Social connections related to health and well-being needs identified by children and adolescents affected by displacement in Lebanon: a participatory research study

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A B S T R A C T

Introduction: The social connections surrounding children and adolescents support them in facing challenges and seeking help, ultimately acting as a protective factor in their mental, physical, and behavioral health outcomes across the life course. In complex contexts of political instability and dislocation, these social resources are often fractured, strained, or altogether unavailable, which restricts access to essential services and affects outcomes for these populations. This study aims to identify, characterize, and visually depict social connections related to the health and well-being needs of children and adolescents affected by displacement in Lebanon, by pilot testing the Participatory Assessment Tool for Mapping Social Connections (PATMSC). We hypothesize that this unique methodology will identify and describe different social connections by group quickly and efficiently.
Methods: An initial scoping review of scientific and grey literature followed by stakeholder interviews identified nutrition, mental health, and abuse scenarios that guided the PATMSC (a mixed- method data collection tool that identifies and visualizes types and qualities of social connections) topics. The PATMSC was piloted among children, caregivers, and providers affected by displacement in Lebanon.
Results: There were seven groups (Syrian children, Syrian adolescents, Syrian caregivers, Lebanese/Palestinian children, Lebanese/Palestinian adolescents, Lebanese/Palestinian caregivers, and providers) with a total of 42 participants across the PATMSC workshops. Syrian children identified the most connections across all scenarios (66 nodes) and Lebanese/Palestinian adolescents identified the fewest connections across all scenarios (26 nodes). Family and community nodes were highly connected across all scenarios. 56% of participants asked their family connections for help. Family connections were the most used by children (71%) and provider (33%) subgroups. Participants were asked for help by family connections the most (59%). Within subgroups, children (84%), Lebanese/Palestinian participants (73%), providers (50%), and caregivers (36%) were also asked for help by family connections the most.
Discussion: The study highlights that children, adolescents, and their caregivers in displaced settings in Lebanon have varied social connections when exploring resources related to key areas of concern. Overall, there is an importance placed on the role of family members in their social networks. However, the social connections and resources available differ depending on the circumstances, as evidenced by the variation in connections named across the three scenarios. Understanding the components of social networks, what drives them, and how they differ by sector, is essential in planning and maintaining programs and policies that meet evolving needs in resource-constrained settings.

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1. Background

The social network surrounding children and adolescents impacts their health and development (Scharpf et al., 2021, Betancourt and Khan, 2008). Strong social connections, and access to resources providing social connection, means that mutual care, support, and belonging exist between people or between a person and an institution (Bauer et al., 2021). When children are socially connected, they have the ability to build critical skills such as resilience, stress management, communication, empathy, and emotional regulation (Smith and Pollak, 2021, De Jong et al., 2015). These connections and skills support them in facing challenges and seeking help, ultimately acting as a protective factor in their mental, physical, and behavioral health outcomes across the life course (Bauer et al., 2021, Popham et al., 2022). Several studies have documented the impact of social connections in preventing and protecting against emotional distress, suicidal ideation, violence, and substance use (Jose et al., 2012, Chu et al., 2010, Sell et al., 2021). Understanding social connections and their importance can create opportunities for intervention and investment in child and adolescent health and development.

Social connections exist across the social-ecological model at the individual, family, community, and systems levels. Connections can include peers or may be facilitated by community resources, including religious entities or public institutions such as community-based organizations or schools (Betancourt and Khan, 2008). However, family connections are documented as some of the earliest and most fundamental resources for children. Family members are often the first people to build social connections with a child, and throughout the life course, they remain an integral aspect of an individual's social network. A family and their social network can also impact a child's health and they can serve as both a protective and risk factor (Viner et al., 2012, Weine, 2008, Fuligni, 1997). Structural elements of the family unit influence children in their daily routines, guiding how they eat meals, when they sleep, how they practice hygiene, and when they seek resources (Habib Rima et al., 2020). Exposure to substance use or food and housing instability are also examples of family life that can cause stress and adversity in a child's life. A child's health can also be indirectly influenced by family social connections that either provide emotional and physical support to the family or lead to conflict and unsafe interactions with the child (Lois, 2022, Fong, 2017, Homel et al., 1987). Caregivers' social networks tend to provide children with a community, which can benefit children by experiencing connectedness, belonging, safety, resiliency, and economic prosperity, all of which impact their health and development (Our Epidemic of Loneliness and Isolation, 2023, Sapra, 2019). Conversely, in situations where caregivers rely on their network to care for their children, there is potential exposure to abuse or neglect (Fong, 2017, Sapra, 2019). In addition to understanding a child's direct social network, understanding their family's network is critical to their health and well-being.

