental health needs in two areas, namely *Social Behavior Problems* and *Attention Problems*. One implication of our studies is the need to further elucidate factors influencing *Social Behavior Problems*, a need which is closely connected to the development of tailored interventions as an integral part of early education programs. Research often focused on war-affected refugee children. Our studies indicated the importance of assessing war and non-war affected children alike, as these groups had similar mental health needs. It has to be the aspiration of the host society to build upon the existing strengths of refugee children and to support resilience processes. Our study offers two important steps towards this goal. First, research should investigate the social behavior problems of children within the contexts of both family and public education settings. Second, society and research need to reconsider the definition of a refugee as solely stemming from a country at war. Only if the complexity of risk and protective factors before, during, and after forced migration is addressed in all refugee groups we will be able to provide optimal care for refugee children.

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Compliance with Ethical Standards

Conflict of interest We declare that we have no conflict of interest.

Ethical Approval All studies were approved by the Ethics Committee of the Faculty of Psychology of the Ruhr University Bochum.

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3. What are the pre-academic and mental health trajectories of newly arrived refugee children in education contexts?

Original Research

Trajectories of Pre-academic Skills and Socio-emotional Distress of Refugee Children in Early Education after Resettlement

Julian Busch | Francesca Ialuna | Thimo Buchmüller | Natasha Cabrera | Birgit Leyendecker

Abstract

Using a sample of 5-year-old refugee children (n= 152) participating in early education programs, we examined trajectories of socio-emotional distress and pre-academic skills within 5 months of enrollment. We found increased levels of conduct problems and peer-relationship problems and low levels of cognitive and receptive language skills after entry into early education. While pre-academic skills improved slightly, socio-emotional distress persisted or increased over a 5-month period. A network analysis revealed that children who were at risk for hyperactivity/inattention at entry were also more likely to have their teachers rate them as having more social distress and to score lower on pre-academic tests. Forced displacement is considered to moderate adaptation processes of young refugee children into early education in high-income countries.



**Trajectories of young refugee children's pre-academic skills
and socio-emotional distress in early education after
resettlement**

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Abstract:	Using a sample of 5-year-old refugee children (n= 152) participating in early education programs, we examined trajectories of socio-emotional distress and pre-academic skills within 5 months of enrollment. We found increased levels of conduct problems and peer-relationship problems and low levels of cognitive and receptive language skills after entry into early education. While pre-academic skills improved slightly, socio-emotional distress persisted or increased over a 5-month period. A network analysis revealed that children who were at risk for hyperactivity/inattention at entry were also more likely to have their teachers rate them as having more social distress and to score lower on pre-academic tests. Forced displacement is considered to moderate adaptation processes of young refugee children into early education in high-income countries.

Refugees can be defined as those individuals who have experienced forced displacement amidst economic and social hardship (e.g., natural disasters, poverty), threats (e.g., persecution, civil war), and environmental chaos (breakdown of governments and societies), often without a clear destination. Worldwide, the number of refugee children who are internationally displaced from their countries of residency rose from 28.7 million in 1990 to nearly 36 million in 2017 (UN-DESA, 2017). Although the vast majority of refugee families with young children have settled in low-income countries, the number of families who have settled in high-income countries has increased considerably over the last 4 years. While Germany is currently the only high-income country among the top ten refugee-hosting countries worldwide, two-thirds of all newly arrived refugee families have at least one child below the age of 7 (Federal Statistical Office of Germany, 2017; UN-HCR, 2019). Overall, approximately 15% of the 1.4 million people who applied for asylum in Germany between 2015 and 2017 are of this very young age (German Federal Agency for Migration and Refugees, 2017). High-income countries have resources to set up nurturing environments that can mitigate the negative consequences of forced displacement on young children's development. Education-based interventions during early childhood designed for at-risk children yield the greatest effects on positive childhood development. However, evidence of the effects of participating in early education programs on young refugee children's adaptation and development is still scarce. The goal of this study is to assess pre-academic skills and socio-emotional distress of young refugee children who attended early education programs in Germany.

Refugee migration

Transitioning involuntarily from one's own country to an unknown destination includes exposure to a host of perils during the pre-, peri- and post-migration periods, which place high demands on individuals' psychological and socio-cultural adaptation (Bronstein & Montgomery, 2011; Capps & Newland, 2018; Eruyar, Maltby & Vostanis, 2018;

Montgomery, 2008; Nielsen et al., 2008). Young refugee children who are forced to transition into high-income countries experience fundamental changes in their ecological systems (i.e., home environment, neighborhoods and communities, cultural contexts), which can influence developmental trajectories (Betancourt & Khan, 2008; Driscoll, Serneels & Imeraj, 2017). One of the biggest changes young refugee children experience is in the contexts and practices of early education, which are vastly different and demanding in high-income resettlement countries in comparison to their experiences in their countries of origin (Busch et al., 2018; Cho, Wang & Christ, 2018; Poureslami et al., 2013). However, previous research on refugee children's well-being and adaptation to host countries after forced displacement has mostly examined the influence of biographical events (e.g., violence exposure, bereavement) and personal attributes (e.g., age, sex, socio-economic status; Fazel, Reed, Panter-Brick & Stein, 2012; Kien et al, 2018). The impact of a new early education system on the socio-emotional distress and development of refugee children is virtually unknown. The focus on understanding the developmental trajectories of refugee children attending early education in high-income countries can help us to elucidate the needs of these children and can highlight the role that early education plays in their adaptation to resettlement communities.

Effects of forced displacement on socio-emotional distress and academic achievement

Previous research suggests that refugee children exhibit lower levels of achievement (i.e., language acquisition, cognitive skills) and more frequent socio-emotional distress (e.g., attention difficulties, anxiety, social problems) after resettlement in high-income countries (Fazel et al, 2012; Graham, Minhas & Paxton, 2016; Kien et al. 2018). Part of the reason for refugee children's lower performance and difficulties lies in the conditions of their flight (e.g., traumatic experiences, separation, detention) and the specific stressors (e.g., discrimination, bullying, stereotyping, parents' lack of information about the new educational system) they encounter in new and unfamiliar education settings. To date, there is little information on the impact of displacement on the early development of young refugee children as most studies

have focused on older children. The extant literature has frequently shown that displacement has a marked effect on parents' reports of internalizing problems and on teachers' reports of externalizing problems in young refugee children (Buchmüller et al., 2018; Buchmüller et al., 2019; Hjern et al, 1998; Ekblad et al, 1993). Research focused on understanding the long-term trajectories of the wellbeing of refugee children suggests that the number of adversity experiences before and after resettlement predicts long-term developmental trajectories starting as early as in early childhood (Almqvist & Brandell-Forsberg, 1997; Montgomery & Bronstein, 2010).

Notably, the extant literature on the impact of forced displacement on young refugee children's well-being and development has not yet considered the potentially mitigating influences of supportive environments such as that of early education services. Bioecological systems theory suggests that children's well-being and development are mostly determined by the proximal influences of caregivers at home and in school settings (Bronfenbrenner, 1985). In line with this view, school- and community-based interventions with older refugee children have been demonstrated to reduce socio-emotional distress and support child functioning after forced displacement (see a literature review by Tyrer & Fazel, 2014). Because there is little empirical evidence on young children, it is yet unclear whether similar positive effects are expected for younger refugee children enrolled in early education. There are several ideas that suggest more complex effects of early education for young refugee children in the short-term. First, early education settings in high-income countries have more specific requirements for refugee children and parents compared to school settings and pose stronger discontinuities to their socialization environments. Second, as substantiated by evidence on other at-risk populations (poverty, neglect, violence), experiencing adversities during early childhood may distinctively challenge children's adaptation to early education contexts (Kaplan et al., 2016; Yoshikawa et al. 2012). Adverse experiences due to forced displacement can evoke specific behavioral, emotional symptoms and impede cognitive ability (e.g., concentration problems,

hypervigilance, dissociation, arousal; Evans, 2008; McCoy, Raver & Sharkey, 2015). Third, early life stressors can alter the development of neurophysiological mechanisms in early childhood in significant ways. Such alterations have negative effects on adaptation and positive development via affecting emotion regulation and executive functioning (Chugani et al., 2001; Pechtel & Pizzagalli, 2011). Studying trajectories of pre-academic skills and socio-emotional distress of young refugee children within early education contexts contributes to better understanding their adaptation processes and development after forced displacement to high-income countries.

The present study

A unique research opportunity to study young refugee children's socio-emotional distress and pre-academic skills within early education contexts emerged when in 2015 the largest federal state of Germany (North-Rhine Westphalia) funded specialized early education programs entitled "Bridging Projects" (BPs). These programs were offered in preschool centers and primary schools to promote young refugee children's pre-academic skills and their adaptation to German primary school contexts before school entry. Based on empirical evidence and theory, we expected that young refugee children enrolled in the early education programs (1) would demonstrate low levels of pre-academic skills, yet heightened levels of socio-emotional distress, (2) would improve their pre-academic skills while levels of socio-emotional distress would decrease with time in early education settings, and finally (3) that their socio-emotional distress and pre-academic skills would be interrelated.

Method

Procedure

Refugee children in BPs were repeatedly assessed ($M_{\text{interval}} = 160$ days) regarding their socio-emotional distress and pre-academic skills. Using a cross-sectional design for the first research question, assessment results were compared to norm data and, for socio-emotional

distress only, to Turkish immigrant children attending German preschool centers. While refugee and Turkish immigrant children have both experienced migration, they presumably differ in their risk-exposure due to forced displacement. For the second research question, we examined changes between first (T1) and follow-up (T2) assessments for refugee children using a within-subject design. If refugee children transitioned into a primary school in close proximity before T2, follow-up assessments were conducted there. For the third research question, a correlational design on cross-sectional data at T1 was used to explore conjunctions of pre-academic skills and socio-emotional distress of refugee children in early education contexts.

For data collection, 10 BPs settled in primary schools or daycare centers were selected. All of these had high structural and process quality for early education comparable to German preschool centers (Author et al., under review). On average, 4 to 5 different early childhood teachers or assistants ($SD = 2.1$) worked in each BP with an average age of 35.6 years ($SD = 6.9$). Teachers had, on average, completed a level of German secondary education and 13 years of general experience in early education. The BPs were offered 4 to 5 days a week with an average daily caretaking time of 3.27 hours ($SD = .46$). On average, 11 refugee children ($SD = 1.66$) participated on a regular basis per BP-session.

We enrolled all eligible refugee children from the 10 BPs between summer 2017 and fall 2018 into our study. Therefore, children were required to be between 3.0 and 7.5 years of age, to have parental consent to participate and to have attended BPs regularly for at least two months before T1. The last criterion was intended to improve the validity of teacher's assessments. Overall nine research assistants with at least Bachelor's degrees in psychology administered individual assessments of refugee children within BPs. The study coordinators trained research assistants in assessment procedures beforehand. During data collection, research assistants were monitored by the study coordinators. At enrollment into the participating BPs, teachers informed mothers or fathers about our study using written

handouts in several languages. If necessary, teaching assistants read the handout to parents. Parents who agreed to having their children participate in the study signed an informed consent. The study protocol was approved by the Ethics Committee of the <faculty/university>.

Overall, we assessed 152 children at T1 and 85 children again at T2. Drop out between T1 and T2 was mostly due to cessation of BP attendance (e.g., after relocation or transition to distant primary schools). Distribution of the refugee children's countries of origin mirrored the overall percentage of countries of origin among refugees (German Federal Agency for Migration and Refugees, 2016). Demographic composition of the nested sample at T2 did not change. Additionally, 61 Turkish immigrant children were assessed in Germany preschool centers. None of the Turkish immigrant children were refugees. See Table 1 for detailed demographic information of participants.

Measures

While socio-emotional distress of refugee children in BPs was repeatedly assessed by early childhood teachers in BPs, socio-emotional distress of Turkish immigrant children was assessed only once by the early childhood teachers in German preschool centers. Indicators for pre-academic skills of refugee children were repeatedly assessed in individual testing sessions by the trained research assistants. All measures were non-verbal to reduce administration bias in linguistically diverse children. As covariates, we considered refugee children's *time since arrival in Germany* and their *duration of BP participation until T1*.

Socio-emotional distress.

Strength and Difficulties Questionnaire. To capture socio-emotional distress, we used the German version of the 25-item Strength and Difficulties Questionnaire in teacher-report form (SDQ, 4-17 years; Goodman, 1997, Petermann, Petermann & Schreyer, 2010). The SDQ comprises four 5-item problem subscales (*hyperactivity/inattention, conduct problems, peer-*

relationship problems, emotional problems), a total problem score (summarizes all problem subscales), and a positively-worded scale for *prosocial behavior*. Teachers assessed children's behavior referring to the past two weeks on a 3-point scale (0, not true; 1, somewhat true; 2, certainly true). Scales were summed for analyses. In accordance with guidelines for SDQ scoring (sdqinfo.org), we used mean imputation for missing items if a maximum of one item of a subscale was missing. We used British norm data for analysis (youthinmind, 2006). This is currently the most comprehensive dataset available for representative child populations of the referred age in high-income countries (N= 10,298).

Psychometric investigations on the SDQ demonstrated moderate to good psychometric quality and cultural invariances for the subscales in diverse samples (Woerner et al. 2004). For our sample, Cronbach's alphas were $\alpha = .76$ for emotional symptoms, $\alpha = .73$ for conduct problems, $\alpha = .84$ for hyperactivity/inattention, $\alpha = .71$ for peer-relationship problems, $\alpha = .80$ for prosocial behavior and $\alpha = .80$ for the total scale. Overall, internal consistency was comparable to estimates found in other studies that used SDQ teacher reports (Achenbach et al., 2008).

Pre-academic skills.

Different indicators were used to assess pre-academic skills. Selected measures covered the domains cognitive skills (cognitive operations), literacy in the societal language (German receptive vocabulary), and motor development (psychomotor skills).

Cognitive skills. The 'Object Assembly' subtest from the Wechsler Preschool and Primary Scale of Intelligence-III (Wechsler, 2002) was used to assess ability for cognitive operations. In this subtest, children assemble pieces of puzzles to create images of common objects. The subtest requires understanding of part-whole relations and engagement in trial-and-error learning. Raw scores were converted to T-scores using age-adjusted norms.

German receptive vocabulary. The German adaptation of the Peabody Picture Vocabulary Test, 4th ed., was administered to measure receptive vocabulary skills in the

societal language (Dunn & Dunn, 2007; Lenhard, Lenhard, Segerer & Suggate, 2015).

Children tap on the correct object out of a plate with four presented common objects. The correct object is indicated by a pre-recorded stimulus, difficulty of plates increases subsequently. We used a computer-based version in order to increase standardization. Age-adjusted norms were used to convert raw scores to T-scores.

Psychomotor skills. We used subtests from the Intelligence and Development Scales to assess the functional domains of psychomotor performance (gross motor skills, fine motor skills and visual-motor coordination; Grob, Meyer & Hagmann-von Arx, 2009). Gross motor skills are assessed in specific tasks including balancing, catching, throwing, and jumping. To assess fine motor skills, children thread on beads under time pressure. To assess visual-motor coordination, children copy pictures of geometric figures by hand. Observed performances were transposed into raw scores. Age-adjusted norms were used to convert raw scores to T-scores, respectively for the three scales.

Statistical analysis

Data analysis comprised pre-analyses and main analyses. In pre-analyses, we assessed potential sources of bias for interpretation of the research questions (i.e., sensitivity analysis, missing value patterns, mental health patterns of Turkish immigrant children, influence of covariates). In the subsequent main analyses, we processed results on the three research questions.

Analytical strategies for pre-analyses.

First, we assessed missing value patterns for all outcome measures using Little's procedure (1988). Second, sensitivity analyses informed about longitudinal selection bias in participants. Therefore, we used a procedure suggested by Panter-Brick, Goodman, Tol and Eggerman (2011). Differences in child outcomes at T1 were assessed between those refugee children who dropped out at T2 and the others who did not. Third, socio-emotional distress of Turkish immigrant children relative to norm data was assessed using age- and gender-adjusted

mean score comparisons with a bootstrapping procedure ($R = 1000$). Fourth, influences of the covariates refugee children's *time since arrival in Germany*, their previous *duration of BP participation* until T1 and the *location of T2 assessment* on the primary outcomes were examined in univariate regression models.

Analytical strategies for main analyses.

Research question 1. We assessed socio-emotional distress of refugee children using the SDQ scales with age- and gender-adjusted scores based on norm data. The adjusted scores were compared to British norm data at T1 and, for refugee children's assessments at T2, to Turkish immigrant children. We applied bootstrapping with $R = 1000$ repetitions to estimate p -values and effect sizes in the norm comparisons. Additionally, rates of highly distressed children were identified using scale-wise thresholds ($+2*SD$), also based on the norm data. We expected around 2.5 percent of the children to have sum scores beyond this threshold according to a Gaussian distribution. Moreover, refugee children's levels of pre-academic skills were assessed based on T-scores. Overall, we examined means for T-scores per time point and, additionally, rates of refugee children with low levels of pre-academic skills based on a $T < 40$ cutoff (i.e., $1*SD$ below the normative mean value). We expected 15.9 percent of refugee children to perform below this threshold based on a Gaussian distribution.

Research question 2. Robust t-tests for paired samples were used to assess trajectories in pre-academic skills (T-scores) and socio-emotional distress (gender- and age-adjusted mean scores) of refugee children from T1 to T2. The paired t-test was shown to asymptotically replicate the results of latent-change-score models with slightly more conservative p -values (Coman et al., 2013). Additionally, we checked whether changes in assessment scores (i.e., direction and size; change is calculated as $T2 - T1$) are associated with T1-scores using Pearson correlations and scatter plots.

In accordance with the research questions (1) and (2), the interpretation of findings on socio-emotional distress followed two-sided testing and on pre-academic skills one-sided

testing. A threshold at $p < .01$ indicated statistical significance; p -values below $p < .07$ were considered to be statistically trending towards significance. Effect sizes were calculated using Cohen's d with pooled variances using the thresholds $d = 0.2$ as small, $d = 0.5$ as medium, and $d = 0.8$ as large (Cohen, 1988).

Research question 3. We investigated relations between socio-emotional distress and indicators of pre-academic skills in an association network analysis on T1 data (see Epskamp, Cramer, Waldorp, Schmittmann, Borsboom, 2012; McNally, 2016). Network analysis provides an initial approximation to causal structures in a set of variables. Hallmark variables and relations were interpreted based on node centrality metrics. That is, the degree centrality of a variable (i.e., the number of edges), and strength centrality (i.e., magnitude of associations). We applied the robust *graphical lasso* algorithm that estimates a sparse inverse covariance by shrinking small partial correlations in an iterative procedure. All analyses and graphical computation were run in R using default functions and optional packages, e.g., *foreign*, *qgraph*, *memisc*, *boot*, *ggplot2* (3.5.0; R Core Team, 2014).

Results

Pre-analyses

Missing data.

Rates of missing test scores for indicators of pre-academic skills ranged from 27-34% at T1 and 19-28% at T2. Rates for missing values on SDQ scale-level were 20% at T1 and 32% at T2. We maintained the assumption of a missing-completely-at-random pattern for longitudinal data of the SDQ, but not for longitudinal data for the measures of pre-academic skills between T1 and T2 or for overall outcome data at T1 based on Little's test on missing value patterns (Little, 1988). Hence, we did not apply imputation strategies that would require at least random patterns for missing values and only considered complete or pairwise-complete cases for all main analyses.

Sensitivity analyses.

We further investigated longitudinal selection bias for SDQ scales and indicators of pre-academic skills. Those refugee children who dropped out before follow-up assessments tended to show increased levels of *conduct problems* at T1 when compared to refugee children for which data at T1 and T2 was available ($t(114.88) = -2.13, p = .035^\dagger$).

Socio-emotional distress of Turkish immigrant children.

The comparison group for refugee children differed on SDQ subscales from norm data in *conduct problems* with a small positive effect size on trend level, i.e., indicating more problems, and in *peer-relationship problems* and *prosocial behavior* with small negative effect sizes on trend levels respectively, i.e., indicating fewer *peer-relationship problems* and more *prosocial behavior*. For the detailed results see Table 2.

Covariates.

Refugee children demonstrated variations between their *arrival in Germany*, *duration of BP participation until T1* and *location of T2 assessment* (BP vs. primary school; See Table 1). Univariate regression analysis on SDQ scales at T2 as a criterion yielded no associations with *location of assessment* and some associations for *arrival in Germany* and *duration of BP participation until T1*. Notably, the significant or trending beta-coefficients were positive, i.e., longer time spans suggested higher levels of socio-emotional distress (*duration of BP participation until T1* predicted *peer-relationship problems*, $\beta = 0.17, p = .037^\dagger$; *time since resettlement* predicted *emotional problems*, $\beta = 0.06, p = .005^*$). For pre-academic skills as a criterion in univariate regression analysis, *duration of BP participation until T1* yielded positive effects on *receptive vocabulary skills* ($\beta = -2.43, p = .002^*$), and negative effects for *gross motor skills* ($\beta = -.416, p = .014^\dagger$). *Arrival in Germany* showed no effects on pre-academic skills. *Location of assessment* predicted *cognitive operations* on trend level (favoring children after transition to primary school, $\beta = 2.90, p = .057^\dagger$).

Main analyses.

Studying young refugee children within early education contexts, we assessed their socio-emotional distress and pre-academic skills cross-sectionally (research question 1) and, additionally, examined their trajectories through 5 months (research question 2). Detailed results on both research questions are given in Table 2 and Figure 1 for socio-emotional distress, as well as in Table 3 and Figure 2 for pre-academic skills. Results of the network analysis, i.e., interdependencies between socio-emotional distress and pre-academic skills, are displayed in Figure 3 (research question 3).

Research question 1

Socio-emotional distress. We analyzed refugee children's socio-emotional distress relative to norm data at T1 and to Turkish immigrant children at T2. Refugee children yielded overall increased levels of socio-emotional distress compared to norm data at T1 and, also, compared to Turkish immigrant children at T2. For the subscales, the refugee children demonstrated increased levels of *conduct problems* and *peer-relationship problems* compared to norm data at T1. The number of refugee children with severe problems on these domains also increased substantially. At T2, the refugee children showed more *peer-relationship problems* and tended to show more *hyperactivity/inattention* and less *prosocial behavior* when compared to the Turkish immigrant children. Rates of children with severe problems at T2 were also substantially higher for the refugee children, especially for *peer-relationship problems*.

Pre-academic skills. Indicators for pre-academic skills were analyzed based on T-scores. Rates for children below the $T > 40$ threshold was substantial for *cognitive operations*, *receptive vocabulary*, and *visual motor coordination* at T1 as well as at T2.