In complex contexts, especially contexts of political instability and dislocation, social resources are often fractured, strained, or altogether unavailable, restricting access to essential services and impacting resultant outcomes for these populations (Doma et al., 2022). Exposure to conflict and displacement can impact children's social context and lead to social withdrawal, taking on adult roles like caregiving and working, low social support, and lack of social safety (Bürgin et al., 2022, Kadir et al., 2019, Hazer and Gredebäck, 2023). In turn, this increases their risk of mental disorders and their socio-emotional health and well-being (Bürgin et al., 2022). These circumstances impact a child's basic needs such as food/water, shelter, healthcare, and education, which is extremely detrimental to their development. Several studies also document key indirect impacts of violence such as risk of abuse, neglect, and secondary violence (Bürgin et al., 2022, Kadir et al., 2019). Displacement can take a considerable toll on the physical and mental health of children and adolescents, increasing stress and mental disorder symptoms (Bürgin et al., 2022, McEwen et al., 2023). These

contexts can also heighten the risk of family and caregiver or parent-child separation, negatively impacting child development and sense of safety. Given the potential absence of consistent health care and resources, maintaining existing and developing new social connections is essential among populations affected by displacement. These connections can serve as protective spaces where children and adolescents can process and heal from the trauma of forced migration, in addition to navigating daily life stressors.

Lebanon provides a unique opportunity to explore the role of social connections amongst children affected by displacement. The state has experienced numerous periods of unrest, including recurring regional spillovers, turmoil caused by transnational militant groups, entrenched sectarianism, and the rise of the Syrian refugee crisis and its effects on the host community, resources, and social structures (Malaeb and Wahba, 2018). The estimated total number of Syrians displaced in Lebanon numbers around 1.5 million, as of December 2023 (UNHCR 2024). In addition, Lebanon houses nearly 12,000 additional registered refugees from other origins, making Lebanon host to the largest refugee population per capita in the world (UNHCR 2024). Syrian refugee children (more than half the refugees are under 18) face high rates of mental health disorders including PTSD, conduct/oppositional defiant disorder, anxiety disorders, and depression, yet there is a gap in mental health services to address these concerns (Popham et al., 2022, McEwen et al., 2023, UNHCR, UNICEF, WFP 2023, El Arnaout et al., 2019). While there may be many factors contributing to the adverse health and well-being of children facing displacement in Lebanon, understanding their social environments can be an important entry point for guiding humanitarian response and developing policies and programming to meet their needs.

This study seeks to identify, characterize, and visually depict social connections related to health and well-being needs of children and adolescents affected by displacement in Lebanon, by pilot testing the Participatory Assessment Tool for Mapping Social Connections (PATMSC). Conducting participatory qualitative research is a unique approach to understanding and underscoring the experiences and perspectives of this population and adds essential nuances to existing quantitative data about the health and well-being of displaced children. We hypothesize that the unique PATMSC methodology will identify and describe different social connections by group quickly and efficiently.

2. Methods

An initial scoping review of scientific and grey literature (phase 1) and stakeholder interviews (phase 2) informed this study. With the information from the first two phases, we then pilot-tested the Participatory Assessment Tool for Mapping Social Connections (PATMSC) through qualitative workshops with children and adolescents, caregivers, and providers or practitioners working with children/adolescents (Strang et al., 2019). The study was approved by the American University of Beirut's Social and Behavioral Sciences Institutional Review Board (PSY.BK.05) and the Columbia University - New York State Psychiatric Institute Institutional Review Board (Protocol #: 8003).

2.1. Scoping review

The scoping review was conducted to understand relevant areas at the intersection of education and child and adolescent health and well-being among populations affected by displacement living in Lebanon. The findings from this review informed the scenarios presented in the PATMSC qualitative workshops. Articles (peer or grey literature) published between January 1, 2011, reflecting the start of the Syrian conflict, and December 1, 2019, when the review was conducted, were eligible for inclusion. We searched for articles in Arabic, French, and English through the Al-Manhal database, Google Scholar, PubMed, PsycINFO, Embase, Cochrane Library, Web of Science, CINHAL Plus, and Middle Eastern & Central Asian Studies. For grey literature, we

reviewed the first 10 pages of Google and Google Scholar. In consultation with local actors in Lebanon, we also reviewed websites of organizations primarily working in Lebanon (UNICEF Lebanon, UNHCR Lebanon, TheirWorld, Save the Children, Plan International Lebanon). Our search terms explored child and adolescent health in Lebanon (e.g., "child," "adolescent," "school," "education," "health," "Lebanon"). Two native-speaking researchers (LK, MB) also translated the search terms into Arabic and French. NK and MB coded Arabic and French peer-reviewed articles; NK and MV coded English peer-reviewed articles; NK and MB coded Arabic and French grey literature; and AP and MV coded English grey literature. Ten percent (n=5) of articles by language and type were extracted by two researchers and reviewed for consistency.

2.2. Stakeholder interviews

A total of four key informants from the health and education sectors in Lebanon were purposively selected by the local principal investigator (BK) to inform the scenarios presented in the qualitative workshops (academia = 1, government = 1, and non-governmental organizations = 2). Individuals were eligible to participate in interviews if they actively worked with children and adolescents in education or health fields. The stakeholder interview guide included questions targeted at validating primary scoping review findings and exploring respondents' impressions of mechanisms explaining findings. Following consent, we conducted stakeholder interviews, written summary notes were de-identified, and key themes were extracted.

2.3. PATMSC

Informed by the scoping review and triangulated findings from the stakeholder interviews, the PATMSC was piloted in a refugee setting and social center of the Joint Christian Committee for Social Service in Lebanon (JCC) located in Dbayeh, a city in the North of Lebanon in March 2021. JCC of the Middle East Council of Churches (MECC), is a branch of the Department of Service to Palestinian Refugees (DSPR) and works to promote the socioeconomic development and rights of Palestinian refugees and communities in the Middle East. JCC does this by implementing livelihood support, educational programs, and vocational training. This setting has around 500 Palestinian, Syrian, and Lebanese families.

The PATMSC is a unique approach developed by the Queen Margaret University to explore multiple types and qualities of social connections (Strang et al., 2019). This methodology aims to capture 'bridging,' 'linking,' and 'bonding' (trust) between different social resources to better understand their relationship within the participant's network as well as with the participant. The tool was first developed and tested in different settings in the context of populations affected by displacement and can be adapted easily. The tool has also been used previously in the conflict-affected context of El Salvador among patients with non-communicable diseases (NCDs) to identify connections and trust among the social resources that provide support for their NCD management. Baillot et al. (2020) have also used the tool with adult refugees to explore social relationships at the point of family reunion in the UK (Vidal et al., 2020, Baillot et al., 2023).