Research question 2

Socio-emotional distress. We analyzed the trajectories of refugee children's socio-emotional distress. Overall socio-emotional distress tended to increase from T1 to T2 with refugee children having high levels relative to norm data at the outset. For the subscales,

conduct problems remained at heightened levels from T1 to T2, and *peer-relationship problems* further increased heightened levels relative to norm data at the outset. We found small- to medium-sized correlations between T2-T1 changes and T1-scores, except for emotional problems. While individuals with smaller T1-scores tended to demonstrate positive changes, those with larger T1-scores were more likely to have negative changes.

Pre-academic skills. We analyzed trajectories of pre-academic skills in refugee children based on T-scores. Skills in *cognitive operations* of refugee children improved into normative range from T1 to T2 (i.e., $T > 40$). This increase was statistically on trend level, indicating a small positive effect size. While *German receptive vocabulary* improved substantially with a medium effect size, it still remained at very low levels. There was no mean change for psychomotor skills between T1 and T2. We found small- to medium-sized correlations between T2-T1 changes and T1-scores for all measures of pre-academic skills. While individuals with smaller T1-scores tended to demonstrate positive changes, those with larger T1-scores were more likely to have negative changes.

Research question 3

We computed an association network for indicators of pre-academic skills and socio-emotional distress at T1. While we found the strongest associations within the different domains of socio-emotional distress, indicators for pre-academic skills also yielded interrelatedness (see Figure 3). Moreover, symptoms of *hyperactivity/inattention* demonstrated a hallmark variable based on centrality metrics (i.e., edges, weights) and linked both domains to each other, i.e., *hyperactivity/inattention* co-occurred with *peer-relationship problems*, *conduct problems*, and *fine motor skills*.

Discussion

This is the first study to examine trajectories and interrelations of young refugee children's socio-emotional distress and pre-academic skills while attending early education in

a high-income country. On research question 1, we found increased levels of socio-emotional distress among refugee children within early education programs. On research question 2, contrary to our expectations, socio-emotional distress persisted at high levels and even increased over five months of participation. The most severe and persisting difficulties were found for *peer-relationship problems*. As expected, pre-academic skills improved over 5 months although *cognitive operations* and *receptive German vocabulary* still remained more than $1*SD$ below a general population norm. On research question 3, we found that refugee children with higher levels of socio-emotional distress were more likely to have lower levels of pre-academic skills.

Socio-emotional distress

We found that young refugee children who participated in early education exhibited higher levels of social and behavior problems compared to norm data comprising the general population and to a group of Turkish immigrant children. This result is in line with a previous study that showed increased levels of teacher-reported externalizing behavior problems of young refugee children in German non-parental childcare (Buchmüller et al., 2018). Our expectation, that as a result of adaptation processes, socio-emotional distress of refugee children would decrease over 5 months, was not confirmed. While *peer-relationship problems* remained stable on high levels, *conduct problems*, *hyperactivity/inattention*, and overall problem behavior tended to increase over time. One possible explanation is that refugee children with no previous experiences in early education in Germany are overwhelmed by the demands of the early education system (Busch et al. 2018; Lunneblad, 2017). Picchio and Mayer (2019) accordingly described the refugee children's enrollment into non-parental childcare of a hosting country as a 'double transition.' Given the refugee children's young age, the transition into early education programs after resettlement might have exceeded their coping skills and adaptation capacities. While our study covered trajectories in early education over the course of one year following enrollment (average time until T1: 6 months;

average interval T1 to T2: 5 months), longer-term investigations need to further elucidate the pace of adaptation of young refugee children to specific resettlement contexts. Previous studies generally found decreasing levels of socio-emotional distress for refugee children 2.5 to 9 years after resettlement (Almqvist & Brandell-Forsberg, 1997; Montgomery, 2010). Combining evidence suggests that refugee children's trajectories of socio-emotional distress are multidirectional and expected to decrease in the longer-term but not soon after transitioning.

The interpretation that difficulties in adaptation to early education lead to social distress was also substantiated by the early childhood teachers who reported increased levels of *conduct problems* for Turkish immigrant children when compared to norm data. As Turkish immigrant children and refugee children both experienced immigration and similarly constitute ethno-cultural minorities in Germany, early education requires additional adaptation efforts from both populations. Similarly, socio-emotional distress of children from culturally diverse families who attended a preschool program in New York City was previously found to be moderated by the parent's orientation towards the ethnic identity (Calzada, Brotman, Huang, Bat-Chava & Kingston, 2009).

However, we also found differences in the socio-emotional distress between Turkish immigrant and refugee children enrolled in German early education. The Turkish immigrant children demonstrated less overall distress, *peer-relationship problems*, and *hyperactivity/inattention* when compared to the refugee children. Such group differences could be linked to different pathways of adaptation to early education between refugee and Turkish immigrant children. A distinction of refugee children is that they have experienced forced displacement, which puts cumulative stress on them and thus might impede their adaptation processes after resettlement. An alternative explanation for the refugee children's increased levels of social and behavior problems when compared to Turkish immigrant children could relate to systematic differences in classroom compositions between BPs and

German preschools. While the BPs were attended exclusively by diverse refugee children with different languages, age-, and cultural variability as well as higher fluctuation in classroom composition, the preschool classes consisted of more stable groups with a German majority.

Pre-academic skills

We found mixed results regarding our expectations on the pre-academic skills. While the refugee children scored within normative range on *fine* and *gross motor skills* and *visual motor coordination*, their *cognitive* and *German receptive vocabulary skills* were on low to very low levels relative to German peers. Although still on low levels, gains in the individual assessment results on relative positions to German peers were observed for *cognitive skills* and *German receptive vocabulary* through 5 months of BP participation. Little is yet known about the expected gains in societal language skills in dual language learners at preschool age. Longitudinal studies suggested a timeframe of 5.5 years to catch up fully with monolingual peers during early childhood in linear trajectories (Hammer, Lawrence & Miccio, 2008; Paradis & Jia, 2016). Language environmental factors, such as a richer societal language environment or a greater time of language exposure, were found to moderate the trajectories of language acquisition in these longitudinal studies. Notably, the refugee children of our study were not placed in BP classrooms with children whose L1 is German.

Consistent to our expectations, we found relative gains in *cognitive skills* compared to German peers (as reflected in the changes between T-values from T1 to T2). However, the observed gains are relatively large when compared to the changes observed in *receptive vocabulary skills*. Beyond cognitive growth during 5 months of early education enrollment, changes in the test results for *cognitive skills* could also relate to the internal validity of the measure amidst processes of adaptation to early education. On the one hand, larger gains could indicate that refugee children needed some time to become familiar with the materials and activities used in the assessment procedures for *cognitive operations* as these adopt

common practices of early education (e.g., sitting at a table, solving a puzzle). But on the other hand, *fine motor skills* and *visual motor coordination* required sitting at a table and following instructions as well. Here, refugee children already showed satisfactory skills at T1.

Links among socio-emotional distress and pre-academic skills

On the third research question, the association network analysis yielded that especially refugee children's *hyperactivity/inattention* in early education poses a risk factor to their pre-academic skills. The findings are consistent to studies with other at-risk children in early education as managing attention and arousal was previously found to constitute a foundational skill for learning processes (Rhoades, Warren, Domitrovich & Greenberg, 2011; McClelland, Acock & Morrison, 2006). Moreover, *hyperactivity/inattention* was positively associated with more social problems with teachers (*conduct problems*) and peers (*peer-relationship problems*) in our study. Hence the identified association network is furthermore consistent to previous findings that children's positive peer- and teacher-relationships are important antecedents of constructive classroom participation and academic achievement (Chen, Chang, Liu & He, 2008; Ladd, Birch & Buhs, 1999).

In sum, managing social behavior within classroom situations of German early education seems demanding to young refugee children and, also, related to their pre-academic skills. Considering the refugee children's specific experiences, our evidence suggests that adaptation to early education after forced displacement to a high-income country could represent a powerful determinant for their socio-emotional distress and pre-academic achievement. However, such adaptation processes might furthermore interact with refugee children's predispositions such as functional alterations in brain functioning and manifested psychopathology due to early life stressors (Pechtel & Pizzagalli, 2011). The ecological perspective, that is, analyzing the exchanges between environmental and subject factors amid forced displacement to high-income countries, could hence contribute best to elucidate young

refugee children's trajectories of socio-emotional distress and pre-academic skills as well as the moderating influences.

Our findings on socio-emotional distress and its relatedness to pre-academic skills have important implications for early childhood teachers as these suggest that socio-emotional learning can have positive effects among refugee children in early education. While socio-emotional learning has the potential to foster adaptation processes, other studies also demonstrated the positive impact of socio-emotional learning on pre-academic skills, especially for at-risk children (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011; McClelland et al., 2007; Skibbe, Montroy, Bowles & Morrison, 2019).

Limitations and future research

Our study has a number of limitations. This study was conducted within early education settings that were non-mandatory for refugee families. As the study inclusion required frequent attendance, we were able to follow only a subsample of refugee children. Hence, generalizing findings to overall refugee populations in high-income countries should be done with caution. For future designs, more data points for all children, especially after transition to primary school, would considerably contribute to our knowledge of the academic achievement and socio-emotional distress of young refugee children after resettlement. Moreover, the internal validity of the assessments is of concern. For socio-emotional distress, the SDQ was not completed by the same teacher if refugee children experienced transitions. Additionally, measurement invariance for the instruments needs further investigation, especially for the pre-academic skills. However, it was a strength of our research design to use different assessment modalities for socio-emotional distress and pre-academic skills.

In our study, we cannot distinctively assess the effects of early education enrollment on refugee children's pre-academic skills. An additional group comparison to refugee children without enrollment in early education would enable us to estimate distinguished effects. In future studies, the proposed moderation effect of forced displacement on adaptation processes

in new contexts needs further empirical foundation by comparing immigrant and refugee children longitudinally, i.e., studying the trajectories of both groups. Therefore, additional biographical data on refugee samples that are linked to forced displacement should be included, e.g., the specific experiences of adversity and post-resettlement stressors.

Conclusion

This is the first study that investigated pre-academic skills and socio-emotional distress of young refugee children within early education of a high-income country. Trajectories of socio-emotional distress after transition to early education programs and a comparison to Turkish immigrant children in German preschools suggested that adaptation and coping is influenced by the specific experiences related to forced displacement. Nevertheless, positive trajectories of pre-academic skills also suggested that refugee children benefitted overall from participation in early education, despite the potentially demanding adaptation processes. From an intervention perspective, the present study informs about how to create early education for refugee children. First, it seems important to adapt services in order to minimize adaptation processes required by the refugee children. Second, considering socio-emotional learning seems essential for promoting adaptation and pre-academic skills after forced displacement. With this study, we hope to contribute to a pending issue for an increasing number of families as well as refugee-hosting countries worldwide: How can we promote the positive development of young children who have experienced forced displacement?

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[Anlagen/DE/Downloads/Infothek/Statistik/Asyl/aktuelle-zahlen-zu-asyl-dezember-2016.html?nn=7952222](http://www.bamf.de/SharedDocs/Anlagen/DE/Downloads/Infothek/Statistik/Asyl/aktuelle-zahlen-zu-asyl-dezember-2016.html?nn=7952222)

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Table 1

Descriptive characteristics and composition by time point or sample

Variable	Refugees at T1 (<i>N</i> = 152)	Refugees at T2 ^a (<i>n</i> = 85)	Turkish immigrants (<i>n</i> = 61)
Gender female (%)	50.4	48.5	48.3
Age in months at T1, <i>mean (SD)</i>	69.4 (10.2)	70.6 (10.1)	74.6 (4.1)
Region of origin (%)			
<i>Middle east</i>	23.8	22.5	–
<i>Southeastern Europe</i>	34.7	20.0	–
<i>North Africa</i>	19.0	40.0	–
<i>Subsaharan Africa</i>	1.4	1.25	–
<i>Unknown</i>	21.1	16.25	–
<i>Turkey</i>	–	–	100
Arrival in Germany, months at T1, <i>mean (SD)</i>	26.4 (21.1)	26.3 (19.9)	–
Duration of participation BP, months at T1, <i>mean (SD)</i>	6.5 (4.9)	6.6 (4.6)	–
Transition to primary school (%)	–	32.9	–

Note. *SD*, standard deviation. *N/n*, number of cases. T1/ T2, first/ second measurement with average inter-measurement interval of 160 days.

^a T2 is a nested sample of T1 due to longitudinal design.

Table 2
Difference scores for mental distress and prosocial behavior as compared to norm data and Turkish immigrant children

	Refugees at T1 (n=121)		Refugees at T2 (n=60)		Turkish immigrants (n= 61)		Refug at T1 vs. Norm		Refug at T2 vs. Norm		Turk vs. Norm		T1 vs. T2		T2 vs. Turk	
	<i>M (SD)</i>	<i>Thresh^a</i>	<i>M (SD)</i>	<i>Thresh^a</i>	<i>M (SD)</i>	<i>Thresh^a</i>	<i>p</i>	<i>ES</i>	<i>p</i>	<i>ES</i>	<i>p</i>	<i>ES</i>	<i>p</i>	<i>ES</i>	<i>p</i>	<i>ES</i>
Emotion	-0.15 (1.87)	5.72	0.22 (2.41)	6.78	0.15 (2.11)	5.00	.369	-0.15	.482	-.02	.585	0.00	.124	0.23	.860	0.03
Hyper/Inatt	0.18 (2.59)	3.15	0.64 (2.62)	6.67	-0.48 (2.14)	1.67	.446	0.22	.067 [†]	0.36	.089	-0.13	.096	0.25	.012 [†]	0.47
Conduct	0.50 (1.85)	12.58	0.75 (2.26)	15.25	0.57 (1.83)	8.33	.004*	0.27	.015 [†]	0.49	.018 [†]	0.25	.053 [†]	0.30	.652	0.08
Peer	1.27 (2.21)	19.69	1.25 (2.28)	16.95	-0.34 (1.35)	1.67	<.001**	0.65	<.001**	0.60	.056 [†]	-0.15	.593	0.08	<.001**	0.85
Total	1.75 (5.53)	5.51	2.88 (7.12)	10.17	-0.14 (4.94)	3.33	<.001**	0.55	.003*	0.34	.827	-0.09	.054 [†]	0.29	.009*	0.50
Prosocial ^b	-0.19 (2.25)	3.94	-0.16 (2.62)	5.17	0.52 (1.82)	0	.355	-0.09	.640	-0.76	.039 [†]	0.39	.814	0.04	.105	-0.31

Note. *M*, mean scores are centered to the gender- and age-adjusted norms (youthinmind, 2006). *Thresh*, proportion of children beyond threshold in percent, i.e., highly distressed. *p*, p-values and, *ES*, effect sizes (Cohen’s d) for norm comparisons were obtained via bootstrapping (1000 repetitions). T1/ T2, initial/ follow-up measurement. *n*, number of cases. *SD*, standard deviation. Turk, Turkish immigrant children.
^a Threshold is based on the adjusted mean value plus 2**SD* based on norm data.
^b Prosocial behavior scores were inversed, i.e., higher values indicated more prosocial behavior
[†]*p* < .07. **p* < .01. ***p* < .001.

Table 3

Pre-academic skills of refugee children at initial and follow-up measurement

	Refugees at T1 (n = 111)				Refugees at T2 (n = 64)				T1 vs. T2		
	<i>Mean (SD)</i>	<i>Median</i>	<i>IQR</i>	<i>Thresh^a</i>	<i>Mean (SD)</i>	<i>Median</i>	<i>IQR</i>	<i>Thresh^a</i>	<i>t (df)</i>	<i>p</i>	<i>ES</i>
Cognitive operations	28.9 (9.65)	26.7	[20; 36.7]	81.1	35.5 (15.1)	33.3	[20; 46.7]	65.6	t(53)= 2.39	.010 [†]	0.33
Receptive vocabulary	27.9 (2.91)	27	[27; 27]	97.3	29.4 (5.18)	27	[27; 27.8]	95.2	t(59)= 4.48	<.001**	0.58
Gross motor skills	47.0 (10.10)	46.7	[40; 53.3]	18.4	48.9 (10.32)	50	[40; 53.3]	11.1	t(51)= 0.63	.267	0.09
Fine motor skills	46.1 (10.82)	46.7	[40; 53.3]	20.4	48.8 (10.91)	50	[40; 56.7]	15.6	t(51)= 0.44	.330	0.06
Visual motor coordination	41.2 (9.49)	40	[36.7; 47.7]	41.2	42.4 (9.66)	41.7	[36.7; 50]	43.8	t(51)= 0.52	.304	0.07

Note. T-score, age-adjusted and standardized assessment score with $N(50, 10)$. *T1/T2*, initial/ follow-up measurement. *IQR*, interquartile range. *Thresh*, proportion of children below cut-off in percent. *N/n*, number of cases. *SD*, standard deviation. *ES*, effect size Cohen's d.

^a *Thresh*, threshold is at T-value < 40 (equal to age-adjusted score minus $1*SD$) based on norm data for each assessment procedure.

[†] $p < .07$. * $p < .01$. ** $p < .001$.

Trajectories of socio-emotional distress in young refugee children

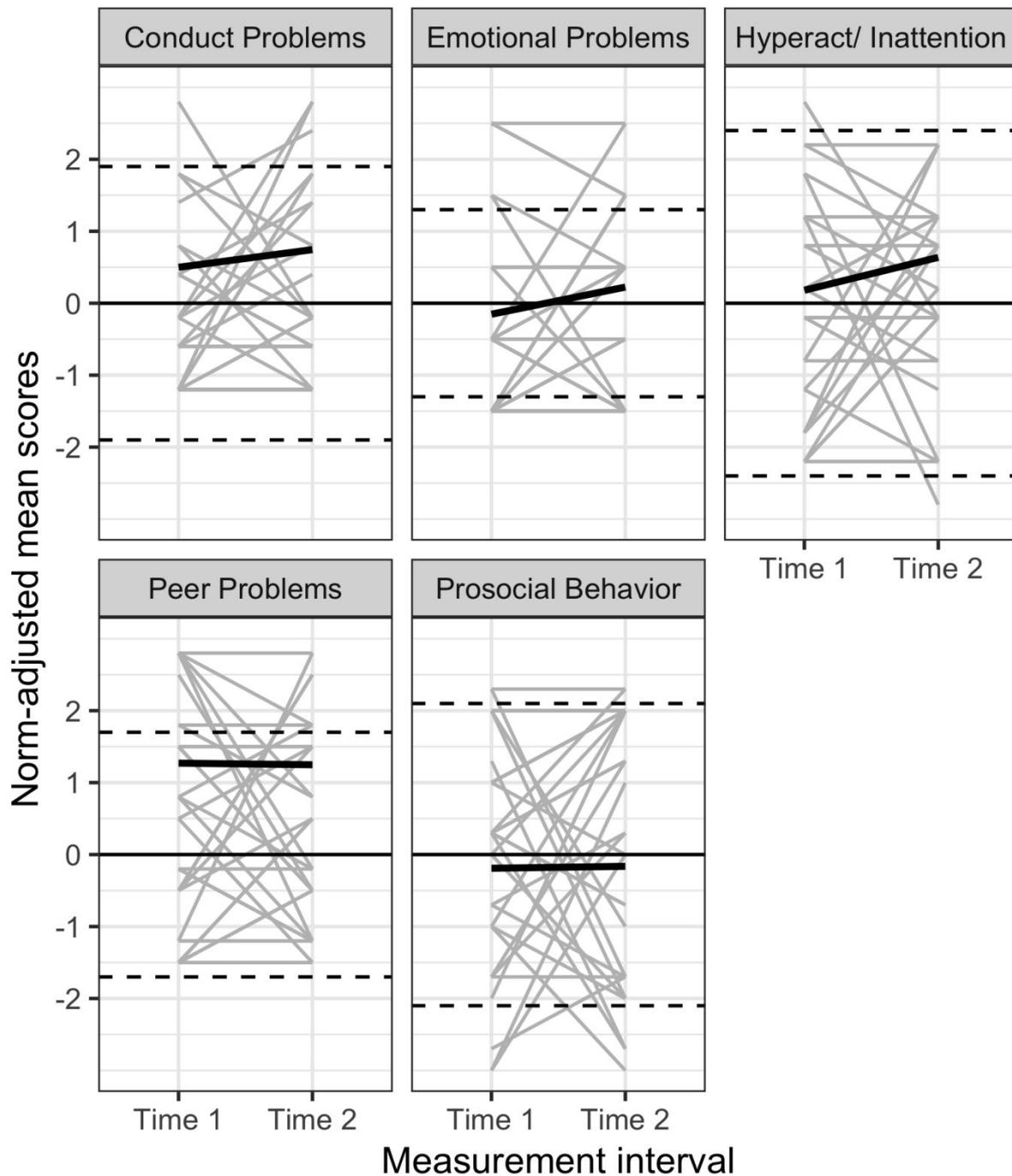


Figure 1. Socio-emotional distress of refugee children as measured by the Strength and Difficulties Questionnaire (teacher report) at initial and follow-up assessment. Scores are age- and gender-adjusted based on norm-data. Bold threshold at 0: centered mean value based on norm data. Dashed threshold: $2*SD$ based on norm-data. Bold slope: adjusted mean score changes of the refugee sample at initial and follow-up assessment. Grey slopes: adjusted score changes on subject-level.