This study worked with two groups, the recently arrived Syrian refugee population and the local 'host' population comprised of both Lebanese and Palestinian participants. Similar to programming for both displaced and local 'host' communities, this research aims to understand both populations' social resources, which are impacted by one another (Fajth et al., 2019). In the first phase of the PATMSC, qualitative workshops were conducted to evaluate the individuals, institutions, and organizations that school-aged children, caregivers (inclusive of parents), and providers identify as resources in three scenarios focused on nutrition, mental health, and abuse (see Appendix Table 1 for full scenarios and questions). These scenarios were informed by high rates of
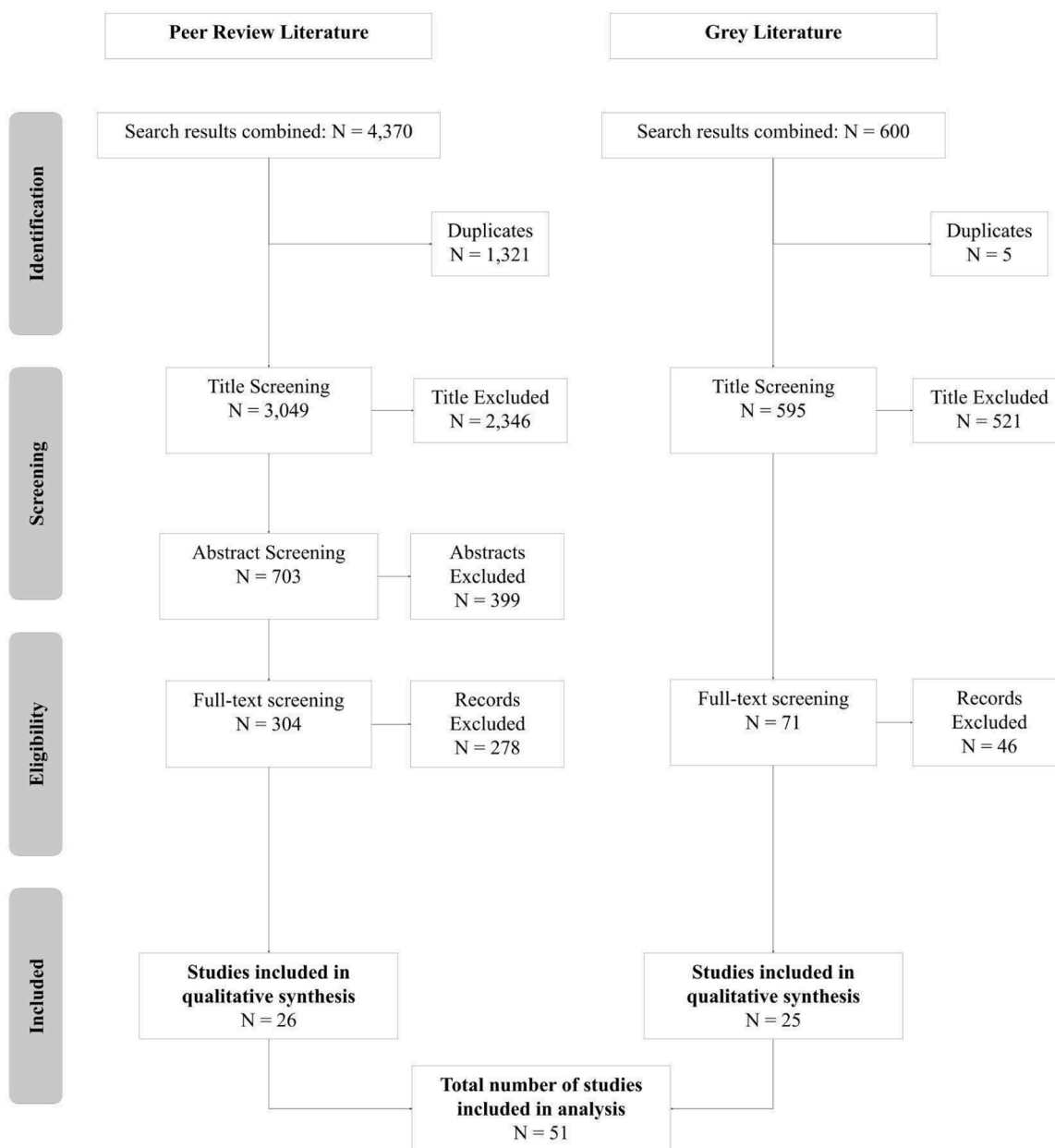
violence in school, lack of knowledge about nutrition, and high levels of stress but lack of available mental health resources, which were themes identified during the scoping review and key informant interviews. Follow up questions were asked to understand connectivity between the identified social resources (see Appendix Table 2 for questions). The researchers then used the responses to these questions to create a map of the connections, where each resource identified was a node and the connections between resources were shown through lines connecting them. In the second phase of the method, the card sort exercise, the researchers asked the participants three questions about each identified connection to measure their connectedness, trust, and reciprocity, with that connection (see Appendix Table 2 for questions) (Strang et al., 2019). The responses to the question about the use of the resource and the question about reciprocity with the resource were coded as binary, 0 for no use/reciprocity and 1 for use/reciprocity. The question about trust was coded categorically, 0 for no trust, 1 for a little bit of trust, and 2 for a lot of trust. Group level trust scores for each resource were calculated by averaging how many participants had any level (1 or 2) of trust in that resource. The workshops and maps of social connections for each workshop were translated from Arabic to English. Organization names were cross-checked with the local PI for accuracy. Data from the individual card sort portion of the PATMSC were electronically inputted, coded, and analyzed, in Excel following the PATMSC User's Guide.