Trajectories of pre-academic skills in young refugee children

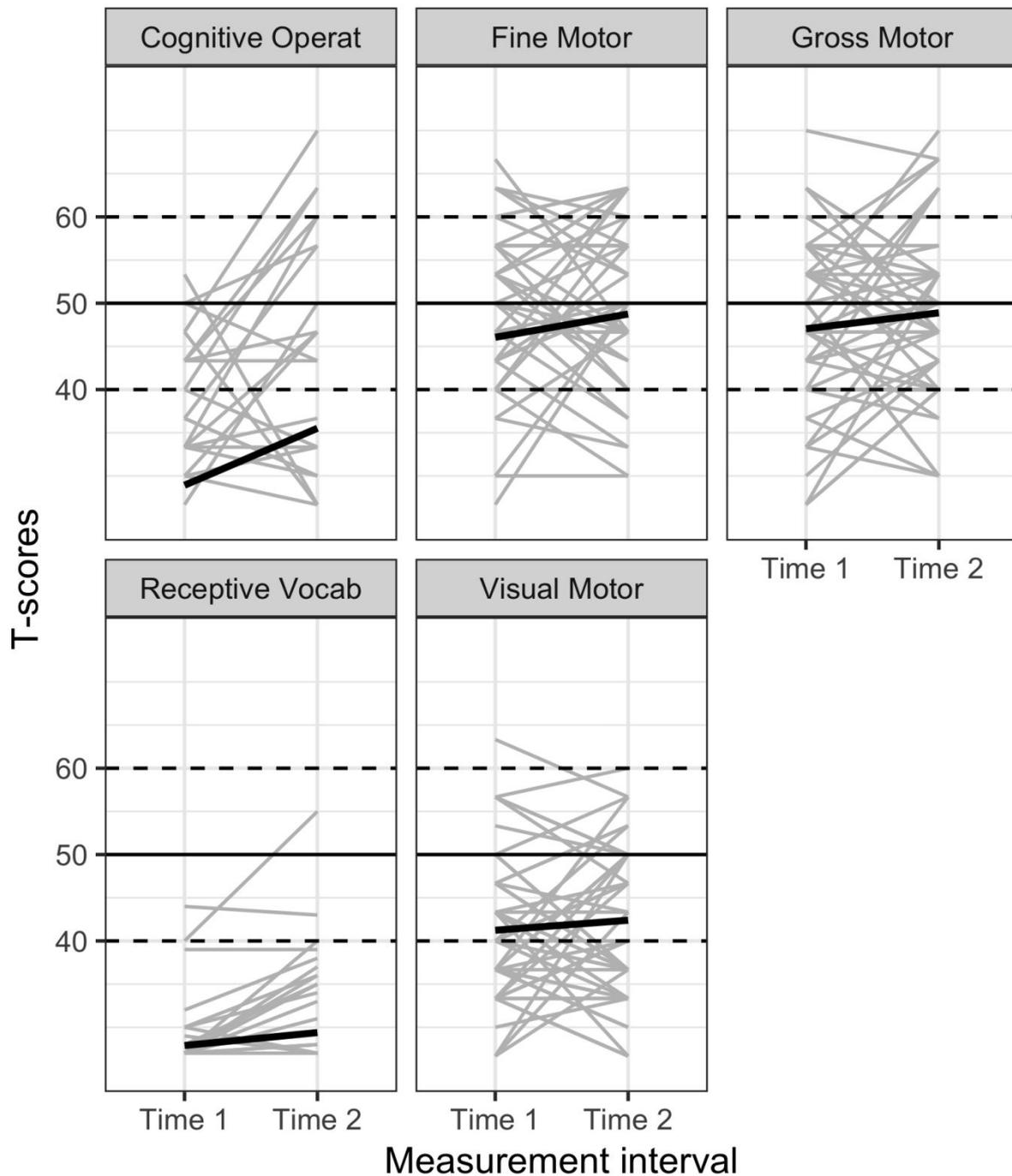


Figure 2. T-Scores for pre-academic skills of refugee children at initial and follow-up assessment. Scores are age- and gender-adjusted based on norm data. Dashed thresholds at T-scores = 40/60 [1*SD]. Bold slope: mean T-score change of refugee sample from initial to follow-up assessment. Grey slopes: T-score changes on subject-level.

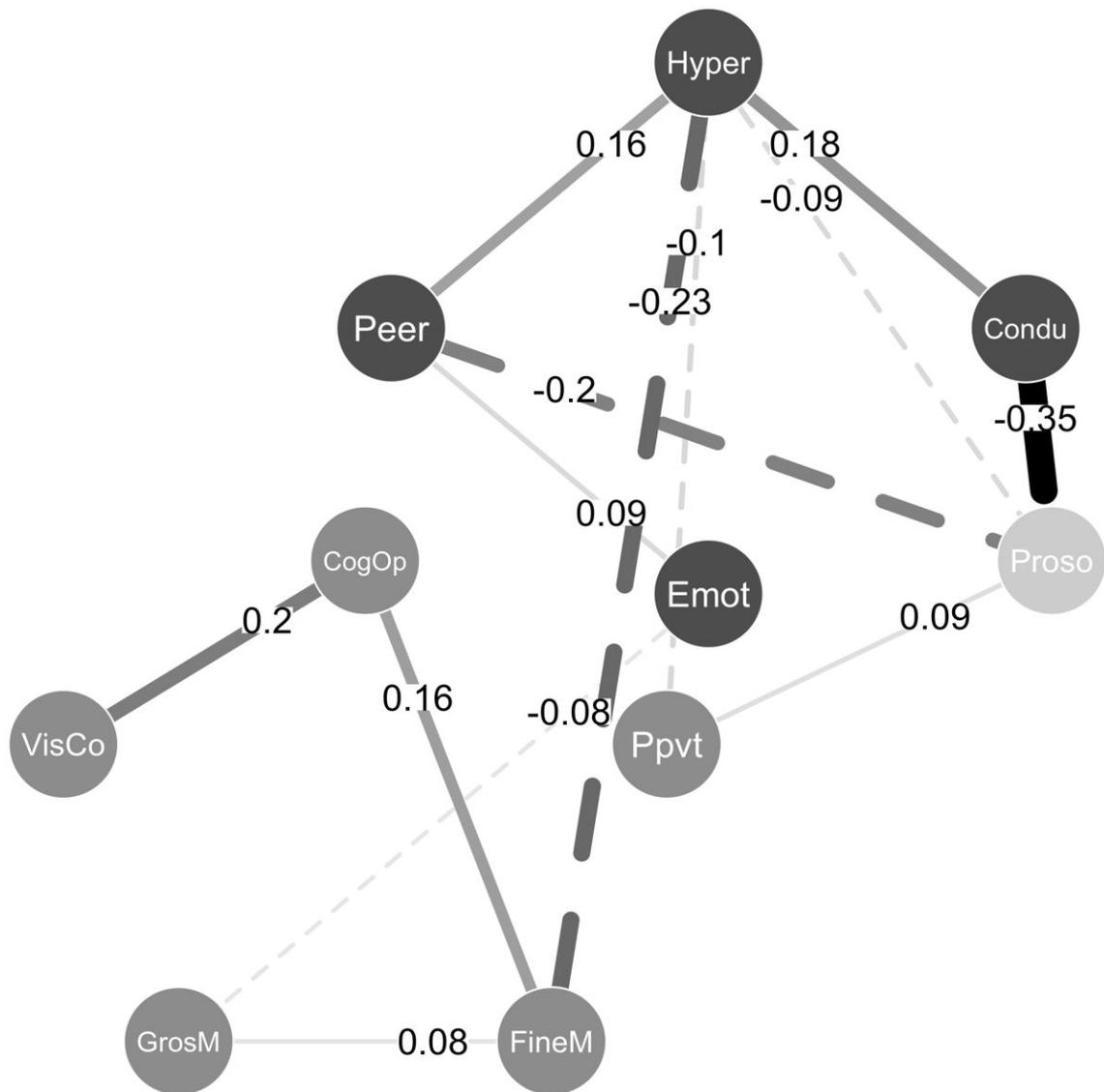


Figure 3. Partial correlation network constructed via the graphical lasso depicting pre-academic skills (grey), prosocial behavior (light grey) and mental distress (black) of refugee children in education contexts. Partial correlations and thickness of lines indicate strength and direction of relations. Dashed lines indicate negative, unbroken lines positive relations. Full and pair-wise complete datasets at first assessment were used ($N = 152$). Abbreviations: VisCo, visual motor coordination. GrosM, gross motor skills. FineM, fine motor skills. CogOp, cognitive operations. Ppvt, Receptive vocabulary in German. Emot, emotional problems. Peer, peer-relationship problems. Hyper, hyperactivity/inattention. Condu, conduct problems. ProsO, prosocial behavior.

4. What are the specific challenges in childcare-based early interventions that are targeted at newly arrived refugee children?

Original Research

Challenges and Solutions Perceived by Educators in an Early Childcare Program for Refugee Children

Julian Busch | Lilly Marlen Bihler | Hanna Lembcke | Thimo Buchmüller | Katerina Diers | Birgit Leyendecker

Abstract

Immigration to Germany peaked in 2016. More than 105,000 refugees below the age of 7 years arrived within 12 months. Since then, Germany and other host nations have been in need of strategies to cover the emerging demand for childcare services. The German federal state North-Rhine Westphalia has funded a specialized early childhood education and care (ECEC) program for recently arrived refugees. The present study investigated challenges and possible solutions in this specialized ECEC. In a pilot study, inductive content analysis of $n_1 = 28$ semi-structured interviews with early childhood educators revealed 19 distinct challenges and four generic categories for solutions (provide clear and predictable structures, involve and support parents, ensure adequate structural features of the childcare group, convey trust and feelings of competence). For the main study, identified challenges were transcribed into items for a closed-format questionnaire, which was distributed to a second sample of educators ($n_2 = 96$). Challenges perceived as most difficult concerned language barriers and communication with parents. An exploratory factor analysis of the challenges questionnaire yielded four underlying domains (interpersonal stress, feasibility and attendance, cultural and communication barriers, structural features of a childcare group). Our study provides a first basis to adapt childcare settings for refugees, and to guide staff training for this special group. We discuss evidence in regard to understanding how ECEC programs can successfully promote refugee children's psychosocial adaptation and educational outcomes.



Challenges and Solutions Perceived by Educators in an Early Childcare Program for Refugee Children

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Immigration to Germany peaked in 2016. More than 105,000 refugees below the age of 7 years arrived within 12 months. Since then, Germany and other host nations have been in need of strategies to cover the emerging demand for childcare services. The German federal state North-Rhine Westphalia has funded a specialized early childhood education and care (ECEC) program for recently arrived refugees. The present study investigated challenges and possible solutions in this specialized ECEC. In a pilot study, inductive content analysis of $n_1 = 28$ semi-structured interviews with early childhood educators revealed 19 distinct challenges and four generic categories for solutions (provide clear and predictable structures, involve and support parents, ensure adequate structural features of the childcare group, convey trust and feelings of competence). For the main study, identified challenges were transcribed into items for a closed-format questionnaire, which was distributed to a second sample of educators ($n_2 = 96$). Challenges perceived as most difficult concerned language barriers and communication with parents. An exploratory factor analysis of the challenges questionnaire yielded four underlying domains (interpersonal stress, feasibility and attendance, cultural and communication barriers, structural features of a childcare group). Our study provides a first basis to adapt childcare settings for refugees, and to guide staff training for this special group. We discuss evidence in regard to understanding how ECEC programs can successfully promote refugee children's psychosocial adaptation and educational outcomes.

Keywords: early childhood education, childcare, refugee, challenges, preschool

INTRODUCTION

When immigration peaked in 2016, Germany received more than 105,000 applications for asylum from children below the age of 7 years within a 12 months period. Two-thirds originated from Syria, Afghanistan, or Iraq (German Federal Agency for Migration and Refugees, 2016). Refugee children often have disrupted educational biographies. In early childhood, precarious environments potentially jeopardize children's successful transition into early childcare programs (Sirin and Rogers-Sirin, 2015). Recent immigration, therefore, poses a challenge for policy makers, early childhood educators, and caregivers in Germany. The enrollment rates of recently arrived refugee children in ECEC programs are currently lower compared to those of non-refugee children (Gross and Ntagengwa, 2016; Gambaro et al., 2017). However, the number of arrived

children exceeds the current number of available places in German early childhood education and care (ECEC) programs. North-Rhine Westphalia, the largest of all German federal states, hosts more than one quarter of all refugees. Its Federal Ministry for Children, Women, Refugees and Integration responded to this new demand for childcare places by establishing “Bridging Projects” for recently arrived refugee children. The aims of these provisional childcare groups are to compensate for the lack of regular childcare places and to facilitate their subsequent transition into regular ECEC programs. There are some legal restrictions to receive funding for a Bridging Project. At least one educator needs a childcare-related qualification, and the educator-child ratio should be 1:5 or better. Setting, equipment, and schedule of these childcare groups may vary, depending on the context. More than 1,100 diverse childcare groups have been established since May 2015.

Several studies have shown that the degree of social support, community integration, and reinstatement in ECEC programs are associated with psychosocial adjustment and developmental outcomes of refugee children (Sirin and Rogers-Sirin, 2015). ECEC program attendance has also been associated with higher academic performance, better health, and higher rates of later employment in the general population (Schweinhart, 1993), as well as in immigrant, and disadvantaged, populations (Han, 2008; Votruba-Drzal et al., 2015). Despite this evidence, research on how to integrate recently arrived refugee children into ECEC programs is still scarce. When adapting childcare, it is essential that policy makers and educators know about the challenges arising from the transition of refugee children into ECEC programs, and effective solutions. However, educators expressed concern about lacking cultural competence, and reported discomfort when policies conflicted with families’ cultural norms and practices (Hurley et al., 2011). A multi-center study on refugees in social services in the south of the United States showed that refugee families were more likely to choose informal childcare options (Farrell et al., 2008). Reasons for their usage preferences were easier access, accordance with their cultural values, and opportunities for home-language support.

Some studies investigated challenging topics in childcare with refugee children. Hurley et al. (2013) interviewed 25 preschool service providers in New England. The identified themes concerned current life circumstances of refugees (social isolation and resettlement stress), cultural dissonances between educators and families (expectations toward childcare and child rearing practices), and the required competencies of children for early childcare (language and self-regulation). Another interview study with 26 diverse refugee families and educators in the state of New York found the language barrier to be a distinct demand (Szente et al., 2006). Other identified challenges in this study were related to structural features, and to feasibility of ECEC with refugee children. For a German childcare group with refugees from the Roma community, Hahn (2011) found challenges concerning adequate equipment, continuous funding, and trained personal. In recent field visits of Bridging Projects our research team moreover learned about infrequent attendance and fluctuation of refugee children due to deportation as further

obstacles in the stable integration of them into early childcare (Busch et al., unpublished).

There is less evidence about solutions for the specific challenges in childcare with refugee children. Some studies focus on how educators can support refugee children as they cope with emotional problems and psychosocial adjustment. Findings from an ethnographic case study in an early childcare group with refugee children in Norway (Kalkman and Clark, 2017) suggested beneficial effects of role-play activities. They argued that role-play facilitates the reprocessing of past events and fosters the ability to recognize social activities, cultural identity, and local traditions. Consistent to this approach, researchers in Canada examined the “sand-play program” for emotional problems of 4- to 5-year-old refugee and immigrant children in childcare groups in a randomized and controlled effectiveness study. The researchers concluded that children expressed and processed their emotions through play behavior as they made references to past experiences (Lacroix et al., 2007). Repeated assessments by parents and educators showed that the sand-play program reduced psychological stress (Rousseau et al., 2009).

Further studies focused on effective pathways to integrate refugee families into childcare, and to adapt services correspondingly. In his report, Waniganayake (2001) recommended strategies for successfully working with refugees in childcare, such as providing children with opportunities for expression, setting clear boundaries, teaching alternative conflict resolution strategies, or visiting refugee families at home. In the interview study by Hurley et al. (2013), educators in childcare with refugees suggested considering community food preparation to bond with the parents, providing routines to make children feel more comfortable, and using pictures and symbols to express emotions. Poureslami et al. (2013) utilized focus groups with childcare providers, educators, and immigrant parents to identify five domains to promote the transition of refugee children into childcare. These domains were a centralized system (linking existing programs and sharing expertise on different cultural communities), support of childcare staff (dealing with cultural diversity and strategies to introduce new participants), effective announcement of services (in schools, communities, and media), educational materials (information for parents), and program structure (flexible operating hours, transport, and parental involvement).

It is still unclear, which theoretical approach geared at educators in ECEC programs can guide research and inform us about challenges and solutions with recently arrived refugee children. In order to systematically structure challenges and solutions in ECEC programs with refugee children, Hurley et al. (2013) discussed the pyramid model (Fox et al., 2003). This three-tiered model aims to foster positive socio-emotional and behavioral developmental outcomes. The first tier, “universal promotions,” provides nurturing environments and stimulation to every child in a childcare group in order to foster their development and acquisition of competencies. The second tier focuses on the special needs of certain groups of children, i.e., refugee children. Secondary prevention and intervention strategies are employed which address needs related to the educational gap, resettlement, and culture of refugee children,

and may directly foster the required competencies (e.g., language and self-regulation) and psychosocial adjustment. The third tier contains tertiary interventions that are often administered by a multi-professional team according to an individual, intensive support plan. In the case of childcare for recently arrived refugees, third tier intervention may encompass professional trauma therapy, as well as practical and holistic support to overcome obstacles during resettlement.

To date, educators can rely on few research-based experiences in childcare with refugee children (Tadesse et al., 2009). However, they are confronted with several specific challenges in the transition of refugee children into ECEC programs. Scientific evidence on this topic is limited from a geographical, methodological, and conceptual perspective. Geographically, available studies were predominantly conducted in countries with extensive resettlement programs and under specific policies (e.g., Canada, United States, and Australia), whereas research from European countries is very scarce. Methodologically, evidence in this research field builds less on analytic studies, and mainly on small sample sizes (i.e., case reports and case series), and expert opinions. From a conceptual perspective, few findings on childcare with refugee children were organized according to a theoretical model. Research on ECEC programs with refugee children needs to overcome these limitations in order to obtain valid and generalizable findings. The aim of the present study was to investigate challenges and solutions in the Bridging Projects, as perceived by the educators. This research was divided into a pilot study and a main study. The pilot study investigated challenges and possible solutions using a qualitative approach. For the main study, a closed-ended questionnaire was created based on data from the pilot study. The questionnaire was used to assess the severity of certain challenges and to systemize them by applying factor analysis. Findings from both study parts will be integrated in the general discussion.

PILOT STUDY

Methods

Participants

Our research team visited a total number of 50 Bridging Projects for field observations. One educator, from each respective 28 Bridging Project, participated in the pilot study during or subsequent to the visit. These educators on average were 42 years old ($SD_{age} = 11.24$ years). All but two were female. On average, the 28 Bridging Projects were attended by 9 refugee children ($SD_{number\ of\ children} = 4.50$, $range_{number\ of\ children} = 1-15$).

Material

We provided a paper-pencil survey to educators in Bridging Projects. They answered two open format questions in writing: (1) "What are specific challenges in the work with refugee children?" and (2) "What are proven or possible solutions concerning these challenges?" Additionally, educators reported socio-demographic information about themselves.

Data Analysis

Four research assistants, two with a master's and two with a bachelor's degree in psychology, established a focus group. Based on the procedure described by Elo and Kyngäs (2008), the focus group conducted inductive content analysis. Generic categories were individually generated through open

TABLE 1 | Description of generic categories for perceived challenges.

Generic category	Description
Communication	<ul style="list-style-type: none"> - Language barriers. - Dealing with hot topics (e.g., wearing a head scarf). - Establishing cohesion in a linguistically diverse group. - Parents need more time to understand routines.
Child behavior	<ul style="list-style-type: none"> - Behavior problems (e.g., anxiety, withdrawal, restlessness, emotional outbursts). - Children re-enact war-scenes. - Tardiness. - Reliability and infrequent attendance of refugees.
Interpersonal conflicts	<ul style="list-style-type: none"> - Caregivers' expectations toward childcare. - Conflicts between children (e.g., teasing); children and educators (e.g., children break the rules frequently, children have difficulties regulating closeness-distance); educators and parents (e.g., the parents do not intervene at misbehavior of own children); participating parents (e.g., between nationalities).
Flight-related experiences	<ul style="list-style-type: none"> - Sensitive topics strain educators emotionally (e.g., asylum, deportation, war-experience, separation of families). - Educators lack knowledge about the experiences and biographies of refugees. - Educators struggle empathizing with refugees.
Structural features of a childcare Group	<ul style="list-style-type: none"> - Accessibility of childcare groups (e.g., connection to public transport). - Insufficient educator-child ratio. - Group fluctuation. - Insufficient equipment (e.g., too many donated toys). - Insufficient settings for childcare. - Age differences between attending children.
Intercultural understanding	<ul style="list-style-type: none"> - Differences in parenting, culture, traditions. - Social relations between actors in childcare (e.g., role of educators).

Generic categories and descriptions for solutions derived from inductive content analysis ($n_{educators} = 28$).

TABLE 2 | Description of generic categories for solution approaches.

Generic category	Description
Provide clear and predictable structures	<ul style="list-style-type: none"> - Starting every day with a morning circle. - Communicate and enforce rules in a comprehensible way.
Involve and support parents	<ul style="list-style-type: none"> - Establishing new rules in consultation with parents. - Provide support, even for other areas of life.
Ensure adequate structural features of the childcare group	<ul style="list-style-type: none"> - Improve educator-child ratio (allowing one-on-one care, if necessary). - Provide appropriate material (e.g., games to learn self regulation, language). - Provide material that is easy to understand.
Convey trust and feelings of competence	<ul style="list-style-type: none"> - Make children feel welcome. - Be kind, reliable, and trustworthy. - Recognize children's talents. - Give children enough time for integration.

Generic categories and descriptions for solutions derived from inductive content analysis ($n_{educators} = 18$).

coding of raw responses, and repeatedly discussed. To check reliability of obtained categorization, two research assistants independently assigned the open responses of educators to the generic categories for perceived challenges and solutions, respectively.

Results

We analyzed responses of all $n_1 = 28$ educators for the perceived challenges in childcare settings for refugees, and $n_2 = 18$ responses for possible solutions. A *post hoc* reliability check revealed an overall moderate interrater reliability (challenges: $Kappa = 0.52$, $p < 0.001$; solutions: $Kappa = 0.59$, $p < 0.001$; Landis and Koch, 1977). Perceived challenges were arranged into six generic categories by the focus group (see **Table 1**). Educators mentioned organizational (e.g., accessibility), interpersonal (e.g., communication, behavior, and conflict), and cultural topics (e.g., parenting and roles) as challenges. Considering potential solutions, the focus group identified four generic categories in inductive content analysis, which are shown in **Table 2**. Mentioned solutions concerned different qualities of childcare, i.e., process quality (e.g., convey trust and competence), structural quality (sufficient material), and childcare group conception (session structuring and parental involvement).

Discussion

Educators report different topics as challenging in the Bridging Projects. Obtained information was aggregated into six generic categories by a focus group according to similarities in educators' responses. We added new evidence to this understudied field of research by informing about challenges in childcare settings for refugee children. However, there are shortcomings in the approach of relying on openly reported experiences of educators. We only received responses from 28 Bridging Projects, which seems insufficient to conclude generalizability of the challenges. We moreover do neither know about the significance of each of those challenges nor the validity of the generic categories.

Secondly, our pilot study identified potential solutions to the perceived challenges. Only 18 educators responded to this

open-format question. Several educators in the Bridging Projects might have limited experiences with refugee families yet and therefore omitted this question. If this conclusion based on educators' response behavior is valid, it hints to a strong need for new strategies in childcare settings for refugees. Nevertheless, obtained answers reveal first insights into current childcare practices with refugees in specialized ECEC programs from an educator's perspective. Findings on potential solutions are preliminary and need further empirical evidence. Linking those preliminary findings on solutions with empirically validated findings on challenges in a theoretical framework could increase applicability of our evidence for childcare practice.