3. Results

The results from each phase of this study are presented in order of literature review, key stakeholder interviews, and the PATMSC. The key themes from the literature review on the intersection of education and health were food insecurity, mental health, and abuse. These themes were then used to guide the discussion with key stakeholders, who confirmed that they were appropriate topics for discussion with children, adolescents, caregivers, and providers. The final section presents the findings from the PATMSC workshop mapping and card sort exercise. Specifically, numbers, types, and qualities of social connections for each group are addressed.

3.1. Findings from the literature review

The literature review identified almost 5,000 citations across English, French, and Arabic, with fifty-one included in the final analyses (Fig. 1). The review identified food insecurity, mental health, and violence as key areas of concern for children and adolescents in Lebanon. For food insecurity, the review highlighted that affected families engaged in practices to reduce spending, such as decreasing non-food expenditures and withdrawing children from school, which increased childhood exposure to complex environments that would impact their health and well-being (Jomaa et al., 2019). The literature also underscored that violence, especially in the form of abuse, is associated with adverse educational outcomes (Ghanem, 2021). Many students in Lebanese public schools faced verbal and physical harassment from both teachers and other students in their host community (Jalbout, 2015). This manifested as violence perpetrated by school staff against refugee (Syrian and Palestinian) students and peer bullying (Jalbout, 2015, Human Rights Watch 2019, Theirworld 2018). With respect to mental health, children living in complex contexts can have pre-existing mental health conditions and may also develop new mental health challenges in response to exposures and stressors present in their community. The literature documented a high burden of ADHD, anxiety and depression, and alcohol abuse with functionally no service provision in public schools or schools within displacement-affected settings (Jomaa et al., 2019, Soudi, 2017, Maalouf et al., 2016, Yassin, 2019, Ghandour et al., 2015, Abdo et al., 2016). Food insecurity, mental health, and abuse were prominent themes in this review and were further explored during the stakeholder interviews.

Peer Review Literature   **Grey Literature**

Identification

Search results combined: N = 4,370   Search results combined: N = 600

Duplicates N = 1,321   Duplicates N = 5

Screening

Title Screening N = 3,049   Title Excluded N = 2,346   Title Screening N = 595   Title Excluded N = 521

Abstract Screening N = 703   Abstracts Excluded N = 399

Eligibility

Full-text screening N = 304   Records Excluded N = 278   Full-text screening N = 71   Records Excluded N = 46

Included

Studies included in qualitative synthesis N = 26

Studies included in qualitative synthesis N = 25

Total number of studies included in analysis N = 51

Reasons for exclusion	Peer Review Literature	Grey Literature
Article type	17	3
Study did not focus on school-aged children (6-18)	34	2
Setting not in Lebanon	153	4
College setting	2	0
Data collection not between 2011-2019	57	4
Full-text unavailable	8	6
No child-related health factor in findings	5	1
No child-related educational factor in findings	183	8
No link between health and educational factors	166	23

Fig. 1. Peer Reviewed Literature and Grey Literature PRISMA Flow (Arabic, English and French)
Caption: The PRISMA diagram outlines the article search process and articles included in the review

3.2. Findings from stakeholder interviews

The stakeholder interviews verified the findings from the literature review and informed the PATMSC instrument development. Stakeholders validated the presence of important gaps in the development of health and education systems in Lebanon. Continuing to develop and implement sector-specific interventions was repeatedly seen as contributing to childhood adversity, and the need for cross-sectoral collaboration and integrated programming was emphasized. Improving the roll-out and maintenance of existing policies and legal protections, such as mental health services in schools and regulating food distribution systems to avoid the distribution of expired or unhealthy food staples was also seen as a priority. It was also noted that the social environment and caregiver backgrounds strongly influence children's lives. For those affected by displacement, caregivers' own individual stressors (previous exposure to violence), household economic stressors, and adversity and discrimination contribute to negative outcomes for children, such as early marriage, entry into the labor force, and insufficient supervision and support at home. Stakeholders underscored the high rates of stress among children and adolescents, particularly refugees and displaced populations. Although there are freely available resources to tackle some mental health issues (e.g. International Medical Corps offers free treatment, psychotropic medication, and community support group interventions to enhance social connectedness, raise awareness, and provide additional resources), most UNRWA schools at the Palestinian camps are not equipped to detect and follow up on these challenges (International Medical Corps, n.d.). While the law requires the presence of a counselor in each school, it was reported that this is not implemented in the field, nor is there follow-up on its enforcement. Stakeholders' discussion of violence and abuse mirrored the findings from the literature, and it was noted that possible ways to address these concerns were through increased education and economic opportunities for women and more family-based interventions.

3.3. Findings from the PATMSC

There were seven groups and a total of 42 participants in the workshops including providers (6 participants), Syrian caregivers (6 participants), Lebanese and Palestinian caregivers (6 participants), Lebanese and Palestinian adolescents aged 15-17 years (6 participants), Syrian adolescents aged 15-17 years (6 participants), Lebanese and Palestinian children aged 11-14 years (6 participants), and Syrian children aged 11-14 years (6 participants). Some results are also summarized by subgroups of children (Syrian and Lebanese/Palestinian), adolescents (Syrian and Lebanese/Palestinian), Syrian participants (children, adolescents, and caregivers), Lebanese/Palestinian participants (children, adolescents, and caregivers), and caregivers (Syrian parents and Lebanese/Palestinian parents).

3.3.1. Breadth of connections and level of connectivity (mapping)

The first phase of the PATMSC consisted of the mapping exercise (Fig. 2, Fig. 3, Fig. 4), and each scenario presented to the participants resulted in a range of connections identified using their own language. When participants were asked about the abuse scenario, they identified the most resources (112 nodes) and when asked about the nutrition scenario, they identified the fewest resources (79 nodes). The group that identified the most resources across all scenarios was Syrian children (66 nodes, Fig. 5), and the group that identified the fewest resources across all scenarios was Lebanese/Palestinian adolescents (26 nodes). The level of connectivity also varied. For the nutrition scenario, highly connected nodes comprised a few key groups including family, community, and NGOs/UN organizations. For the mental health scenario, highly connected nodes made up the family, formal health and support, and community groups. For the abuse scenario, highly connected nodes made up the family, community, and public groups.

3.3.2. Use of and trust in social connections (card sort)

The second phase of the study consisted of the card sort exercise, which focused on analyzing use of and trust in the identified connections through three key questions.

Question one focused on the participants identifying which connections they have asked for help. On average, across the study, 56% of participants asked their family connections for help. Family connections were also the most used by the children (71%) and provider (33%) groups. NGOs (17%) and religion (17%) were the least used connections across the study, on average. For the Syrian (21%) and adolescent (8%) groups, the least used connections on average were formal health and support. For the Lebanese/Palestinian (0%), children (17%), and provider (0%) groups, the least used connections on average were UN organizations.