MAIN STUDY

Methods Participants

For the main study, we randomly contacted a second sample of Bridging Projects via email and telephone. One educator per Bridging Project was asked to complete an online questionnaire about the perceived challenges. Overall, 96 educators ($M_{age} = 43.48$ years, $SD_{age} = 11.83$ years; 91% female) participated in the survey. On average, 10 children ($SD_{number\ of\ children} = 8.58$, $range_{number\ of\ children} = 2-60$) attended each of these Bridging Projects on a regular basis.

Instruments

The aforementioned focus group created items for the closed-ended questionnaire. In a first step, the group members generated items on potential challenges via open coding of the responses received by educators in the pilot study. Each member was asked to directly segment and code the educators' open responses. Creating items directly from the pure data (instead of the content-analysis from pilot study) limited circularity when comparing qualitative and quantitative results of both study parts. In a second step, the focus group selected a set of 19 items during group conversation. The rationale for the selection of items was to ensure that the scope of educators' open responses

TABLE 3 | Factor loadings for EFA with oblimin rotation using all items of the challenges questionnaire.

Item	Factor 1	Factor 2	Factor 3	Factor 4
	Interpersonal stress	Feasibility and attendance	Cultural and communication barriers	Structural features of a childcare group
Conflicts between parents	0.72	0.19	-0.09	-0.08
Conflicts between children	0.68	-0.26	-0.02	0.19
Conflicts between educators and parents	0.63	0.01	0.08	-0.04
Behavior problems of children	0.51	-0.08	0.11	0.12
Educators' emotional stress due to living conditions and flight related experiences of children	0.47	0.23	-0.03	0.08
High fluctuation complicates ability to plan	-0.10	0.80	-0.08	0.13
Children take part irregularly	0.17	0.66	0.09	-0.13
Decreasing number of participants throughout the project	0.01	0.58	0.02	0.16
Tardy arrival (<i>reversed</i>)	-0.35	-0.40	-0.04	-0.08
Long-term feasibility of the childcare group	0.11	0.30	0.13	-0.07
Linguistic barriers between educators and parents	-0.17	-0.09	0.80	0.06
Communication with parents	0.07	0.14	0.66	-0.07
Cross-cultural communication barriers	0.34	-0.05	0.53	-0.02
Parents' expectations	0.04	-0.03	0.46	0.10
Communication barriers between children	0.23	0.23	0.39	0.07
Different ages of children	-0.05	0.15	0.12	0.65
Educator-child ratio	0.15	0.06	-0.08	0.54
Material resources	0.02	-0.08	0.04	0.48
Accessible by public transportation	0.26	0.07	-0.05	0.40
Eigenvalue (variance explained)	2.48 (13%)	2.03 (11%)	1.83 (10%)	1.37 (7%)

Questionnaire about the challenges in Bridging Projects; factor loadings ≥ 0.30 are in boldface; items "cross-cultural communication barriers," Tardy Arrival revealed cross-loadings with the first factor; EFA, Exploratory factor analysis.

would be covered. Responses to the questionnaire were given on a five-point Likert scale, which was presented with three anchors (1 = not challenging at all, 3 = somewhat challenging, 5 = very challenging).

Data Analysis

We calculated the mean and standard deviation for each item of the questionnaire. The descriptive analysis allows the ranking of distinct challenges across all Bridging Projects. We conducted an exploratory factor analysis with principal axis factoring (EFA; Costello and Osborne, 2005) on the questionnaire in order to validate and extend findings from inductive content analysis. Conceptually, EFA and inductive content analysis both exploratively aggregate data to find domains of higher order. However, a larger sample size for EFA fosters generalizability. The statistical approach of EFA, moreover, is less dependent on the subjectivity of a few coders. EFA goes beyond a content-directed structuring, which exclusively guides inductive content analysis.

For the rotation of the factors in EFA, we used the oblique rotation method oblimin. This non-orthogonal approach has fewer model-restrictions. It is therefore best suited to delineate first evidence in a field. In preliminary analyses, we scanned the correlation matrix for variables that did not correlate, or

correlated very highly (>0.90) with any other variable. The overall and variable specific Measures of Sampling Adequacy (MSA) were additionally calculated. $MSA \geq 0.50$ indicates that the sample size is sufficient to yield distinct and reliable factors in an EFA (Kaiser, 1974). After preliminary analyses, we assessed a reasonable number of factors using Kaiser's criterion (eigenvalue > 1), scree plot examination, and parallel analysis. Overall model fit was examined by the model chi-squared test on an alpha-level of 0.05. Additionally, we considered the root mean square error of approximation (RMSEA), and the Tucker-Lewis index (TLI) for model fit. Good fit was defined by a $RMSEA \leq 0.06$ and a $TLI \geq 0.95$ (Hu and Bentler, 1999). Factor loadings ≥ 0.30 were considered as substantial. The focus group interpreted the factors of challenges from EFA according to the grouping of the items on the latent factors. All statistical analyses were performed in R 3.4.1 using default packages and the "psych" package for EFA.

Results

Hierarchy of Perceived Challenges

The ranking of the challenges according to their ratings is shown in **Table 3**. Educators perceived the language barrier and communication with parents as most challenging. Although

TABLE 4 | Hierarchy of challenges in early childcare groups with refugees according to the questionnaire.

Rank	Item	<i>M</i>	<i>Md</i>	<i>SD</i>	<i>n</i>	<i>MSA</i>
1	Linguistic barriers between educators and parents	3.96	4	1.02	95	0.51
2	Communication with parents	3.88	4	1.12	93	0.54
3	Long-term feasibility of the childcare group	3.44	3	1.24	93	0.54
4	Tardy arrival (<i>reversed</i>)	3.27	3	1.34	92	0.80
5	Behavior problems of children	3.21	3	1.04	94	0.66
6	Children take part irregularly	3.02	3	1.18	94	0.66
7	High fluctuation complicates ability to plan	2.79	3	1.32	95	0.59
8	Different ages of children	2.75	3	1.32	92	0.64
9	Cross-cultural communication barriers	2.69	3	1.05	94	0.74
10	Educators' emotional stress due to living conditions, and flight related experiences of children	2.55	2.5	1.20	94	0.67
11	Decreasing number of participants throughout the project	2.48	2	1.23	92	0.71
12	Communication barriers between children	2.41	2	0.94	94	0.72
13	Educator-child ratio	2.38	2	1.23	93	0.64
14	Conflicts between children	2.35	2	1.11	93	0.75
15	Parents' expectations	2.34	2	1.17	93	0.80
16	Material resources	2.08	2	1.07	92	0.39
17	Accessible by public transportation	1.96	2	1.18	89	0.70
18	Conflicts between parents	1.62	1	0.97	93	0.80
19	Conflicts between educators and parents	1.56	1	0.87	94	0.71

Challenges of the generated questionnaire are displayed and ranked according to their arithmetic mean. Each challenge was rated on a Likert-scale ranging from 1 (not challenging at all) to 5 (very challenging). *M*, arithmetic mean; *Md*, median; *SD*, standard deviation; *n*, number of educators answering the respective question; *MSA*, measurement of sampling adequacy.

mentioned, conflicts and accessibility of a childcare group were perceived as the least severe challenges.

Pre-analysis of EFA

Inspection of the correlation matrix yielded that all variables did correlate with at least one other variable, with no correlation being greater than $r = 0.90$. The overall *MSA* of 0.67 was satisfactory. The calculation of the variable-specific *MSAs* indicated that all items reached the critical score of $MSA \geq 0.50$ (Table 3), with an exception for the item “material resources” ($MSA = 0.39$). This indicates that partial correlations of this certain item are low. We decided not to exclude the item in order to not drop reported challenges in the explorative statistical analyses. Scree plot, and parallel analysis indicated that four factors should be retained. Table 4 shows the obtained factor loadings on each factor. Cross-loadings above the defined threshold emerged for the items “tardy arrival” and “cross-cultural communication barriers.” Considering the overall model fit for the four-factor solution, the chi-squared test was marginally significant [$\chi^2_{(101)} = 126.06, p = 0.046$], the *RMSEA* = 0.064 [0.007, 0.078], and the *TLI* = 0.88. Although the defined criteria for good model fit were not fully met, model parameters indicate that explorative analysis may have led to solid results.

Domains of EFA

According to the statistical grouping of items, the focus group interpreted and labeled the revealed factors as the following domains of challenges (given in descending order regarding their eigenvalue): Interpersonal Stress (i.e., conflict and behavior problems), Feasibility and Attendance” (i.e., family’s reliability

and maintenance of the project), Cultural and Communication Barriers (i.e., exchanging information and dissonance on childcare goals), and Structural Features of a Project” (i.e., ensure functional project and group characteristics). Intercorrelations between factors are displayed in Table 5.

Discussion

The findings of the main study validate and extend the results from the pilot study. Item ranks inform about what educators perceive as most challenging in childcare settings with refugee children. Those results can guide stakeholders and staff to anticipate and react to potential difficulties during planning and conducting ECEC services with refugee children. Using a statistical approach, EFA systematically validated and systemized findings from the inductive content analysis based on a larger sample. EFA explored which challenges tended to coincide among Bridging Projects irrespective of content relations. Pre-analysis for EFA suggested that the item “material resources” is problematic in this approach. This

TABLE 5 | Intercorrelations among factors from EFA.

Factor	1	2	3
1. Interpersonal stress	–		
2. Feasibility and attendance	0.20	–	
3. Cultural and communication barriers	0.11	–0.01	–
4. Structural features of a childcare group	0.18	0.19	0.14

Pearson’s product-moment intercorrelations between factors of oblique exploratory factor analysis are presented.

may due to technical reasons, e.g., a relatively small sample size, an item to subject ratio around 1:5, or vague wording. Alternatively, the item may not demonstrate additional value and should thus be excluded in further conclusive analyses, e.g., scale construction. We kept this item in our explorative investigation, because material resources seemed to be an important issue in improvised Bridging Projects (Busch et al., unpublished).

A comparison of EFA with inductive content analysis generally substantiated validity of the preliminary findings from the pilot study. The generic categories Child Behavior, Interpersonal Conflicts, and Flight-related Experiences from inductive content analysis were subsumed under the latent factor Interpersonal Stress. Generic categories Communication and Intercultural Understanding were reflected in the latent factor Cultural and Communication Barriers. The generic category Structural Features of a Childcare Group remained unchanged. A new latent factor, Feasibility, and Attendance, emerged from the EFA of the main study. This factor was not previously identified in the inductive content analysis of the pilot study. Changes of the factor structure and labeling in EFA seemed to better fit the educators' perspective. These results are, therefore, potentially better suited to guide effective prevention and intervention strategies.

GENERAL DISCUSSION

Young refugee children are likely to stay in host countries, at least for some years, due to on-going crises in several countries. Thus, the host countries require evidence-based strategies for the transition of arriving children into childcare services. Our study adds systematic evidence to this field by identifying specific challenges that educators perceived in specialized ECEC programs for refugee children. In the pilot study, educators freely reported on challenges and solutions in childcare settings for refugee children. We grouped those challenges and solutions into six and four generic categories, respectively. In the main study, educators ranked distinct challenges, which were derived from the pilot study. We then aggregated the distinct challenges into four higher-order domains. The general discussion of our findings is organized according to those domains. Findings on the solutions are subsequently discussed with respect to the pyramid model.

Challenge: Interpersonal Stress

Our evidence suggests that educators experience conflict with refugee children, as well as their parents, and is directly confronted with the psychosocial needs of refugee families. Consequently, some educators struggled to cope with the fate of refugee families who expected deportation, experienced recent bereavement, or other psychosocial hardships. Our evidence corresponds to findings on mental health of refugee children. Refugee children in preschool age are at risk for increased levels of anxiety, withdrawal, anger, and emotional outbursts (Bronstein and Montgomery, 2011; Buchmüller et al., 2018). Moreover, refugee children may become confused if rules and childcare practices between home and childcare

contexts diverge (Whitmarsh, 2011). Vandenbroeck et al. (2009) interpreted this dissonance as a potential source of conflict. Md-Yunus (2009) reported that educators often struggle to create a culture-sensitive environment in childcare settings. Moreover, educators in German childcare settings reported a demand for assistance with psychological problems of young refugee children (Riedel and Lüders, 2016).

Challenge: Feasibility and Attendance of Refugee Families

Another domain of challenge in childcare with refugee children subsumes their infrequent attendance, high group fluctuation, and the initial unreliability of some refugee families. As a possible explanation, it is proposed that high levels of mental distress of refugees and low perceptions of self-agency (Mitchell and Ouko, 2012) might disturb parental engagement. Cultural differences in educational aspirations and childcare practices additionally aggravate the extent of parental engagement (Tadesse, 2014). Moreover, some refugee parents struggle with separation from their young children without the support of close relatives, particularly in a foreign context after adverse circumstances (Riedel and Lüders, 2016). Improvised childcare settings, high fluctuation of refugees, and changing premises (i.e., closing of central refugee accommodations) may affect long-term feasibility of Bridging Projects. Educators reported these challenges in our study, yet these specialized childcare groups are considered to be a flexible, temporary service until transition into regular ECEC programs is possible.

Challenge: Cultural and Communication Barriers

Language and cultural barriers hinder successful communication. Educators in our study perceived these barriers as major obstacles in early childcare programs for refugee families. However, a panacea-like strategy for effective communication seems unrealistic, as refugee families are demographically and ethno-culturally diverse. Regarding the cultural barriers, educators reported to experience different expectations for childcare practices from parents, which represents an additional challenge. ECEC programs similar to Western models of institutionalized childcare are less widespread in several countries from which refugees originate (Mitchell and Ouko, 2012; Poureslami et al., 2013). In a study with 199 educators, Bernhard et al. (1998) reported that a substantial number of refugee parents did not understand the goals of ECEC programs in Canada. Specifically, some studies found refugee parents from different African countries to have their own expectations toward the parent-educator relationship and the format of caregiving, which were different to Western ECEC practices (Tadesse et al., 2009; Whitmarsh, 2011; Tadesse, 2014). Overall, our evidence suggests a need for effective communication, and sensitive strategies to convey intentions and practices of existing ECEC programs in the host country to refugee families. At the same time, ECEC programs need to consider prior experiences those families might have had with childcare in home-countries or during flight.

Challenge: Structural Features of a Childcare Group

Challenges regarding structural features concerned the large age-range of refugee children, who attended the Bridging Projects, the lack of good educator-child ratios, inadequate premises, lack of equipment for a childcare group, and lack of accessibility of the childcare programs. Responses may to some extent reflect the diversity of Bridging Projects. Systematic field observations suggested that differences in the structural quality of Bridging Projects depend on the childcare setting (Busch et al., unpublished). Moreover, educators reported accessibility of childcare programs by refugees as challenging. Consistently, refugee families in Canada reported a lack of locally available childcare groups (Morantz et al., 2012; Poureslami et al., 2013). In conclusion, stakeholders need to deliberately settle childcare services for refugees to accessible locations, which also meet sufficient structural quality standards.

Possible Solutions for the Challenges According to the Pyramid Model

The pyramid model (Fox et al., 2003) scaffolds linkages between challenges in childcare settings for refugee children and potential solutions. The first tier of the model subsumes measures for providing a nurturing, need-oriented environment for all children of a group, which facilitates learning experiences and builds positive relationships with participating families. Therefore, the childcare environment must also consider the needs of refugee children. Educators in our study remarked on the scarcity of suited materials for early language learners. They emphasized the importance of easy accessibility for refugee families, and an adequate educator-child ratio. They suggested predictable and reliable structures (e.g., repeating timetables) with consistently enforced rules, which promote routines, and foster reliable relationships with refugee children and parents. Correspondingly, Lunneblad (2017) found that refugee children and caregivers often need more time to familiarize themselves with a childcare setting. Educators in our study suggested that conveying warmth, encouragements, and patience are particularly important to foster positive relationships with refugee children and their families.

The second tier intends to specifically address challenges with refugee children and their families, if necessary. According to the educators in our investigation, additional measures for refugees should target the psychosocial situation of refugees, bonding with parents, and facilitation of communication. In addition to the use interpreters, educators suggested communication-supportive materials, e.g., pictograms or posters, as helpful to overcome the language barrier in early childcare with refugees. In line with our evidence on discrepant views on childcare, Tadesse (2014) reported that some refugee parents show resistance when accepting additional measures in ECEC for their children. Exploration of their individual attitudes toward childcare, provision of information about childcare systems, and educational goals might promote acceptance, and foster parental engagement. Besides potential topics of conflict, educators mentioned the unsteady attendance and tardiness of

refugee children as challenging. Therefore, educators suggested drop-off and pick-up services. This could promote the regular attendance of refugees because many families often have scarce resources, or they are not familiar with the use of public transport.

The third tier addresses intensively individualized interventions for some children and families. Refugee children in the Bridging Project groups seem to have specific patterns of mental distress (Buchmüller et al., 2018). The majority of refugee children exhibit mild behavior problems. Some children, however, show severe anxiety and withdrawal behavior. This suggests that, at times, educators must cope with severe emotional problems of refugee children. Educators in our study reported that they were insufficiently prepared to deal with this challenge. Cultural and language barriers hinder sensitive and specific identification of the refugee children in need with available diagnostic tools (Hurley et al., 2014). Training of the educators should, therefore, cover an in-depth understanding about psychosocial symptom manifestations, and specific risk factors for negative developmental outcomes. However, educators should not provide psychological therapy, but detect and refer children in need of intervention to treatment facilities. Close cooperation with communal youth welfare, or health care agencies, might help to conduct intensive psychosocial interventions for the complex, and entangled problems that refugee children and their families face during the post-migration period (Szente et al., 2006; Poureslami et al., 2013). Educators in our study reported that the provision of individual assistance for refugee families beyond childcare, e.g., with obstacles of resettlement, promotes successful conductance of childcare with refugee families.

The pyramid model structures challenges and solutions in childcare with refugee children. However, boundaries between the different tiers follow a theoretical concept, and the evidence is ordered in theoretical accordance. Beyond this theoretical model, the practical feasibility of tiered interventions for refugee children needs additional consideration, as measures are implemented into policy and practice.

Strengths, Limitations, and Future Research

We were the first research group, who used a stepwise approach to investigate perceived challenges and possible solutions in a specialized ECEC program for refugee children. In the pilot study, a focus group applied inductive content analysis in order to generate a questionnaire on challenges, and to obtain findings on potential solutions. Despite the standardized procedure, personal narratives, and past experiences of coders might, nevertheless, have had an impact on how generic categories and the questionnaire were generated. The main study builds on the closed questionnaire on challenges. Future research should particularly investigate its reliability, validity, and comprehensiveness. Psychometric criteria of our questionnaire seem overall sufficient for EFA, and led to solid factors (Costello and Osborne, 2005; Bühner, 2011). However, the item with low MSA and mediocre subject to item ratio might jeopardize a reliable factor structure.

Current childcare services are in need of research on refugees, with short-term practical impact. The main goal of this study was, therefore, to investigate challenges and solutions in specialized ECEC programs for refugee children. Our findings are consistent with a qualitative study on childcare with refugee families in Canada (Poureslami et al., 2013). Our study extends evidence by methodological triangulation in a larger sample from specialized ECEC programs in Germany. General challenges and solutions for all types of childcare settings for refugees exist along with very specific ones that may vary depending on context, group settings, inclusive or exclusive orientation, and specific childcare goals. Linking type and severity of specific challenges to an ECEC program's structural characteristics helps to further systematize and evaluate the advantages and obstacles of diverse concepts of childcare settings for refugee children. The newly constructed questionnaire of this study provides a basic tool for such investigations. Besides, our investigation is limited to educators' perspectives. The perspective of refugee parents might possibly reveal more challenges and solutions in ECEC programs.

To date, the effects of childcare attendance on the psychosocial adjustment, academic achievement, and developmental outcomes of refugee children have been insufficiently studied. We do not yet have substantial evidence on effective pathways for recently arrived refugee children into childcare services, or on solutions to tackle the specific challenges in childcare settings for refugee children.

CONCLUSION

Our study contributes to systematic research on childcare services for children. We disentangled and systematized challenges, and possible solutions that educators perceived in specialized ECEC programs for refugee children. We generated a questionnaire on perceived challenges, and embedded our findings into a theory-driven framework on a broader empirical basis. Findings can directly inform educators, stakeholders, and policy makers about the specific challenges of refugee children in early childcare and steps toward effective solutions.

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ETHICS STATEMENT

This study was conducted in accordance with the ethical guidelines of the German Psychological Society. The Ethics Committee of the Faculty of Psychology at the Ruhr University Bochum approved the study protocol. All subjects gave written informed consent in accordance with the Declaration of Helsinki.

DISCLOSURE STATEMENT

The funders had no role in study design, data collection, or analysis, decision to publish or preparation of the manuscript.

AUTHOR CONTRIBUTIONS

JB contributed in manuscript writing, data analysis, data interpretation, and study conceptualization. L-MB contributed in data analysis, methodological realization, and manuscript writing. HL contributed in manuscript feedback and revision, discussion of findings, and manuscript writing. TB contributed in study conceptualization and manuscript feedback. KD contributed in data analysis and literature research. BL contributed in manuscript feedback and revision, discussion of findings, and head of the project.

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5. Do the childcare-based interventions in Germany address the specific needs of the newly arrived refugee children?

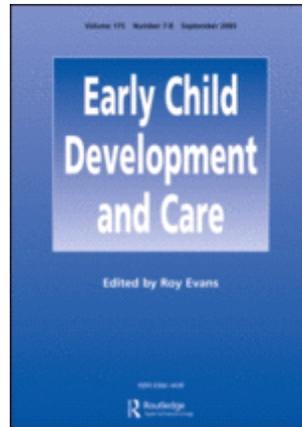
Original Research

Flexible Solutions for diverse Needs: Structural and Process Quality of a Childcare Program for newly arrived Refugee Children

Julian Busch | Thimo Buchmüller | Hanna Lembcke | Lilly Marlen Bihler | Birgit Leyendecker

Abstract

All over the world, substantial numbers of refugee families with young children reside in precarious living conditions after arriving to a host country. The largest state of Germany established childcare-based interventions for more than 10,000 refugee children to mitigate developmental and educational disparities. Investigating the variations within these interventions, we assessed childcare quality in $N = 48$ field observations. Structural quality varied between mobile concepts (e.g., in caravans) providing the lowest, improvised settings (e.g., in refugee shelters) intermediate and formal settings for childcare (e.g., in daycare centers) providing the highest structural quality. Process quality as assessed with the Classroom Assessment Scoring System for Pre-Kindergarten was overall comparable to the quality observed in regular daycare settings ($N = 177$). Our findings suggest that, despite their flexibility, childcare-based interventions are a promising strategy to differently address the needs of newly arrived refugee children.