The next question focused on participants recalling if their connections asked them for help. On average, across the study, family connections asked the participants for help the most (59%), this was the same for the children (84%), Lebanese/Palestinian (73%), providers (50%), and caregivers (36%) groups. On average, across the study, UN organizations asked the participants for help the least (0%), and this was the same for the Syrian (0%), Lebanese (0%), children (0%), caregivers (0%), and providers (0%) groups.
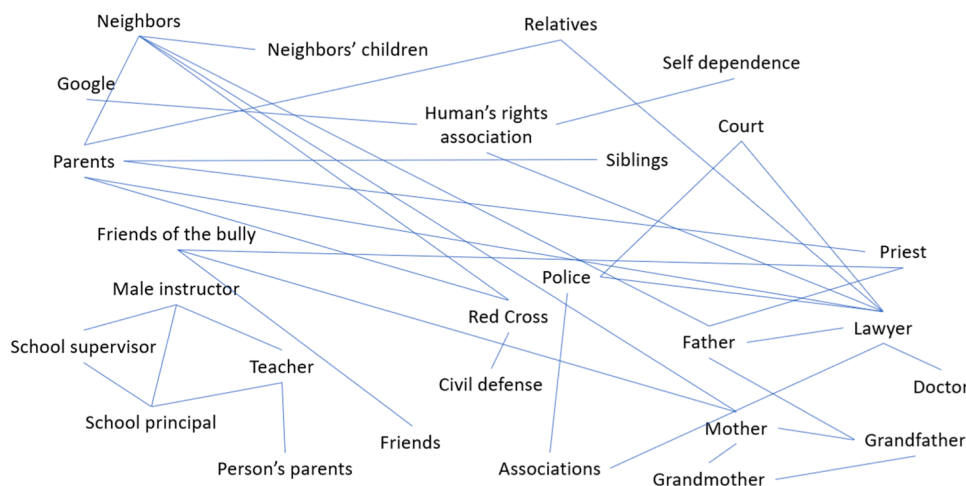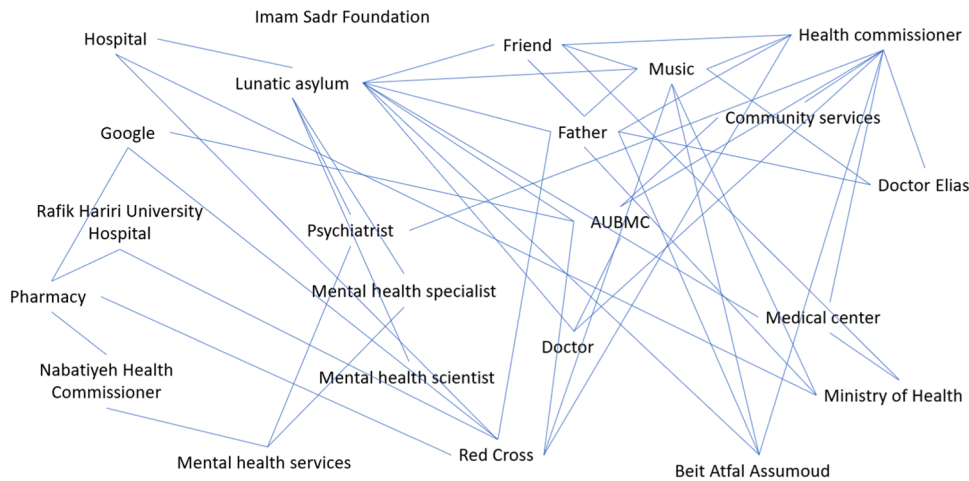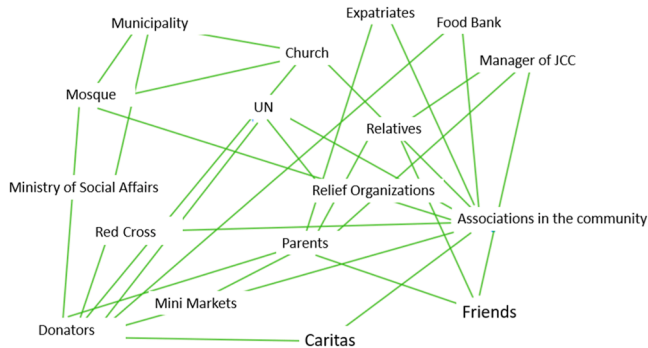