Flexible Solutions for diverse Needs: Structural and Process Quality of a Childcare Program for newly arrived Refugee Children

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Introduction

Immigration to Germany has increased in recent years. Notably, more than 163,000 children under the age of six, fleeing from Syria, Afghanistan, and Iraq, applied for asylum in Germany (BAMF, 2017). Chaos, threat and deprivation in conjunction with forced displacement put young refugee children at risk for mental health problems and for gaps in education (Fazel, Reed, Panter-Brick, & Stein, 2012; Sirin & Rogers-Sirin, 2015; Park, Katsiaficas & McHugh, 2018). Consequently, newly arrived, young refugee children demonstrated higher rates of socio-emotional problems (Ajdukovic & Ajdukovic, 1993; Buchmüller, Lembcke, Busch, Kumsta, & Leyendecker, 2018) and refugee families had greater difficulties to achieve school readiness for their children in exile countries (New, Guilfoyle & Harman, 2015; Picchio & Mayer, 2019). However, investigations on how to mitigate such negative consequences of forced displacement in early childhood are lacking. Community and school-based interventions for refugee children have focused primarily on school-aged children (Hek, 2005; Tyrer & Fazel, 2014), although interventions for other at-risk populations demonstrated highest long-term benefits for investments during early childhood (Anders, 2013; Crosnoe, 2007; Schweinhart, Barnes & Weikart, 1993).

Childcare promotes positive developmental trajectories for children with migration backgrounds. For instance, childcare studies suggested that fostering their socio-emotional learning and language acquisition has a positive impact on later academic achievements of immigrant children (Castro, Páez, Dickinson & Frede, 2011; Votruba-Drzal, Coley, Collins & Miller, 2015). In addition, childcare programs were found to reduce the socio-emotional problems of children by compensating negative effects of parental caregivers' mental distress, which is often prevalent among refugee adults (Lee, Halpern, Hertz-Picciotto, Martin & Suchindran, 2006). When large numbers of young refugee children arrived in high-income countries such as Germany, addressing the social-emotional and developmental needs

of these children in childcare became major challenges for both research and practice. First, the number of newly arrived young children overstrained the capacities of public childcare services. Second, refugee children's needs are specific and urgent, e.g. promoting adjustment processes to new living circumstances or preparation for education. Hence, providing childcare cannot be postponed until decisions on political asylum are made and the families are relocated to permanent residences. In such circumstances, establishing childcare-based interventions in a timely fashion can support newly arrived refugee children.

Quality determines Effectiveness of Childcare for Refugee Children

Although such interventions are strongly needed they are still rarely studied. The effectiveness of childcare-based interventions, however, depends on structural and process quality characteristics (Burchinal, Roberts, Riggin, Zeisel, Neebe & Bryant, 2000; Büchner & Spiess, 2007; Sammons et al., 2014). Structural quality of the childcare environment includes physical (e.g., group, staff, and equipment), spatial (e.g., location), and temporal characteristics (e.g., schedule and routines; Thomason & Paro, 2009). Process quality encompasses social, emotional, and instructional characteristics, mainly conveyed by teacher-child interactions (Howes et al., 2008). Previous studies demonstrated distinct effects of both structural and process quality of childcare on children's academic and socio-emotional development (Anders, Grosse, Rossbach, Ebert, & Weinert, 2013; Bradley, Corwyn, Burchinal, McAdoo, & García Coll, 2001; Trawick-Smith, Swaminathan, & Liu, 2016).

Structural and process features of childcare with refugee children were the focus of two qualitative investigations (Hurley, Saini, Warren and Carberry, 2013; Hurley, Warren, Habalow, Weber & Tousignant, 2014). Both studies emphasized the importance of specific structural qualities, such as clear routines and schedules, frequent use of symbols for communication and self-expression as well as links to local social service providers for these children. Moreover, childcare teachers reported high responsiveness and supportive

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3 interactions to be the most important dimensions of process quality for refugee children due
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5 to their high risk for socio-emotional problems. As most of the refugee children were dual
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7 language learners, teachers moreover considered interactions with a focus on language to be
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9 of special importance. Both studies aggregated idiosyncratic experiences of childcare
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11 teachers working with refugee children. We are still lacking studies on childcare-based
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13 interventions for refugee children that apply methods to draw more general conclusions.
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16 17 ***Bridging Projects in Germany***

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19 A unique research opportunity emerged when the Ministry of Children, Families,
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21 Refugees and Integration (MKFFI) of the largest German state, North-Rhine Westphalia
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23 (NRW), introduced the ‘Bridging Project’ policy. Since 2015, this policy has funded
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25 specialized childcare groups (i.e., the Bridging Projects [BPs]; MKFFI, 2015) to address the
26
27 needs of newly arrived, young refugee children. Attendance is fully subsidized as BP
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29 organizers receive a flat rate of 30€ per hour for caretaking of one to five children. BPs will
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31 be financed until at least 2020 (MKFFI, 2015). According to this policy, a minimum of one
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33 staff member per group is required to have a qualification in childcare (i.e., formal training or
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35 a degree in a childcare-related subject), and the teacher-child ratio should be 1:5 or higher.
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Volunteers work together with trained staff. Aside from these provisions, BP organizers were
free to choose the location, time, frequency as well as the age range of children before school
entry, and the involvement of parents. This allowed a maximum of flexibility for meeting the
needs of newly arrived refugee families and reacting to possibly changing demands.

59 60 ***Study Aim***

To date, we know little about early interventions for refugee children in those high-
income countries that have recently hosted large numbers of refugee families. The variety of
BPs provide a valuable source for elucidating strategies on how to address the socio-
emotional and developmental needs of young refugee children with childcare-based

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3 interventions. As the local stakeholders are responsible to create their own childcare
4 strategies, the overall childcare quality of BPs remains unclear. This study investigated
5 structural and process quality of the various forms of BPs.
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10 Method

12 Procedure

14 Our research team visited BPs for structured field observations and assessed structural
15 and process quality using standardized measures. In a first step, we examined structural and
16 process quality, while process quality of BPs was additionally compared to process quality in
17 regular daycare centers in NRW. Second, we explored whether structural and process quality
18 varied among the types of BP implementation.
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25 [Table 1 near here]

28 Sample

30 **Bridging Projects.** The MKFFI provided registration data on the BPs. In the first year
31 after the policy was established, 1,483 BPs with an overall capacity of more than 10,000
32 children were funded. BPs were implemented in mobile concepts, improvised settings and
33 settings for childcare (see Table 1). On average, BPs offered enrollment to 8.6 ($SD = 4.05$)
34 children per group, had a duration of 33.5 weeks ($SD = 14.23$), and a care-taking time of
35 10.41 hours per week ($SD = 8.27$; own calculations based on registration data for BPs).
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44 For our study, we randomly drew BPs from the registration list and requested
45 participation. We stopped the recruitment after 50 BPs consented. At this point, a total of 153
46 BPs were contacted. Of those contacted BPs that did not participate, some organizers did not
47 respond, others gave reasons for non-participation (e.g., no active BP due to relocation of
48 families, concerns that the study might disturb atmosphere within childcare groups). As we
49 additionally lost two BPs before the data collection started (one group expired, the other was
50 closed due to lacking attendees), the final study sample consisted of 48 BPs.
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3 In our sample, an average of 1.56 teachers ($SD = .5$; $MD = 2$) and 5.65 children ($SD =$
4 2.07 , $MD = 6$) were present during the field visits of the BPs. The most frequent caregiving
5 constellations were “*activities with 2 to 6 children*” (27.38%) followed by “*one-on-one*”
6 interactions (25%) and “*activities with more than 6 children*” (25%). The average teacher-
7 child ratio during the visits was 1:3.56 ($SD = 1.35$, $MD = 1:3.5$). Thirty-two BPs provided
8 additional information on teachers and the country of origin of the participating children. In
9 total, 452 children attended these BPs on a regular basis. The children’s major countries of
10 origin were Syria (40.39%), followed by Balkan countries (13.27%), Iraq (13.05%), and
11 Afghanistan (12.61%). Responding teachers were on average 41.33 years old ($SD = 11.84$,
12 $MD = 40.5$, $range = [20, 61]$) and 12.5% were male. Regarding teachers’ levels of education,
13 15.6% had a college degree or had completed a childcare-related subject in tertiary education.
14 46.9% had received childcare-related vocational training; 12.5% were childcare assistants.
15 21.9% teachers did not report any childcare-related qualification, and 3.1% omitted this
16 information.

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19 ***State-subsidized Daycare Centers.*** Process quality of the BPs was compared to a
20 representative sample of 177 childcare groups in 95 state-subsidized daycare centers in
21 NRW. In state-subsidized daycare centers the average class size was 21 children with an
22 average teacher-child ratio around 1:6.49 ($SD = 3.6$, $MD = 5.75$; Bihler, Agache, Kohl,
23 Willard & Leyendecker, 2018).

24 *Data Collection in Bridging Projects*

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26 All BPs were visited between July 2016 and May 2017. All of the BPs’ teachers
27 involved in the present study provided written informed consent beforehand. All parents of
28 children attending the participating BPs received written information on the study in addition
29 to verbal information given by teachers. Families were asked not to attend the BP at the day
30 of the observation, if they felt uneasy about the study. The full observation team for BPs
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3 consisted of five graduate students with a bachelor's or master's degree in psychology. The
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5 first two authors instructed the team on observation procedures. Additionally, four observers
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7 participated in a two-day training to become officially certified for reliable assessments of
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9 process quality. The initial six BP visits were for preparing instruments, piloting, and
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11 training. In the subsequently visited BPs (n= 42), teams of two observers conducted
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13 structured observations. One person assessed structural quality, while the other assessed
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15 process quality. No data on individual children was collected. The Internal Review Board of
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17 the <University> approved the study protocol.
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21 **Measures**

22 *Structural Quality*

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24 Pilot observations yielded that the available instruments for structural quality within
25
26 formal childcare settings were not equally applicable to the more diverse BPs. Therefore, we
27
28 created the "Bridging Project Evaluation Scale" (BREVIS) to observe structural quality in
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30 more diverse environments. In three subsequent meetings, indicators for structural quality
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32 were generated based on widely used observation inventories, i.e., "Early Childhood
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34 Environment Rating Scales-Revised" (Harms, Clifford, & Cryer, 2014), "Child Care
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36 Checklist Physical Environment Checklist" (NICHD, Study of Early Childcare and Youth
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38 Development, 2006) and subsequently examined in pilot observations. Selection criteria for
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40 structural quality dimensions were the applicability of indicators to different types of BPs and
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42 their relevance in the official guiding principles for childcare in NRW (MKFFI, 2016).
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44 BREVIS consists of 24 indicators of structural childcare quality which are assigned to five
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46 dimensions: (1) *premises*, covering structural facets of the setting such as availability of
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48 space for activities, an area for relaxation, or sanitary facilities, (2) *equipment*, covering the
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50 availability of movable furniture and their suitability for young children, (3) *structuring of a*
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52 *session*, covering the formal structure of the program, e.g., clearly indicated start and ending
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3 times, establishment of rituals, rules, and routines, (4) *team coherence*, characteristics of team
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5 climate and the degree of effective cooperation, and (5) *educational materials* for academic
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7 activities and play, as well as for language facilitation in multilingual groups. A single-
8
9 observer completion of the BREVIS took around 40 minutes. Each indicator was rated on a
10
11 three-point Likert scale (1- *inadequate*, 2- *moderate*, 3 - *excellent*). Anchors for each
12
13 indicator facilitated the ratings. Observers had to comment on their ratings in a separate
14
15 column. Comments were discussed in subsequent team meetings. Inter-rater reliability for the
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17 BREVIS indicators was assessed in four double coding sessions. Two-way consistency,
18
19 single-measure intra-class correlations (ICC) with random effects were calculated. Average
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21 ICC was good (*mean ICC = 0.724, range = [0.563, 1]*), differential ICCs for the subscales
22
23 demonstrated moderate to excellent reliability. Cronbach's alphas showed moderate to good
24
25 internal consistency on dimension level (see Table 2). An overall good internal consistency
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27 ($\alpha = .80$) and moderate inter-correlations between the dimensions suggested that the BREVIS
28
29 reliably assessed distinct features of structural quality.
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35 [Table 2 near here]

36 37 38 *Process Quality*

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40 As a measure of process quality, we assessed dimensions of teacher-child interaction
41
42 quality by using the Classroom Assessment Scoring System Pre-K [CLASS] (La Paro,
43
44 Pianta, Hamre & Stuhlman, 2002). We considered only those dimensions of the CLASS that
45
46 were relevant to the objectives of BPs, i.e. supporting refugee children's socio-emotional
47
48 support and initial German language acquisition. The selected dimensions were "*positive*
49
50 *climate*" (e.g., relationships, positive affect), "*negative climate*" (e.g., punitive control,
51
52 disrespect), "*teacher sensitivity*" (e.g., awareness, responsiveness), "*behavior management*"
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54 (e.g., redirection of misbehavior, clear expectations), and "*productivity*" (e.g., preparation,
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56 transitions from one activity to another), and "*language modeling*" (e.g., frequent
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3 conversation, self- and parallel talk). We further added the dimension “*teacher involvement*”
4 suggested by Agache, Kohl, Bihler, Willard and Leyendecker (2018). Higher ratings on
5
6 *teacher involvement* indicated more active engagement and a higher extent of attention to the
7
8 children’s activities. The CLASS dimensions and *teacher involvement* were rated on scales
9
10 ranging from one to seven with “1” indicating low, “4” moderate, and “7” high teacher-child
11
12 interaction quality. One observer per BP conducted two observation cycles of 15 minutes
13
14 each. Internal consistency for the observations was good ($\alpha = .84$). The four CLASS
15
16 observers passed the official reliability test that is administered by CLASS authorities with
17
18 average rates for inter-rater agreements ranging from 80 to 94 percent, as compared to the
19
20 gold standard.
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26 *Statistical Analysis*

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29 Structural quality of BPs was examined based on the field observations using
30
31 BREVIS. Therefore, the BREVIS ratings were aggregated on indicator-level by frequency
32
33 across all observed BPs. Additionally, we computed arithmetic means, confidence intervals,
34
35 and ranks for each BREVIS indicator and calculated sum scores on dimension-level. Process
36
37 quality of BPs was analogously examined based on CLASS. We computed arithmetic means
38
39 for each CLASS dimension as well as the arithmetic mean for a second stratum score for
40
41 overall *social support* by summarizing ratings for the dimensions *positive climate*, *negative*
42
43 *climate*, *teacher sensitivity*, *behavior management*, and *productivity*. Moreover, we compared
44
45 the CLASS ratings for BPs to the ratings for childcare groups in state-subsidized daycare
46
47 centers. To investigate structural and process quality of different BP types (i.e., mobile
48
49 concepts, improvised settings, settings for childcare), aggregated BREVIS ratings on
50
51 dimension-level and the CLASS ratings were compared, separated by BP types.
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56 Interpretation of all inferential parameters followed two-sided testing with an alpha error
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58 level at 5 percent. Cohen’s *d* with pooled variances was additionally reported. All analyses
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and the graphical computation were run in R using default functions and optional packages, e.g. *foreign*, *ggplot2* (3.5.0; R Core Team, 2014).

Results

Structural Quality of Bridging Projects

We analyzed indicators of structural quality for 41 BPs using the BREVIS; one observation was incomplete and therefore excluded. *Quality of premises*, the first dimension of BREVIS, was overall sufficient for childcare. However, 38 percent of the observed groups lacked areas for relaxation, and 25 percent lacked adequate sanitary facilities. The second dimension on the quality of the *equipment* was, on average, sufficient for childcare but some groups (12%) lacked child-friendly furniture. For the third dimension, *structuring of a session*, observations indicated that a substantial number of groups had neither a clear structure (10%) nor repetitive elements such as routines, rituals or rules (18%). Overall, *team coherence* was good in all BPs except for one. Observations for the *educational materials* suggested that, in general, materials for joyful activities as well as materials to promote competencies in arts and crafts, language, and literacy were sufficiently available. However, several BPs lacked additional types of material, i.e., for quantitative reasoning (12%) and for language facilitation in multilingual settings (26%). Detailed results can be found in Table 3.

[Table 3 near here]

Process Quality of Bridging Projects

Process quality for refugee children was analyzed based on the CLASS observations in 41 BPs (excluding one field observation, for which data was incomplete). The socio-emotional dimensions (*positive climate*, *negative climate*, *teacher sensitivity*, *behavior management*, and *productivity*) were rated on the medium to high range. *Language modeling* was in the medium range. Ratings of *teacher involvement* revealed that staff in BPs was frequently engaged in activities with the children ($M = 5.07$; $SD = 1.16$; $Median = 5$; $Range =$

[3, 7]). Furthermore, we compared CLASS ratings of the BPs to groups in state-subsidized daycare centers (see Figure 1). On average, BPs showed a better teacher-child ratio, $t(227.96) = -9.44, p < .001, d = .99$. For the BPs, we found fewer *negative interactions* ($t(80.24) = 2.78, p < .01, d = 0.40$), higher *productivity* ($t(51.97) = 3.12, p < .01, d = .61$), and better *language modeling* ($t(48.81) = 3.86, p < .001, d = .88$). We found no differences for *positive climate*, *teacher sensitivity*, and *behavior management*. The second-stratum dimension, *social support*, was better for BPs than for daycare centers ($t(52.19) = 2.42, p < .05, d = .47$).

[Figure 1 near here]

Structural and Process Quality of the different Bridging Project Types

Our randomly drawn BP sample consisted of 14 BPs in formal settings for childcare, 22 BPs in improvised settings and five BPs with mobile concepts. Due to the small sample size, BPs with mobile concepts were not part of the inferential comparisons. Using the BREVIS on dimension-level, we analyzed structural quality separately for the different BP types (Table 4). Except for *equipment*, BPs in settings for childcare tended to have higher scores on structural quality dimensions when compared to those in improvised settings. The largest differences were observed for *structuring of a session*. Descriptively, BPs with mobile concepts consistently tended to have the lowest ratings on indicators of structural quality. For process quality, we analogously compared CLASS ratings and *teacher involvement* between BP types (Table 5). Dimensions of socio-emotional support did not differ between BPs in settings for childcare or improvised settings except for *productivity*. The dimension *language modeling* and *teacher involvement* did not reveal differences between the two types.

Descriptively, CLASS ratings tended to be slightly lower for BPs with mobile concepts.

[Table 4 near here]

[Table 5 near here]

Discussion

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3 As childcare-based interventions have the potential to promote young refugee
4 children's adjustment and positive development, there is a need for evidence on such
5 specialized intervention programs. The present study contributed to this research demand by
6 investigating the structural and process quality of childcare groups that were differently
7 implemented. While overall structural quality was moderate or better, we found variation
8 between the different implementation types. As can be expected, those groups located in
9 settings for childcare were most likely to provide good structural quality. Notably, process
10 quality was consistently high despite the implementation type, also when compared to regular
11 daycare centers. We discuss our findings and the overarching issue on how flexible childcare-
12 based interventions can differently meet the needs of newly arrived refugee children.
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26 ***Childcare Quality of Bridging Projects***

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28 On average, indicators of structural quality showed moderate to high quality of
29 childcare despite implementation differences. This finding suggests that organizers
30 effectively established BPs within different settings. Across most indicators, however,
31 structural quality varied between BP settings. While formal settings for childcare were likely
32 to provide higher overall structural quality, largest potential for overall improvements
33 concerned the *availability of relaxation areas*, the amount of *materials for quantitative*
34 *reasoning* and for *language facilitation*. Insufficient provision of materials as well as lacking
35 premises were more likely to occur in BPs with mobile concepts. To explain these findings,
36 mobile BPs are generally located in more challenging spots to administer childcare (e.g.,
37 caravans, playgrounds) and hence require additional efforts and resources to compensate
38 structural disadvantages. Moreover, largest variations were found on the dimension
39 *structuring of a session*. BPs in improvised settings were less likely to be organized
40 according to a curriculum and fixed schedules. Explanations for this lack of organization
41 could concern varying concepts between the different types of BPs or the additional amount
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3 of time that is frequently needed beforehand to prepare a location for BPs in improvised
4 settings or with mobile concepts. Alternatively, variations in *structuring of a session* could
5 also suggest that childcare teachers had little experience in creating childcare concepts for
6 refugee families, especially in challenging settings, as they had recently started working with
7 this specific group and mostly did not receive specific trainings (Park, Katsiaficas &
8 McHugh, 2018).

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17 Contrary to the findings on structural quality, achieving high process quality did not
18 require a specific implementation setting. BPs consistently yielded moderate to high process
19 quality (in socio-emotional and language-related dimensions) that was comparable to the
20 process quality found in state-subsidized daycare centers. Our data provided explanatory
21 approaches to these findings, as BPs demonstrated a good teacher-child ratio with small
22 groups and high involvement of childcare teachers. Moreover, BPs offered only a lower
23 dosage of childcare, typically only a few times per week. As high process quality is
24 associated with lower socio-emotional problems and predicts group participation and early
25 achievement (Ladd, Birch & Buhs, 1999), young refugee children are likely to directly
26 benefit from all types of BPs in terms of their socio-emotional needs. Furthermore, high
27 process quality in BPs can also facilitate building trustful relationships with refugee families
28 (Poureslami, Nimmon, Ng, Cho, Foster & Hertzman, 2015). Hence, despite diverse forms of
29 implementation, BPs demonstrate the potential to promote refugee children's adjustment and
30 to ease their transitions into early education and social services.

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49 Notably, teacher-child interactions regarding the dimension of *productivity* (i.e.,
50 establishing and enforcing routines and effective transitions between activities), were less
51 enforced in improvised settings. There are two, not exclusive, interpretations. First, BPs in
52 improvised settings had more dynamic and open concepts and intentionally put less emphasis
53 on *productivity*. Additional data on childcare rationales and goals in the different settings of
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3 BPs could substantiate this idea. Second, such BPs had more difficulties retaining families for
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5 a longer period of time, i.e. new children and families continuously need to learn routines and
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7 activities within the group. The second interpretation is consistent with previously identified
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9 challenges in BPs, namely infrequent attendance, tardiness, and fluctuation of refugee
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11 children in childcare groups (Busch et al., 2018).
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14 ***Flexible Childcare-Based Interventions for newly arrived Refugee Children***

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17 Given the few guidelines for the BPs, we generally assumed that implementation
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19 varieties of BPs to some extent reflected organizers' experiences and the refugee families'
20
21 needs in local resettlement contexts. Overall, our findings demonstrated that organizers
22
23 achieved at least moderate quality for childcare-based interventions, even in diverse
24
25 implementation settings, while at the same time structural quality varied across such settings.
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27 Taken together, major differences between BPs in formal settings for childcare and
28
29 improvised settings concerned the establishment of a temporal framework, predictable
30
31 procedures and the continuous enforcement of routines and rituals (as reflected in BREVIS,
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33 *structuring of a session*; CLASS, *productivity*). 'Establishing flexible routines' was
34
35 consistently described by Swedish childcare teachers as a strategy for successfully
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37 transitioning refugee children into daycare centers (Lunneblad, 2017). Joint evidence
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39 suggests that a specific challenge for childcare-based interventions is keeping the balance
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41 between establishing routines as well as structure and reacting flexibly to the individual needs
42
43 of the refugee families. Amidst these potentially conflicting priorities, the diverse BPs
44
45 yielded to be less standardized, and to not consistently adhere to the structural quality
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47 standards of state-subsidized daycare centers. All BPs, however, consistently set a strong
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49 focus on specific needs of refugee children through high process quality (i.e., socio-emotional
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51 support and language acquisition).
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3 With regard to the conflicting priorities, it is questionable whether high structural
4 quality is equally important for all BPs, i.e. for the different types of implementation.
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6 Structural quality, especially learning routines, might be more relevant for those BPs, which
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8 bridge a pending demand for transitional childcare services, such as the pre-school year,
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10 when daycare centers are already filled to capacity. Without such preparatory BPs, most
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12 refugee children would not have any access to early transitioning programs before entering
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14 school. However, refugee children require special support during that age as they adjust to
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16 new socio-cultural environments after resettlement and must reach school readiness at the
17
18 same time (Picchio & Mayer, 2019). Conversely, structural quality of BPs in improvised
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20 settings and mobile concepts might be less relevant due to different conceptions. Those BPs
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22 are more often flexibly placed in close proximity to the refugee families' housing
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24 arrangements. Hence, they can better establish initial contact. With less focus on maintaining
25
26 higher structural quality and establishing routines, they can better overcome access barriers
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28 and allow for more active approach strategies for refugee families, e.g., in case of
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30 information deficits or cultural restraints by the families (Quintero, 1999; Morantz, Rousseau,
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32 Banerji, Martin & Heymann, 2013). Moreover, BPs in improvised settings and with mobile
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34 concepts are better able to flexibly react to sudden changes (e.g., after relocation of families),
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36 or to urgent demands by children or families.
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44 ***Limitations and Future Research***

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47 Some methodological challenges should be considered for the interpretation of our
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49 results. For sampling, we did not use an intentional stratification strategy to investigate
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51 childcare quality in diverse BPs. In consequence, the sample was imbalanced across the
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53 implementation types. Generalization of the findings on the differences hence need further
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55 evidence. Due to the diversity of BPs, we generated an observation tool for structural quality
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57 (BREVIS). Even though this tool follows established theory and operationalizations on
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3 childcare quality, it requires validation in subsequent studies on diverse childcare for refugee
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5 children. For instance, it is to clarify how BREVIS can directly predict refugee children's
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7 development and learning outcomes. For process quality, the selected CLASS dimensions
8
9 narrow the focus on socio-emotional support and language modeling in BPs. These
10
11 dimensions seem sufficiently addressed, irrespective of the implementation type. However,
12
13 some BPs in formal settings for childcare are likely to also address instructional-oriented
14
15 support as findings on the educational materials suggest. Even though specialized childcare
16
17 quality presumably has an influence on child outcomes, this link is still to be investigated for
18
19 newly arrived refugee children. Subsequent studies need to assess the effects of specialized
20
21 childcare-based interventions on socio-emotional development and language acquisition of
22
23 young refugee children and, also, to relate such findings to implementation types and
24
25 childcare quality. Even though BPs were differently implemented regarding the local
26
27 circumstances and needs, we do not have further information on rationales of the BPs'
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29 conceptualizations, context-related premises and challenges. Based on our findings, the
30
31 different implementation types of BPs could also provide a promising starting point to further
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33 elucidate these issues. In sum, future investigations are needed to add critical evidence on the
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35 development and implementation of childcare-based interventions for young refugee children
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37 worldwide.
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44 ***Conclusion***

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47 The present study provided insight into implementation varieties and quality of a
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49 specialized childcare program for newly arrived refugee children in Germany. Since 2015,
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51 the BP policy has enabled local stakeholders to establish flexible childcare groups for refugee
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53 families. On the one hand, childcare-based interventions with sufficient quality do not per se
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55 require formal settings for childcare, as the BPs adapt to the specific needs as well as living
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57 circumstances of refugee children with at least moderate structural and overall good process
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quality. On the other hand, BPs do not generally provide an alternative to childcare services that are routinely provided at daycare centers. However, the strength of such childcare-based interventions for refugee families is that they can offer flexible solutions for precarious after-resettlement contexts, are more easily accessible for the target group, and partly provide transitional services in times of overall stretched capacities in national childcare.

Research evidence on the BP program should sensitize and inspire childcare stakeholders in refugee-hosting countries to set up early actions against a growing educational crisis among young refugee children – an issue that may begin to gradually take hold during early childhood.

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CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

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CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

1

Table 1

Different Types of Bridging Projects according to their Implementation Settings

Type	Rationale	Setting	Examples
Settings for childcare	<i>Located in pedagogic institutions</i>	Facilities of early education	Daycare centers Preschools
		Facilities of primary education	Elementary schools
Improvised settings	<i>Located in local and non-pedagogic institutions</i>	Neighborhood centers	Parish rooms Community centers Municipal libraries
		Refugee centers	Refugee residences Asylum camps
Mobile concepts (moving)	<i>Located in newly-created and provisional areas</i>	Outside areas	Parks Playgrounds
		Temporary facilities	Converted caravans Tents

Note. As flexibly administered by local stakeholders, Bridging Projects were implemented in different settings in accordance with the local premises.

CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

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Table 2

Intercorrelations for the 'Bridging Project Evaluation Scale'

BREVIS dimension	1	2	3	4	5	ICC	α
Premises (1)	-					.50	.71
Equipment (2)	.73*	-				1	.75
Structuring of a session (3)	.40	.11	-			0.95	.80
Team coherence (4)	.52*	.44	.52*	-		0.67	.74
Educational materials (5)	.45*	.52*	.36	.31	-	0.69	.77

Note. Method is Spearman rank correlation; $N=41$; ICC = mean rating reliability per subscale according to intraclass correlations (two-way, consistency, single); internal consistency per dimension is assessed via Cronbach's alpha (α).

* $p_{adj} < .05$

CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

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Table 3
 Structural quality according to the 'Bridging Project Evaluation Scale'

BREVIS dimension	Inadequate (%)	Moderate (%)	Excellent (%)	Mean	95% CI	Rank
<i>Premises</i>				1.43	[1.32, 1.55]	
Lighting	0	7.50	92.50	1.93	[1.84, 2.01]	1
Indoor Climate	4.88	19.51	75.61	1.71	[1.53, 1.88]	4
Cleanliness	2.44	36.59	60.98	1.59	[1.41, 1.76]	9.5
Cond. of Indoor Area ^a	0	48.78	51.22	1.51	[1.35, 1.67]	13
Cond. of Outdoor Area	10.00	37.50	52.50	1.43	[1.21, 1.64]	15
Space for Children	12.20	43.90	43.90	1.32	[1.10, 1.53]	18
Cond. of Sanitary Facilities	25.64	38.46	35.90	1.10	[0.85, 1.36]	22
Relaxation Area	37.50	35.00	27.50	0.90	[0.64, 1.16]	24
<i>Equipment</i>				1.54	[1.43, 1.65]	
Interior Equipment	2.44	31.71	65.85	1.63	[1.47, 1.80]	7.5
Child-Friendly Furniture	12.20	19.51	68.29	1.56	[1.34, 1.79]	11.5
Cond. of Furniture ^a	0	43.90	56.10	1.56	[1.40, 1.72]	11.5
Safety of Furniture	0	60.98	39.02	1.39	[1.23, 1.55]	17
<i>Structuring of a Session</i>				1.36	[1.17, 1.55]	
Beginning Session	7.69	38.46	53.85	1.46	[1.20, 1.72]	14
Structure of Daily Routine	10.26	38.46	51.28	1.41	[1.19, 1.63]	16
Ending Session	19.23	30.77	50.00	1.31	[0.99, 1.63]	19
Routine/ Rituals/ Rules	18.42	39.47	42.11	1.24	[0.99, 1.48]	20

CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

4

Continuation of Table 3

Structural Quality according to the 'Bridging Project Evaluation Scale'

BREVIS dimension	Inadequate (%)	Moderate (%)	Excellent (%)	Mean	95% CI	Rank
<i>Team Coherence</i>				1.71	[1.55, 1.88]	
Atmosphere within Team	0	16.65	82.35	1.82	[1.69, 1.96]	3
Cooperation of Staff	2.86	28.57	68.57	1.66	[1.47, 1.84]	6
<i>Educational Materials</i>				1.48	[1.36, 1.61]	
Toys	0.00	17.07	82.93	1.83	[1.71, 1.95]	2
Language Support	7.32	19.51	73.17	1.66	[1.46, 1.85]	5
Artistic Activities	2.44	31.71	65.85	1.63	[1.47, 1.80]	7.5
Fine Motor Skills	4.89	31.71	63.42	1.59	[1.40, 1.77]	9.5
Quantitative Reasoning	12.20	60.98	26.83	1.15	[0.95, 1.34]	21
Language Facilitation ^b	25.64	46.15	28.21	1.03	[0.79, 1.27]	23

Note. Relative proportions of categorical quality evaluations ($N = 41$); descending ranks (R), arithmetic means and 95% confidence intervals (95% CI) are based on sum scores per indicator (*Inadequate* = 0, *Moderate* = 1, *Excellent* = 2); average sum scores and 95% CIs are additionally given for each dimension.

^a Cond., Conditions

^b Overcoming barriers in communication (e.g., through pictograms/ symbols/ pictures)

CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

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Table 4
*Structural Quality according to the 'Bridging Project Evaluation Scale' divided by
 Implementation Type*

BREVIS dimension	Mobile ^a	Improv	Formal	Improv vs. Formal			<i>d</i>
	(<i>n</i> = 5)	(<i>n</i> = 22)	(<i>n</i> = 14)	<i>df</i>	<i>t</i>	<i>p</i>	
Premises	.74 (.31)	1.45 (.24)	1.66 (.24)	27.54	-2.60	.015*	.89
Equipment	1.05 (.21)	1.57 (.35)	1.66 (.25)	33.28	-0.93	.361	.30
Structuring of a session	.83 (1.04)	1.18 (.51)	1.74 (.39)	32.70	-3.71	.001*	1.19
Team coherence	1.20 (.76)	1.69 (.43)	1.96 (.14)	22.36	-2.43	.023*	.77
Educational materials	1.30 (.65)	1.42 (.41)	1.66 (.20)	32.47	-2.33	.026*	.69

Note. Arithmetic means (standard deviations) per subscale for each implementation type (*inadequate* = 0, *moderate* = 1, *excellent* = 2); Welch-Test is used due to variance heterogeneity; *n* = 41; abbreviations for different types of Bridging Projects are mobile concepts (*Mobile*), improvised settings (*Improv*), formal settings for childcare (*Formal*)

^a Groups with mobile concepts are not considered in inferential testing due to the small subsample

* *p* < .05

CHILDCARE-BASED INTERVENTIONS FOR YOUNG REFUGEE CHILDREN

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Table 5

Process Quality according to the 'Classroom Assessment Scoring System Pre-K' divided by Implementation Type

	Mobile ^a (<i>n</i> = 5)	Improv (<i>n</i> = 22)	Formal (<i>n</i> = 14)	Improv vs. Formal			
				<i>df</i>	<i>t</i>	<i>p</i>	<i>d</i>
CLASS dimension							
Positive climate	5.70 (1.61)	6.18 (0.89)	6.14 (0.84)	29.07	.13	.896	.05
Negative climate	6.90 (0.22)	6.84 (0.28)	6.89 (0.21)	32.95	-.63	.536	.20
Teacher sensitivity	5.10 (0.89)	5.64 (1.05)	6.00 (0.62)	33.89	-1.31	.200	.40
Behavior management	5.20 (1.35)	5.66 (1.08)	6.18 (1.05)	28.53	-1.43	.164	.49
Productivity	5.50 (1.47)	5.21 (1.35)	6.07 (0.65)	30.50	-2.50	.018*	.76
<i>Social support</i>	<i>5.95 (0.58)</i>	<i>5.89 (0.77)</i>	<i>6.26 (0.47)</i>	<i>32.77</i>	<i>-1.75</i>	<i>.090</i>	<i>.55</i>
Language modeling	3.10 (1.39)	3.61 (1.32)	3.96 (1.42)	26.26	-.74	.464	.26
Teacher involvement	4.40 (1.25)	5.09 (1.24)	5.61 (0.92)	33.03	-1.43	.163	.46

Note. Arithmetic means (standard deviations) per subscale (*lowest* = 1, *medium* = 4, *highest* = 7) for each implementation type; Welch-Test is used due to variance heterogeneity; *n* = 41; abbreviations for different types of Bridging Projects are mobile concepts (*Mobile*), improvised settings (*Improv*), formal settings for childcare (*Formal*)

^a Groups with mobile concepts are not considered in inferential testing due to the small subsample

* $p_{adj} < .05$

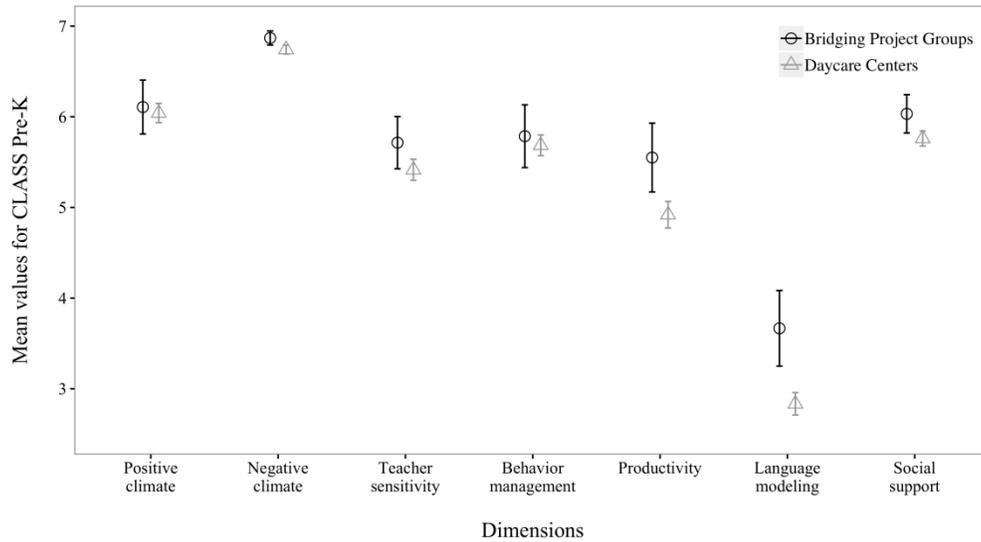


Figure 1
 Ratings for the 'Classroom Assessment Scoring System Pre-K' in Bridging Projects and Childcare Groups in state-subsidized Daycare Centers

Note. Mean aggregated CLASS ratings for Bridging Projects (n1 = 41) and childcare groups in state-subsidized daycare centers in NRW (n2 = 177) with 95% confidence interval; second stratum dimension social support is a higher-order summation scale. Negative climate was inverted for concordant interpretation, i.e., high ratings indicate less expressed negativity.

1270x705mm (72 x 72 DPI)

6. Discussion

Even though infants and young children are the least involved population regarding the roots of forced displacement, it has large impact on their developmental sequelae. The present dissertation is the first comprehensive work on how to create childcare-based interventions for young refugee children within ecological systems of high-income countries. In the first issue, we investigated early learning and mental distress of young refugee children within specialized intervention groups that were settled in education contexts. While we found strong evidence for persistent social and behavior problems, gains in societal language skills and cognitive skills were observed over the course of attendance of a childcare-based intervention. In the second issue, the specific demands of working with young refugee children within the specialized intervention program were examined. Challenges (e.g. communication barriers, interpersonal stress) and potential solutions (e.g. involve parents, provide predictability) were identified based on the practitioners' experiences. Subsequently, varieties in the implementation of a childcare-based intervention program for refugee children were explored. As the settings of implementation are diverse, they demonstrate the potential to flexibly reach refugee families after resettlement and to overcome access barriers.

Overall, the present dissertation demonstrated that forced displacement threatens positive development as well as mental health trajectories of young refugee children residing in high-income countries. Hence, strategies for efficiently mitigating negative effects of forced displacement are urgently needed. The first issue addressed this overarching research goal on child-level (i.e., assessments of newly arrived refugee children) while the second issue subsumed investigations on intervention-level (i.e., data about a specialized intervention program for young refugee children in Germany). In the following parts, evidence on the two issues are described separately and are then jointly discussed in a synthesis. We conclude with evidence-based recommendations on early interventions for young refugee children and, lastly, outline future research directions.

6.1 Issue 1: Understanding the effects of forced displacement on young refugee children resettled in high-income countries

While refugee families have diverse experiences during pre- and peri-migration periods, all families must cope with similar post-migration living difficulties after resettlement including psychological and socio-cultural adjustment to foreign livelihoods (Laban et al., 2005; Searle & Ward, 1990). Childcare-based interventions that are settled in education

contexts of high-income countries are challenging ecologies for newly arrived refugee families as they are socio-culturally embedded within the societal systems of the host country (Busch & Leyendecker, in press; Picchio & Mayer, 2019). Few is yet known about the mental health and pre-academic needs of young refugee children in such contexts after resettlement. Therefore, evidence on the first issue informs about socio-emotional distress and pre-academic skills of preschool age refugee children. The two studies, which addressed the first issue, consistently found increased symptom levels for externalizing problems (e.g., conduct problems, hyperactivity/attention problems, peer relationship problems) but not for internalizing problems. Similar mental health patterns were found for refugee children irrespective of their region of origin (e.g., from war-zones or non-war zones). Such universal patterns might reflect the specific demands that put post-resettlement stressors and adjustment efforts within early education contexts to all newly arrived refugee children. However, results are exclusively based on teacher reports. While some evidence suggested that teacher ratings have a high external validity for education contexts (Becker, Woerner, Hasselhorn, Banachewski & Rothenberger, 2004), one study on the mental health of young refugee children discussed rating tendencies for childcare teachers based on its findings (Buchmüller, Lembcke, Busch, Kumsta & Leyendecker, 2018). In that study, childcare teachers were more likely to report externalizing problems for the refugee children, while parents tended to report more internalizing problems. Assessing the mental health of refugee children in education contexts using teacher reports hence requires consideration of two potential sources of bias. First, the education contexts might more strongly promote the manifestation of externalizing behavior problems. Second, cultural and language barriers between childcare teachers and refugee children might increase the risk to overlook less salient symptoms, such as internalizing symptoms.

To date, no study has yet investigated pre-academic skills of young refugee children (Graham, Minhas & Paxton, 2016). However, having low levels of pre-academic skills could, firstly, contribute to symptoms of mental distress due to maladjustment to education contexts and, secondly, threaten longer-term positive development (Bornstein, Hahn & Haynes, 2010). Consistent to our expectations, assessments of pre-academic skills of refugee children after resettlement demonstrated very low levels of societal receptive language skills and cognitive skills, while psychomotor skills were on normal levels. Few previous experiences with non-parental early childhood education, displacement-related experiences of deprivation, threat or

chaos and the specific set of skills that was required from the young refugee children by the foreign socio-cultural environment were hypothesized to account for the assessment results.

Beyond the state of mental distress and pre-academic skills after resettlement, we studied short-term trajectories over the course of early education attendance. Contrary to our expectations, externalizing behavior problems remained on high symptom levels or further increased within six months after resettlement. Analyzing children's time since arrival in Germany further substantiates this notion that mental distress is likely to persist. While refugee children in the study samples varied in their time since arrival, we consistently found the increased symptom levels for their externalizing behavior in our samples (Buchmüller, Lembcke, Ialuna, Busch & Leyendecker, 2019). Additionally, we found higher mental distress for those refugee children during BP attendance who had arrived earlier in Germany (Busch, Buchmüller, Ialuna, Cabrera & Leyendecker, under review). Moreover, findings on pre-academic skills were consistent to our expectations. Receptive language skills and cognitive skills improved but were still on low levels compared to non-refugee children after six months of attending early education. There was no change in psychomotor skills. In line with our findings and the demanding environments after forced displacement, a previous study substantiated chaos composites of early childhood ecologies to impede language development (Vernon-Feagans, Garrett-Peters, Willoughby & Mills-Koonce, 2012). Consistently, another study associated lower levels of cognitive performance with the children's distal exposure to community violence (McCoy, Raver & Sharkey, 2015). As our study is among the first that investigated learning trajectories of preschool age refugee children, however, we need further evidence on how to relate pre-academic skills to specific mediators of forced displacement. Identifying such specific risk factors is particularly important because evidence from longitudinal studies on other children at-risk suggested that gaps in early education can have negative cascading effects on their developmental pathways (Bornstein, Hahn & Haynes, 2010; Welsh, Nix, Blair, Bierman & Nelson, 2010).

Mental health after forced displacement can be simultaneously considered as an outcome, as a precondition for psychological adjustment and as a determinant of academic achievement. Hence, studying conjunctions of pre-academic skills and mental distress of young refugee children in education contexts after resettlement contributes to identify potential starting points for need-oriented early interventions in terms of their multilateral effects. As consistent to overall findings on this issue, symptoms of hyperactivity/inattention constituted a focal point

for children's mental distress in early education and, additionally, demonstrated links to pre-academic skills. We can only speculate on the reasons for these association patterns since this is the first study that links learning outcomes to socio-emotional distress in young refugee children. First, the finding might reflect processes of adjustment which are required when transitioning into early education of a foreign socio-cultural system (Picchio & Mayer, 2019). Second, experiences of early life stress that are linked to forced displacement might alter the development of neurophysiological mechanisms during early childhood. As such alterations were associated with emotion regulation, memory and executive functioning, stressful experiences affect early learning and mental distress (Chugani et al., 2001; Hart & Rubia, 2012; Pechtel & Pizzagalli, 2011). However, both interpretations are not exclusive. While adjustment processes might predominately take effect in short-term and are mutable, neuropsychological alterations might have longer-term effects and are more profound. Moreover, interaction effects of adjustment with neuropsychological alterations are to be expected from an ecological perspective.

6.1.1 Limitations. The study designs that were used in the present dissertation to investigate mental distress and pre-academic skills of refugee children have conceptual and methodological limitations. Assessments of mental distress were exclusively based on teacher reports. Beyond biases of culture, language and context, the rater's attitudes, prejudices and stereotypes might have influenced their assessments. We found first evidence for this hypothesis in an ongoing project by our research group on the validity of mental health assessments for refugee children in daycare centers (project "WONKI": well-being of refugee children in German daycare centers; J. Busch, A. Heithausen, K. Kiefer & B. Leyendecker). Moreover, only two foreign-report instruments were used for the assessments of mental distress in the presented studies, the Strength and Difficulties Questionnaire and the Child Behavior Checklist (both in teacher report form; Achenbach, 1999; Goodman, 1997). As the two instruments have been widely used in culturally diverse populations, psychometric invariances and factor structures of both have been repeatedly discussed (Achenbach et al., 2008; Woerner et al., 2008). It is also important to mention that the described investigations used norm data from Western populations to achieve study findings, i.e. applying to some degree cross-cultural group comparisons. Moreover, young refugee children were combined into one group even though they in fact demonstrate a highly heterogeneous group. Consequences of such methodological choices are important to consider when examining the external validity of our study findings. Further challenges existed for assessments of the pre-academic skills. The

applied measures were originally designed for Western populations who overall share more similar experiences during early childhood within distinct socio-cultural environments. Despite forced displacement, subgroups of the diverse refugee population might have differing previous experiences with the activities and practices of early education. Hence, conducting such assessments to diverse refugee children threatens the internal validity of our findings.

6.2 Issue 2: Creating early interventions for forcibly displaced children in high-income countries

Although it was demonstrated that childcare-based interventions efficiently promote academic achievement and mental health of young children at-risk (Campbell, Ramey, Pungello, Sparling & Miller-Johnson, 2002; Temple & Reynolds, 2007), little is known about how to adapt such interventions to the specific needs of young refugee children in after-resettlement contexts. The second issue therefore focused on childcare-based interventions geared towards this target group. We found large varieties in the implementation of state-funded early intervention groups for refugee children after resettlement in NRW, Germany. Structural quality varied systematically between the groups which were established in improvised settings, formal settings for childcare or in mobile concepts. At the same time, process quality was consistently on middle to high quality across all types of implementation. The large variety of the groups suggested different intervention goals. In improvised settings the staff was better able to approach refugee families and to inform about social services as well as about the significance, opportunities and practices of early education in Germany. Intervention groups settled in settings for childcare had the potential to prepare refugee children for transitions into regular early education. However, inferences were based merely on interpretation with regard to the settings of implementation, structural and process quality characteristics as well as the teachers' experiences as we did not explicitly survey the intervention goals. Nevertheless, the implementation varieties demonstrated a range of potential intervention strategies targeted at young refugee children after resettlement. Overall, our findings are in line with a study that investigated state-of-the-art measures for fostering positive development and well-being of refugee children (Ager et al., 2010). That study group found education, community integration and strengthening of the family system as the major determinants of effective specialized interventions for refugee children.

Consistent with the implementation varieties, we found a range of different challenges reported by service providers regarding the childcare-based interventions with refugee

families. These were assigned to the four categories *interpersonal stress* (e.g., conflicts), *feasibility and attendance* (e.g., high fluctuation, irregular participation), *cultural and communication barriers* (e.g., language barrier, parents' expectations), and *structural features of a childcare group* (e.g. resources, different ages of children). Allowing flexibility and adaptation in early interventions facilitates mastering the specific challenges of working with newly arrived refugee families. Liberal funding guidelines, such as the BP policy, hence provides an adequate foundation for flexibly setting up early interventions. Despite their implementation varieties, the BPs unite in their ambition to provide newly arrived refugee families with initial contact to early education after-resettlement. This ambition is consistent with previous suggestions on good-practice in specialized childcare with refugee children, i.e. to set up transitional services in order to overcome access barriers and to better reach the refugee families (Morantz, Rousseau, Banerji, Martin & Heymann, 2013; Poureslami, Nimmon, Ng, Cho, Foster & Hertzman, 2013). As demonstrated by our investigations, BPs therefore flexibly adapted to post-resettlement environments and the specific needs of the target group. However, our findings also demonstrated that early intervention groups cannot compensate for regular forms of early education in Germany (e.g., daycare centers, preschools) due to their overall low dosage, shorter terms, non-inclusive set-ups and little standardization. Thus, they are not fully in line with guidelines for general early education services proposed by state authorities in NRW (MKFFI, 2016). Overall, such state guidelines reflect state-of-the-art research on the determinants of positive development during early childhood in non-parental education and care. For instance, the intensity and overall quality of early education is linked to better gains especially for children at-risk (Burchinal, Vandergrift, Pianta & Mashburn, 2010; Crosby, Dowsett, Gennetian & Huston, 2010; Howes et al., 2008; Kohl, Willard, Agache, Bihler & Leyendecker, 2019). Moreover, dual language learners had better gains in the societal language skills in early education where the majority uses the societal language (Paradis & Jia, 2017). This cannot be achieved in linguistically diverse groups that were exclusively for refugee children. Overall, childcare-based intervention groups based on the BP policy should be considered more as transitional rather than compensatory services for a specific target group.

While in our investigation the childcare-based intervention groups were classified regarding their setting of implementation, preparation for the transition into regular programs of early education or into primary school might have been an additionally useful scheme to systemize the BPs. Interestingly, the service providers of BPs consistently did not mention the

support for transitions of refugee children into regular early education as a distinct challenge. This could be explained by two facts. First, by the time of data collection in 2016 to 2017 it was almost impossible for refugee families to find a place in regular services for early education as these were filled to capacities. Second, based on findings on the pre-academic skills and mental distress of refugee children in the present dissertation, the practitioners might have proposed that refugee children firstly need to acquire some basic skills before their transition can be considered.

In sum, creating early interventions for refugee children in high-income countries is challenging from two perspectives. First, specialized interventions are required to meet the specific pre-academic and mental health needs of young refugee children after resettlement that were revealed in the first issue. Second, the specialized interventions require access to and embeddedness into the societal practices of early education in high-income countries. That is, tearing down persisting access barriers for refugee families, and at the same time planning transitions into the regular early education services in order to achieve the optimal support for young refugee children (i.e. to promote adjustment and positive development).

6.2.1 Limitations. The investigations on the second issue have some notable limitations. We explored varieties in the implementation of specialized early interventions, their structural as well as process quality, and identified emerging challenges and solutions. However, studying the efficacy or effectiveness of the implementation would have required additional data for validation, especially on the child-level. Moreover, the presented investigations were limited to childcare-based intervention groups that were established under the same policy and within a single state of Germany. Notably, this state has a long history of immigration. Generalization of findings to the development of early interventions in different societal contexts hence needs caution. Another caveat concerns the variety of methods, including the self-designed measures. Our research group created a questionnaire for assessing challenges of early interventions with refugee children and a structured observation tool for assessing structural quality of groups. Even though we adhered to scientific standards when creating the measures, psychometric criteria, especially regarding the measures' validity, need further examination. In sum, the evidence that was provided on the second issue is explorative in nature. While it has the potential to inform policy, subsequent studies are needed to validate and extend our initial findings.

6.3 Synthesis

The present dissertation makes important contributions to psychological research on refugee children in three regards. First, previous research has set a strong focus on psychopathology while childhood development is still understudied. Our investigations add evidence to this outcome domain, which is relevant for processes of integration after forced displacement in early childhood. Second, studying young refugee children in settings of early education of high-income countries is rare. Although such investigations are urgently needed due to their potential for early intervention planning and the adaptation of education contexts, the few available studies (Hurley, Medici, Stewart & Cohen, 2011; Hurley, Warren, Habalow, Weber & Tousignant, 2014; Lunneblad, 2017) have strong limitations for generalization. Third, investigating young refugee children as embedded in a specific ecology, i.e. within education contexts of a high-income country, is better suited to inform about children's specific needs. In sum, issues of the present dissertation revealed the pre-academic and mental health needs of young refugee children after resettlement and the implementation strategies of a state-funded early intervention program that is targeted at refugee children residing in a high-income country. In the last part, we embed the findings into existing literature, highlight the implications for theory building on the effects of forced displacement as well as early intervention planning and outline future directions for research.

6.3.1 Effects of forced displacement after resettlement: adjustment to culturally-embedded early education. Findings of the present dissertation direct attention to the post-migration experiences of young children who experienced forced displacement to a high-income country. Most countries from which refugees originate differ from high-income countries in terms of demographic (e.g., ethnic composition), educational (e.g., literacy rates), governmental (e.g., welfare system) and economic conditions (e.g., lower GDPs per capita). Thus, for refugee families arriving in high-income countries often means transitioning into new environments with foreign social, economic, and cultural constraints as well as opportunities. According to the ecological framework used in the present dissertation, we hence argue that studying the interplay between refugee children and the different contexts they encounter is the most appropriate approach to understand their development and adjustment processes after resettlement (e.g., Bronfenbrenner, 1985). Early education services for newly arrived refugee children have the potential to foster their development and prepare them for the specific socio-cultural environments of the country of resettlement. Our investigations converge with

previous evidence (e.g., Hurley et al., 2013) as they suggest contexts of early education in high income countries to be demanding to newly arrived refugee children. The home environment of refugee families and early education contexts are likely to provide conflicting experiences due to cultural incongruencies in child rearing (Busch & Leyendecker, in press). While attending early education, both ecologies provide distinctive settings for childhood development as the psychology of caretakers, the physical environments and child rearing customs bear risks for conflicting practices (Super & Harkness, 1986). While the parental caregivers convey practices and values from their home country, the host countries' childcare practices in early education are functionally embedded in the residential systems of child rearing and reflect the customs, attitudes, and also existential obligations (i.e., work, living conditions) of the residential society (Greenfield et al. 2003; LeVine, 1977). Early education in Western societies sets focus on promoting adjustment to school-like settings and activities, and on encouraging the development of self-regulation, self-directed learning, autonomy and independence. Moreover, children attending early education acquire foundational academic skills and improve their social and communicative abilities (Hair, 2006; National Association for the Education of Young Children, 2009). Hence, the enrolment of recently arrived refugee children into early education of a new country is considered as a double transition which provides important chances to the children but, at the same time, puts also specific demands to them (Picchio & Mayer, 2019).

Novelties in the presented investigations were to monitor the state and trajectories of mental distress within a specific environment after resettlement, i.e. education contexts, using a relatively short time interval. Thus, findings have the potential to contribute to theory-building about adjustment processes of young refugee children to this specific context after resettlement. The increased levels of mental distress that we consistently found in several investigations of the present dissertation might not be exclusively attributable to the adverse experiences before resettlement, but also to transitions and experiences during the post-migration period such as the attendance of early education. This idea is further substantiated by two specific findings. First, results yielded a null effect for differences in mental health patterns between forcibly displaced refugee children who either primarily experienced threat or experienced deprivation. Second, we found persisting and, to some extent, increasing levels of external behavior problems for refugee children after resettlement while attending early education for six months. However, our results also yielded large variations in the after-resettlement trajectories but we were not able to further analyze subgroups within our sample

due to the small sample size. Such varieties in mental distress were previously found for war-affected children (Betancourt, 2013). In that study, the different trajectories were linked to adverse experiences on individual, family or community levels. Consistently, the multidirectional changes in our investigations suggest interactional effects of mediators of forced displacement. The expected context adjustment, reflected by an overall decrease in mental distress within six months, could have been impeded by adverse experiences linked to forced displacement. Specifically, the extent of adverse events presumably influences refugee children's individual capacities to cope with the demands of education contexts. This hypothesis is inspired by studies on cumulative stress exposure (i.e. allostatic load theory; Evans & Kim, 2012), and child X environment models on early school adjustment (Ladd, Birch & Buhs, 1999). Child X environment models propose that entry factors attributable to the child and the child's rearing environments influence the adjustment processes within education contexts. Adjustment processes become subsequently evident on behavior level, e.g. in classroom participation and in pre-academic achievement. According to this concept, important mediators for adjustment processes are the quality of peer relationships and teacher-child interactions. Moreover, allostatic load theory proposes that prolonged exposure to cumulative risks during early childhood increases intra-personal dysregulation and thus impedes capacities of adjustment. As young refugee children endure cumulative risk-exposure during forced displacement, they are likely to develop higher allostatic loads. Based on our evidence, for those refugee children with negative trajectories after six months of early education attendance we hypothesize a negative influence of forced displacement, via higher allostatic loads, on adjustment processes to the demands of early education contexts. As predicted by child X environment models, consistently, peer relationship problems were on the highest levels amongst all mental distress issues (cf. Busch et al., under review).

In sum, effects of forced displacement on refugee children are not limited to adverse experiences around the migration process. Entering foreign ecologies such as early education in high-income countries exposes refugee children to alternative socio-cultural environments, which require additional processes of adjustment and, potentially, pose conflicting influences on children's socialization. Allostatic load due to adverse experiences supposedly determines the personal capacities for successful adjustment and for navigating conflicting environments.

6.3.2 Development of early interventions for refugee children in high-income countries. The second issue of the present dissertation contributes on how to develop early interventions for refugee children in high-income countries. Therefore, a state-funded childcare-based intervention program that aimed at young refugee children was under investigation. Evidently, this program provided adaptive early interventions to refugee children and families after resettlement. Our studies demonstrated that in all intervention groups a high process quality and overall sufficient structural quality for childcare was achieved despite the different settings of implementation. Moreover, challenges and solutions that emerged within the program were identified. Based on the acquired evidence, we discuss two pending research questions for specialized intervention planning. First, *what constitutes good-practice in early interventions for young refugee children in after-resettlement environments of high-income countries?* Second, *how can such early interventions be embedded within the ecological systems of refugee children residing in high-income countries?*

Classification of intervention groups, as part of our investigations, suggested that there is no ‘one-size-fits-all’ for the development of early interventions that are targeted at refugee children. Consistent to the implementation varieties, we assume different intervention goals. While some intervention groups established contact to refugee families after resettlement, e.g. via active approaching in refugee accommodations, other groups that are settled in settings of education prepare refugee children for transitions into regular early education services or primary schools. This is discussed in greater detail elsewhere (Busch, Kohl & Leyendecker, 2018). Despite different intervention goals, our investigations suggested universal components of successful early interventions for young refugee children after resettlement in high-income countries. First, the specialized services need to convey feelings of belonging, security and predictability to the young refugee children. The post-migration phase often lacks protective factors (e.g. social support, family cohesion) and involves specific risk factors (e.g. experience of discrimination, parental psychopathology, separation from parents) for refugee children (Fazel, Reed, Panter-Brick & Stein, 2012). Feelings of alienation due to new social norms and practices in high-income host countries, unfavourable life circumstances, and a foreign language are additional sources of mental distress. A major challenge for refugee children moreover is their insecure status and dependency on a positive asylum procedure (Montgomery, 2008; Ryan, Benson, & Dooley, 2008). Here, early interventions with a clear structure, familiar activities, rituals and responsive staff have the potential to offer new security to young refugee children and, also, to their families. Second, all services for refugee children

need to overcome language barriers. The use of translators is often not sufficient as refugee families were found to be linguistically diverse. Planning communication, choosing speech-free activities and the use of non-verbal communication strategies were reported to facilitate communication within early interventions. However, fostering the societal language should not be ignored when planning early interventions as it can support children's adaptation to after-resettlement contexts via associations with self-regulation and cognitive skills (Guirguis & Antigua, 2017; Yang, Yang & Lust, 2011). Third, early interventions need to reach refugee families soon after resettlement. We found higher levels of mental distress in early education after six-month attendance for those refugee children, who had previously spent a longer time in Germany. As the post-resettlement period poses specific stressors to refugee children, this finding is also in line with the proposed hypothesis that context adjustment is impeded by a higher allostatic load. Early interventions have the potential to provide protective environments, strengthen resilience and mitigate risk exposure to the post-migration stressors. Fourth, the refugee parents are more strongly involved in early interventions than in those interventions targeted at older children. Hence, early interventions additionally provide a vehicle for the holistic and need-oriented support of family systems. Our evidence revealed that staff in the early intervention groups was frequently requested by parents to assist with post-migration difficulties of the whole family. This finding suggested that isolated approaches with an exclusive focus on the refugee children in specialized early interventions might disregard the complex situations and diverse needs of refugee families after resettlement. Linking early interventions to social and welfare services strengthens the family systems of refugees, nurtures trustful relationships and, from an ecological perspective, indirectly supports the young refugee children.

Second, we raised the question of how to embed early interventions within a host countries' socio-cultural system. Notably, the majority of refugee families originates from countries with different ecological systems for children, especially on socio-cultural layers. In the previous section, we hypothesized socio-cultural incongruencies between home- and education contexts to challenge adjustment processes and to trigger mental distress in refugee children after their resettlement in high-income countries. Hence, the difficult challenge of how to dynamically embed early interventions at the borderline between the diverging socio-cultural environments emerges. Conceptually, we therefore need to consolidate fundamental rationales of early interventions for newly arrived refugee children. Considering that forced displacement represents drastic changes in ecological systems for children and increased risks to endure

deficits in education, early interventions have the potential to facilitate this life-changing transition, to promote positive developmental trajectories after resettlement and to mitigate post-migration stressors. Therefore, early interventions can foster the relevant skills which are important to acquire in early childhood and necessary to adapt to the socio-cultural ecologies of high-income countries (e.g. pre-academic and socio-emotional skills). Moreover, additional consideration needs to be placed on children's adjustment to cultural pluralistic societies and identity formation under ambiguous cultural influences as important challenges to master after resettlement.

In sum, the overarching rationale of specialized early interventions that are targeted at refugee children is to lay foundations for positive trajectories to later achieve societal participation as potent and self-sufficient members of a future generation. That said, how can we now translate such principles into early intervention practice for newly arrived refugee children? First, linking home and intervention ecologies is essential to achieve the best benefits for children (Galindo & Sheldon, 2012). A child should not be the sole link between staff and the refugee family. Especially in ethno-culturally diverse relationships, thorough parent-teacher partnerships are essential in actively bridging discrepancies between the home and intervention ecologies. Childcare-based interventions need more frequent communication with refugee families, informing them about opportunities and their parental role in early education and care programs of host countries and beyond. Second, reducing the salience of inherent socio-cultural practices in early interventions with refugee children diminishes tensions and discontinuities between the different ecologies. Interventions should hence primarily focus on those skills that are important for positive life trajectories in the environments of the host country, e.g. for achieving well-being, mental health, societal participation, and to successfully navigate through culturally diverse contexts (cf. Banks, 1977).

6.4 Future research

Investigating the needs of young refugee children newly arrived in high-income countries and contributing to early intervention planning is in line with the initially stated utilitarian deliberations on how to most efficiently mitigate the negative effects of forced displacement for refugee populations. However, investigations of the present dissertation hit first ground on a pending global challenge and a lot of future research needs to be done.

It is stated that experiencing forced displacement entails drastic changes in ecological systems for children. Previous research demonstrated that a larger amount of experienced

adversity before and after resettlement, and supposedly a higher extent of forcedness, negatively influences mental health of refugee children (for a review see Bronstein & Montgomery, 2010). Although large numbers of refugee children are in their early years when arriving in a host country, we know little about the moderating effects of age on relations between experiences of forced displacement and individual outcomes, e.g., the processes and promoters of integration (Echterhoff et al, under review). Our investigations suggest that already young refugee children demonstrate increased levels of mental distress, especially behaviour problems in social interactions with peers and adults. Interpreting such patterns of mental distress as adjustment difficulties to foreign environments, we need to better understand the aetiology in order to develop effective intervention strategies. We found persistence in patterns of mental distress within childcare-based interventions that were located in education settings. A comparison with Turkish immigrant children suggests particular difficulties for young refugee children to undergo transition processes within after-resettlement contexts. This is in line with a previous study on older refugee children who endured multiple relocations after resettlement in Sweden (Nielsen et al., 2008). Hence, the influence of forced displacement on adjustment processes after arrival in a host country needs further consideration in research. Investigating the transitions of refugee children into early education, primary or secondary schools is of high importance as education contexts have the potential to promote processes of adjustment and to prepare refugee children for becoming potent members of future societies. Therefore, our studies presented initial evidence on the educational and mental health needs of young refugee children who attended childcare-based interventions in high-income countries.

Moreover, we explored children's short-term trajectories. Due to the few data points, we were not able to distinctively examine effects of context transitions. More extensive data from designated research designs on refugee children's developmental pathways after resettlement that overarch multiple transitions (e.g., from arrival in a host country via early interventions to school enrolment) helps to better understand the cascading effects of forced displacement on children and effective approaches to mitigate these. Specifically, future research projects should therefore address the following questions. *What are the specific educational and mental health needs of refugee children within education contexts?* While initial evidence on young refugee children was presented here, little is generally known about the academic achievement and mental distress of refugee children (Graham, Minhas & Paxton, 2016). Moreover, we provided initial evidence that both domains are interrelated in refugee children. Hence, the effects of such interrelations on mental health and academic trajectories need additional

consideration in future investigations. *How do these needs change as a function of the age while enduring forced displacement?* To date, findings on different age groups of refugee children are confounded by heterogeneous research designs and settings, e.g., the country of residence, the population under investigation or applied methods. Thus, it is still difficult to examine potentially moderating effects of age. *How can we explain socio-emotional distress of refugee children within early education?* We found initial evidence for a distinct pattern of mental distress for young refugee children in high-income educational contexts. It is unknown to what extent this pattern of distress is due to the pre-migration experiences, post-migration living difficulties or the specific affordances of education settings in high-income countries as hypothesized in the present dissertation, i.e. socio-cultural practices and activities of education, teaching styles or peer relationships. Therefore, combining ecological perspectives (e.g. Bronfenbrenner, 1985; Betancourt, 2005) with recent psycho-neuro-endocrinological approaches (e.g. Evans & Kim, 2008) offers promising potentials to delineate the mechanisms of forced displacement in refugee children. Initial evidence of our research group (not reported in the present dissertation) was able to link cortisol levels as measured in hair probes of refugee mothers and children to the number of traumatic events that they experienced during forced displacement (Buchmüller et al., under review).

A second thread of research on refugee children needs to focus on the intervention measures. We examined challenges in early education and varieties in the implementation of childcare-based interventions that were targeted at young refugee children in after-resettlement contexts. Unlike previous intervention studies with a focus on mental health (as summarized in Fazel & Tyrer, 2014), we additionally considered the pre-academic skills and psychological adjustment of young refugee children in after-resettlement contexts of high-income countries. As we presented first evidence on this specific research niche, further evidence is needed in order to develop effective intervention programs and to better inform policy. To begin with, there is no evidence-based theory on the pathways of change for mental health and developmental outcomes through early interventions of high-income countries. A study on an intervention for school-aged children in conflict-affected countries provides hints for the potent mechanisms, i.e. caring and supportive schools and teachers, predictable and cooperative learning environments (Aber et al., 2017). Accordingly, we examined structural and process quality of an childcare-based intervention program for refugee children in a high-income country. Even though we found differences in structural quality and learned about variance in the implementation, we did not link intervention-level data to child-level outcomes. As this

step is essential in implementation research, future investigations need to link both levels in order to substantiate an ecologically valid theory of change. Such a theory will inform about the components of early interventions which determine positive development and adjustment of refugee children. Similarly, our findings yielded a high process quality for early interventions. However, our investigations did not inform about the activities and practices that are best suited for fostering refugee children in after-resettlement contexts of high-income countries. Based on our findings, however, such activities need more investigation in terms of two guiding questions. First, *which activities and practices do best meet the specific needs of newly arrived refugee children?* Second, *which activities and practices are best suited to bridge socio-cultural discontinuities between home- and intervention ecologies while, at the same time, preparing children for positive transitions within the resettlement countries?* Subsequently, such evidence has the potential to guide policy on how to develop effective large-scale interventions.

Furthermore, practitioners identified access barriers for refugees to education services. In line with such barriers, enrolment gaps to early education, primary and secondary schools were found for immigrant and refugee children in refugee-hosting countries including Germany (Dryden-Peterson, 2011; Gambaro, Liebau, Peter & Weinhardt, 2017). Early interventions in after-resettlement contexts contribute to overcome such barriers as they were found to foster transitions of young refugee children. The practitioners reported cultural differences between home environments of refugee families and education contexts as a distinct access barrier in the present dissertation. This is in line with the previously suggested hypothesis that forced displacement brings socio-cultural changes in ecological systems to refugee children and families. Future research on early interventions therefore needs to investigate the exchanges between home- and education ecologies of refugee families after resettlement. To understand the home ecologies of refugee children, there is some initial evidence on the post-migration living difficulties of adult refugee populations residing in high-income countries (Laban et al., 2005). However, more evidence is needed on the social ecologies of young refugee children and their families. For education contexts, we found enormous socio-cultural diversity in refugee families. This poses a challenge to practitioners, policy makers and the attendees themselves. While we discussed conceptual approaches for dealing with this challenge elsewhere (Busch & Leyendecker, in press), more empirical studies need to reveal the most effective approaches.

Lastly, future research needs to identify good-practice in early interventions for refugee children in after-resettlement contexts with regard to the initially proposed ethical considerations. Hence, early interventions are meant to achieve a high effectiveness, to achieve sustaining effects, to reach a large number of families, to detect the children who are in highest need and to respond to their specific needs.

6.5 Conclusion

High-income countries have recently been experiencing the largest immigration movements of the past 70 years. Most people have been forcibly pushed out of their home countries due to armed conflicts or deprivation. Among these are numerous families with young children. Nearly 15 percent of the refugees arriving in high-income countries were estimated to be below the age of six. The contexts of flight and resettlement pose challenges to children's development and to their psychological and social adjustment. High-income countries have the capacities to set up actions for promoting young refugee children after resettlement. However, little is known about the specific needs of young refugee children residing in high-income countries and how to effectively support them after resettlement. The present dissertation studied young refugee children who recently arrived in high-income countries following two issues with different levels of investigation. The first issue, on the child level, studied the effects of forced displacement on the children in terms of mental health and pre-academic skills. The second issue, on the intervention level, contributed evidence on how to develop early interventions for young refugee children in after resettlement contexts of high-income countries.

Findings on the first issue emphasized the importance of post-resettlement stressors for the mental health of young refugee children. This deduction was mainly due to two empirical results. First, we did not find mental health differences after resettlement between children from war- and non-war regions. Second, the externalizing problems of the young refugee children persisted throughout the after-resettlement period. Furthermore and contrary to our expectations, mental health problems did not decrease while attending early education after resettlement. Conversely, social problem behavior further increased in education contexts. These results suggested a child X environment model in which adverse experiences due to forced displacement have impeded socio-emotional adjustment processes to education contexts. While externalizing behavior problems were evidently linked to pre-academic skills, we found low to very low levels for cognitive and receptive language skills which slightly

improved after attending early education for six months. Findings on the second issue revealed challenges, solutions and implementation varieties in childcare-based interventions for young refugee children after resettlement in high-income countries. Such early interventions often require to flexibly adapt to situate demands. However, meeting the specific needs of refugee children and their families provides initial contact with them and has the potential to initiate positive trajectories for the children after resettlement. Socio-cultural incongruencies of home- and early intervention as well as education ecologies are likely to challenge the adjustment of young refugee children. Early interventions and education services therefore need to reflect on culturally inherent practices, to promote universal values, to work closely with the refugee parents and to provide family support in order to lay foundations for future transitions as well as, in the long term, to become potent members of a pluralistic society.

Due to global crises, forced displacement of children has become one of the most pending challenges of today. Even though high-income countries are the least affected, such countries have the capacities and knowledge to find effective solutions. Instead of closing borders in order to protect own privileges and secure the national status-quo, we need to develop interventions on how to efficiently build sustaining societies of tomorrow in a globalized world. For this purpose, the present dissertation added psychological knowledge for mitigating the negative effects of forced displacement on young refugee children, the global civilians of a hopefully better future.

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List of Abbreviations

BAMF	Bundesamt für Migration und Flüchtlinge
BP	Bridging Project
BREVIS	Bridging Project Evaluation Scale
CI	Confidence Interval
CLASS Pre-K	Classroom Assessment Scoring System for pre-kindergarten children
C-TRF	Caregiver-Teacher Report Form
D	Cohen's d, parametric effect size
DF	Degrees of Freedom
ECEC	Early childhood education and care
EFA	Exploratory Factor Analysis
EM	Expected Maximation
ES	Effect Size
EU	European Union
GDP	Gross domestic product
GLASSO	Graphical least absolute shrinkage and selection operator
ICC	Intra-class Correlation
IDS	Intelligence and Development Scales
IQR	Interquartile Range
M	Mean
MCAR	Little's Missing Completely at Random Test
Md	Median
MKFFI	State Ministry of Children, Families, Refugees and Integration
MSA	Measures of Sampling Adequacy
N/n	Sample Size
NRW	North-Rhine Westphalia
PARI	Perils and Antecedents of Refugee Integration
PPVT	Peabody Picture Vocabulary Test
PTSD	Post Traumatic Stress Disorder
R	Non-parametric Effect Size

RMSEA	Root Mean Square of Approximation
SD	Standard Deviation
SDQ	Strengths And Difficulties Questionnaire
T1/T2	First Assessment/ Follow-up Assessment
TLI	Tucker-Lewis Index
UN	United Nations
UNHCR	United Nations High Commissioner of Refugees
WPSSI-III	Wechsler Preschool and Primary Scale of Intelligence – Third Edition

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 Ruhr University Bochum (10/2011 – 09/2014)
 Supervisors: Rainer Georg Siefen & Axel Schölmerich
 Thesis: “*Testing Cultural Equivalence of the Beck’s Youth Inventories-II*”

Higher School Evangelisches Gymnasium Meinerzhagen (Grade: “Excellent”, 06/2010)
 Certificate

SCHOLARSHIPS, MEMBERSHIPS, AWARDS & GRANTS

08/2019 **Research Grant** for *GENDER-LGBTIQ* II – Gender, Equality, Needs – Diversity Efforts at Ruhr University for LGBTIQ*students* (Co-PI: Birgit Leyendecker). Lore-Agnes Fund at Ruhr University Bochum. 12,953€

11/2018 **Scholarship** for a 10-week Research Stay at the Institute of Human Development and Social Change New York City University. Research School, Ruhr-University: Travel Expenses and Accommodation, New York City (NY, USA). 4,000€

- Scholarship** for the Active Participation at the Biennial Meeting of the Society for Research on Child Development (2019). Research School, Ruhr-University: Travel Expenses and Accommodation, Baltimore (MD, USA). 1,636€
- 06/2018 **Research Grant** for *GENDER-LGBTIQ* – Gender, Equality, Needs – Diversity Efforts at Ruhr University for LGBTIQ*students* (Co-PI: Birgit Leyendecker). Lore-Agnes Fund at Ruhr University Bochum. 10,400€
- 05/2018 **Research Grant** for *asyLGBTIQ* – Psychosocial burdens, resources and societal participation of refugees from the LGBTIQ*-community* (PI: Birgit Leyendecker, Co-PI: Julian Busch). Federal Ministry for Children, Families, Refugee and Integration. 34,320€
- 05/2018 **Publication Grant** for *Open Access Research Article* by DFG-Fonds. 2000€
- Since 2017* **Teaching Grant** for the Development and Teaching of a Supplemental Course “*Manuscriptorium – the easy way to succeed in your thesis*” (together with Nikola Nowack-Weyers). Faculty of Psychology, Ruhr University Bochum. 12,000€ p.a.
- Since 2017* **Membership** “Deutsche Gesellschaft für Psychologie, DGPs” [German Psychological Society]
- Since 2016* **Membership** „Berufsverband Deutscher Psychologen“ [*The Association of German Professional Psychologists*]
- Since 2016* **Alumni network** of Former Scholars “Altvilligster Netzwerk”
- 2011 – 2016 **Full scholarship** for Bachelor’s and Master’s Program (by Evangelisches Studienwerk Villigst)

Research Experience

Research Associate at the Center for Family Research, Faculty of Psychology, Ruhr-University (since 01/2016, head: Birgit Leyendecker)

POSTGRADUATE LEVEL

09/2018 – 07/2019

PI of project: **GENDER-LGBTIQ* – Gender, Equality, Needs – Diversity Efforts at Ruhr University for LGBTIQ*students** (Co-PI: Birgit Leyendecker). Lore-Agnes Fund at Ruhr University Bochum.

08/2018 – 10/2019

Co-PI of project: **asyLGBTIQ* – Psychosocial burdens, resources and societal participation of refugees from the LGBTIQ*-community** (PI: Birgit Leyendecker). Federal Ministry for Children, Families, Refugee and Integration, North-Rhine Westphalia.

02/2017 – 06/2019

Data analysis of project: **„Bridging Cultures – Transition to school”**. Examining the development of refugee children in specialized childcare groups, PI: Birgit Leyendecker. Ruhrfutur, Mercator-Foundation.

01/2016 – 12/2018

Research coordination and data analysis of project: **„Bridging Cultures“ – Integration of recently arrived refugee children into German daycare**. PI: Birgit Leyendecker, Federal Ministry for Children, Families, Refugee and Integration.

08/2015 – 06/2017

Research coordination of project: **„German Syrian Refugee Study“ – Effects of forced displacement on families and child development**, PI: Birgit Leyendecker. Department for Developmental Psychology.

06/2014 – 09/2018

Research coordination of project: **„Culture-Fair Diagnostics – Culture-sensitive adaptation and standardization of the „Beck Youth Inventories“** (PI: Rainer Georg Siefen). Pearson Clinical Assessment, Germany.

GRADUATE & UNDERGRADUATE LEVEL

10/2015 – 01/2016

Research Assistant, (9.5h/ week). Department for Developmental Psychology, Ruhr University. Preparation of the “Bridging Cultures” project.

Head: Birgit Leyendecker

10/2014 – 04/2015

Research Assistant, (4h/ week). Department for Developmental Psychology, Ruhr University. Statistical and methodological assistance for thesis.

Head: Axel Schölmerich

10/2014 – 04/2015

Research Assistant (8h/ week). Department for Experimental Psychology. Conception of study lecture “Methodology I” for undergraduate students, mentor for tutors and maintain online module

Head: Lars Kuchinke

06/2013 – 11/2016

Research Assistant (6h/ week). German standardization of Beck Youth Inventories II, research coordination.

Head: Rainer Georg Siefen

04/2013 – 04/2014

Student Assistant (8h/ week). Department for Experimental Psychology. Data preparation and statistical analysis.

Head: Lars Kuchinke

02/ 2012 – 06/2012

Student Assistant (fee contract). European Alcohol Policy Alliance: AMPHORA (Alcohol Public Health Research Alliance). Data collection in classrooms.

PEER-REVIEWED PUBLICATIONS

- Buchmüller, T., Lembcke, H., Ialuna, F., **Busch, J.**, & Leyendecker, B. (2019). Mental Health Needs of Refugee Children in Specialized Early Education and Care Programs in Germany. *Journal of Immigrant and Minority Health*.
<https://doi.org/10.1007/s10903-019-00896-4>
- Busch, J.**, Bihler, L., Lembcke, H., Buchmüller, T., Diers, K., & Leyendecker, B. (2018). Challenges and solutions perceived by educators in an early childcare program for refugee children. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2018.01621>
- Buchmüller, T., Lembcke, H., **Busch, J.**, Kumsta, R., & Leyendecker, B. (2018). Exploring mental health status and syndrome patterns among young refugee children in Germany. *Frontiers in Psychiatry*, 9. <https://doi.org/10.3389/fpsyg.2018.00212>
- Jäger, P., Lembcke, H., Schillen, P., Claasen, K., Leyendecker, B., Ott, N. & **Busch, J.** (2018). Psychische Diagnostik bei Kindern und Jugendlichen mit Fluchthintergrund im kommunalen Vorsorgesetting - Potenziale der Schuleingangsuntersuchung [Diagnostics of Mental Disorders and Behavioral Problems in Refugee Children in the Context of Communal Prevention - Potentials of Medical Screening for School Entry]. *Zeitschrift für Flüchtlingsforschung*. <https://doi.org/10.5771/2509-9485-2018-2-231>
- Lembcke, H., Buchmüller, T., **Busch, J.**, Hamouda, S., & Leyendecker, B., (*under review*). Methodological challenges in psychological research with recently arrived refugee families. *Submitted to Journal of Family Studies*.
- Buchmüller, T., Lembcke, H., **Busch, J.**, Kumsta, R., Wolf, O.T., & Leyendecker, B. (*under review*). Time since immigration is associated with Hair Cortisol Concentration in Refugee Women. *Submitted to Psychoneuroendocrinology*.
- Busch, J.**, Buchmüller, T., Lembcke, H., Bihler, Lilly-Marlen & Leyendecker, B. (*under review*). Variations in the Implementation and Childcare Quality of a specialized Childcare Program for Refugee Children in Germany. *Submitted to Early Child Development and Care*.
- Busch, J.**, Buchmüller, T., Ialuna, F., & Leyendecker, B. (*submitted*). Trajectories of pre-academic skills and mental distress of refugee children in early education after resettlement. *Submitted to Child Development*.

Busch, J.*, Golembe, J.*, Gundlach, A., Anonym., A. & Leyendecker, B. (*in preparation*). Intersectional discrimination experiences and mental health of newly arrived LGBTIQ* refugees in Germany. *Submission planned for September to "Sexuality Research and Social Policy"*.

Claus, C., Siefen, R., Schneider, S. & **Busch, J.** (*in preparation*). Explaining mental health disparities of immigrant youth: Is lower self-concept a mediator during adolescence? *Submission planned for September to "Child and Adolescent Psychiatry and Mental Health"*.

Busch, J., Krey, E., Claus, C. & Siefen, R. (*in preparation*). Adaptation und Anwendung standardisierter klinisch-psychologischer Verfahren für diversifizierte Gesellschaften. *Submission planned for October to "Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie"*.

HANDBOOK CHAPTERS & MANUALS

Golembe, J., Leyendecker, B., & **Busch, J.** (2019/ in press). Psychosoziale Lage und gesellschaftliche Teilhabe von LSBTIQ*-Geflüchteten in Deutschland – Forschungsstand und Anwendungsmöglichkeiten für die Jugendhilfe [Psychosocial Status and Societal Participation of LGBTIQ*-Refugees in Germany]. In Nowacki, K. & Remiorz, S. (Eds.): *Junge Geflüchtete in der Jugendhilfe - Chancen und Herausforderungen der Integration*. Berlin: Springer.

Busch, J. & Leyendecker, B. (2019/ in press). Socialization and development of children from immigrant and refugee families: Chances of child care. In Tulviste, T., Best, D., Gibbons, L. (Eds.): *Children's Social Worlds in Cultural Context*. New York: Springer.

Siefen, R. & **Busch, J.** (2018). *German Adaptation and Standardization of the Beck Youth Inventories, second edition*. Frankfurt a.M.: Pearson Clinical Assessment, Germany.

Leyendecker, B. & **Busch, J.** (2018). Zusammenarbeit zwischen zugewanderten Familien und Kita – Plädoyer für eine niedrigschwellige Bildungspartnerschaft [Cooperation between Newly Arrived Families in Childcare – Plea for Partnerships]. *Frühe Kindheit*, 6. Berlin: Deutsche Liga für das Kind.

Busch, J., Kohl, K. & Leyendecker, B. (2018). Erziehungsstile und Migration? Unterstützung des Bildungserfolgs neuzugewanderter Kinder in Kita und Grundschule [Supporting the success in education of recently arrived refugee children in childcare

and elementary school]. In Genkova, P. & Riecken, A. (Eds.): Handbuch Migration und Erfolg. Berlin: Springer. https://doi.org/10.1007/978-3-658-18403-2_13-1

Busch, J., Leyendecker, B., & Siefen, R. (2018). Klinische Diagnostik bei Kindern und Jugendlichen mit Migrationshintergrund [Clinical Diagnostics with Immigrant Minors in Germany]. In Maehler, D., Brinkmann, U., & Shajek, A. (Eds.): Diagnostische Verfahren für Migranten bzw. für die Migrationsforschung. Göttingen: Hogrefe.

SELECTED TALKS & PRESENTATIONS & WORKSHOPS

Invited Talks and Workshops

Busch, J. (2018). Lieber unperfekt anfangen oder perfekt abwarten? Eine Evaluation von frühen Bildungsangeboten für geflüchtete Kinder in NRW. [Waiting for the Perfect Solution? An Evaluation Study of Childcare-Based Interventions for Refugee Children] Free University Berlin. Talk at Colloquium at the Department for Cross-Cultural Developmental Psychology.

Busch, J. (2018). Neuzugewanderte Familien - Herausforderungen für die Elternbegleitung? [Newly Arrived Families in Germany– New Challenges for Family Services?] Referent at Workshop on the 3rd Federal Congress for Family Services. Federal Ministry for Families, Elderly People, Women and Youth, Berlin (GER).

Busch, J. (2018). Bedarfsorientierte Gestaltung von Zugängen zu Eltern [Need-oriented Approaches to Families At-Risk]. Referent in Teacher Curriculum at a Federal Childcare Project („Kita-Einstieg: Brücken bauen in frühe Bildung“). Federal Ministry for Families, Elderly People, Women and Youth, Berlin (GER).

Busch, J. (2017). Inanspruchnahme ambulanter Psychotherapie von Erwachsenen mit türkischem Migrationshintergrund in Bochum [Enrolment of Turkish Immigrants in Outpatient Psychotherapy in Germany]. Symposium: „Gesundheitsversorgung von Migrantenfamilien zwischen Fürsorge und Selbstorganisation“, Bochum (GER)

Talks at Symposia

Busch, J., Buchmüller, T., & Leyendecker, B. (2019). Specialized childcare for newly arrived refugees – supporting children at the transition to primary school. Biennial Meeting of the Society for Research in Child Development, Baltimore (MD, USA).

- Buchmüller, T., Ialuna, F., Leyendecker, B., & **Busch, J.** (2019). A “bridge” to school? Developmental trajectories of refugee children in German preschool programs. Meeting of the Society for Research on Educational Effectiveness, Washington DC (USA).
- Organization of a Symposium** at 51st Meeting of the German Psychological Society (2018), Frankfurt a.M. (GER): Assessments and Interventions for Recently Arrived Refugees in Germany: Methodology, Recent Findings and New Challenges. Main Chair: **Busch, J.**, Co-chair: Leyendecker, B.
- Buchmüller, T., Lembcke, H., **Busch, J.**, Kumsta, R. & Leyendecker, B. (2018). Haircortisol as a Biomarker for Experiences of Chronic Stress in Refugee Families. 51st Meeting of the German Psychological Society (2018), Frankfurt a.M. (GER).
- Leyendecker, B., **Busch J.**, Buchmüller T. & Lembcke, H. (2018). Get going or wait for a perfect solution? An evaluation of „Bridging Projects“ for recently arrived refugee children in Germany. Biennial Meeting of the International Society for the Study of Behavioral Development, Gold Coast (AUS)
- Busch, J.** & Alkan, S. (2017). Der lange Schatten des Krieges – Psychische Gesundheit von geflüchteten Kleinkindern und ihren Müttern [The long shadow of war: Mental health of refugee mothers and their children]. Academic Anniversary of the Faculty for Psychology, Ruhr-University Bochum (GER)
- Busch, J.** (2017). Building Bridges to Safe Havens: Transition of Young Refugee Children to Early Childcare. Talk at the European Conference of Developmental Psychology, Utrecht (NL)
- Bucher, J., Buchmüller, T., & **Busch, J.** (2016). Frühe Kindesentwicklung unter dem Einfluss von Zwangsmigration [Effects of Forced Displacement on Early Childhood Development]. Netzwerktagung Flüchtlingsforschung, Osnabrück (GER)

Poster Presentations

- Nussdorfer, F., **Busch, J.**, Buchmüller, T., Heithausen, A., & Leyendecker, B. (2018). Perceived challenges in childcare with refugee children: Links between educator-child interaction and child behavior problems. Cultural Diversity, Migration and Education Conference, Potsdam (GER)

Busch, J., Buchmüller, T., Lembcke, H., Ialuna, F., & Leyendecker, B. (2018). Get ready for school! Exploring school readiness of recently arrived refugee children. International Society for the Study of Behavioral Development, Gold Coast (AUS)

Buchmüller, T., Lembcke, H. , **Busch, J.**, & Leyendecker, B. (2018). Mental health needs of refugee preschoolers in Germany – unpacking the causes. International Society for the Study of Behavioral Development, Gold Coast (AUS)

Busch, J., Behr, C., Krey, E. & Siefen, G. (2017). Damit Äpfel nicht mit Birnen verglichen werden [Don't compare apples with oranges: The significance of measurement invariance]. 35. Congress of the German Child and Adolescent Psychiatry, Ulm (GER)

OTHER ACTIVITIES

2019 Reviewer for *Child Development*

2019 Member of the Appeal Committee for the W1/W2 Professorship “Human Centred Design” at Faculty for Psychology, Ruhr-University Bochum

Since 2017 Regular Member of a Selection Committee for the Scholarship Program by *Evangelisches Studienwerk Villigst*

Eidesstattliche Erklärung

Ich versichere an Eides statt, dass ich die eingereichte Dissertation selbstständig und ohne unzulässige fremde Hilfe verfasst, andere als die in ihr angegebene Literatur nicht benutzt und dass ich alle ganz oder annähernd übernommenen Textstellen sowie verwendete Grafiken, Tabellen und Auswertungsprogramme kenntlich gemacht habe. Außerdem versichere ich, dass die vorgelegte elektronische mit der schriftlichen Version der Dissertation übereinstimmt und die Abhandlung in dieser oder ähnlicher Form noch nicht anderweitig als Promotionsleistung vorgelegt und bewertet wurde. Ebenso versichere ich, dass alle Abbildungen nur originale Daten enthalten und in keinem Fall inhaltsverändernde Bildbearbeitung vorgenommen wurde.

Julian Busch

Bochum, 2019