Fig. 2. Map of Lebanese and Palestinian children's social connections and network (abuse scenario)
Caption: PATMSC mapping exercise example from Lebanese and Palestinian children group

Fig. 3. Map of Syrian children's social connections and network (mental health scenario)
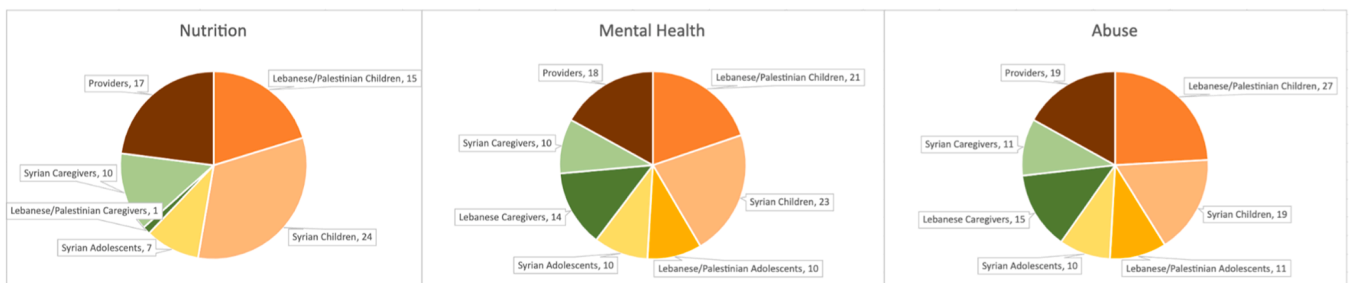Caption: PATMSC mapping exercise example from Syrian children group

Fig. 4. Map of providers' social connections and network (nutrition scenario)
Caption: PATMSC mapping exercise example from providers group

The final question focused on the participants identifying their trust in the connections (Fig. 6). On average, across the study, most participants (90%) had some level of trust in NGOs, this was the same for the Lebanese/Palestinian (90%) subgroup. On average, most participants in the adolescents (79%) and Syrian (78%) subgroups had some level of trust in their community connections. On average, most participants in the caregiver (96%) and children (93%) subgroups had some level of trust in formal health and support connections. The least number of participants from the Lebanese/Palestinian (40%), caregiver (67%), and children (70%) subgroups, had some level of trust in the resources that made up the UN group.

4. Discussion

In this pilot study, we drew on a multi-lingual scoping review, qualitative interviews, and the PATMSC pilot, to explore the social network around children affected by displacement in Lebanon. We found that children, adolescents, and their caregivers have varied social connections when exploring help related to nutrition, mental health, or potential abuse. The role of family is an essential component of one's social network, across all participants. However, the social connections relied upon and the resources available differ depending on the circumstances, underscoring the importance of supporting strong, diversified social networks among populations affected by displacement.

Our findings highlight that family members play a central role in the social network of children across a range of situations. This aligns with findings from other studies that have demonstrated the importance of family, especially for children facing displacement, who may not have an expansive social network (Weine, 2008, Foster et al., 2017, Blum et al., 2022). Our study further expands on the direct relationship between a child and their individual social connections, by attempting to visually map the entirety of their social network. The maps showcase family nodes as highly connected, indicating the direct and indirect influence of family due to their connections to other resources in the child's network. While there are studies that have shown the indirect impact of caregivers' social network on children's health, this has mostly referred to caregivers' well-being and the tangible support they receive in caring for their children, rather than their resourcefulness (Lois, 2022). The complexity of these connections is better depicted through the maps, where we see providers, community members and resources, and NGOs, with direct links to family nodes. These indirect connections can create space and opportunity for building safe physical

Fig. 5. Resources identified by participant group, by scenario
Notes. Resources indicated above are a total count of nodes from mapping exercise.
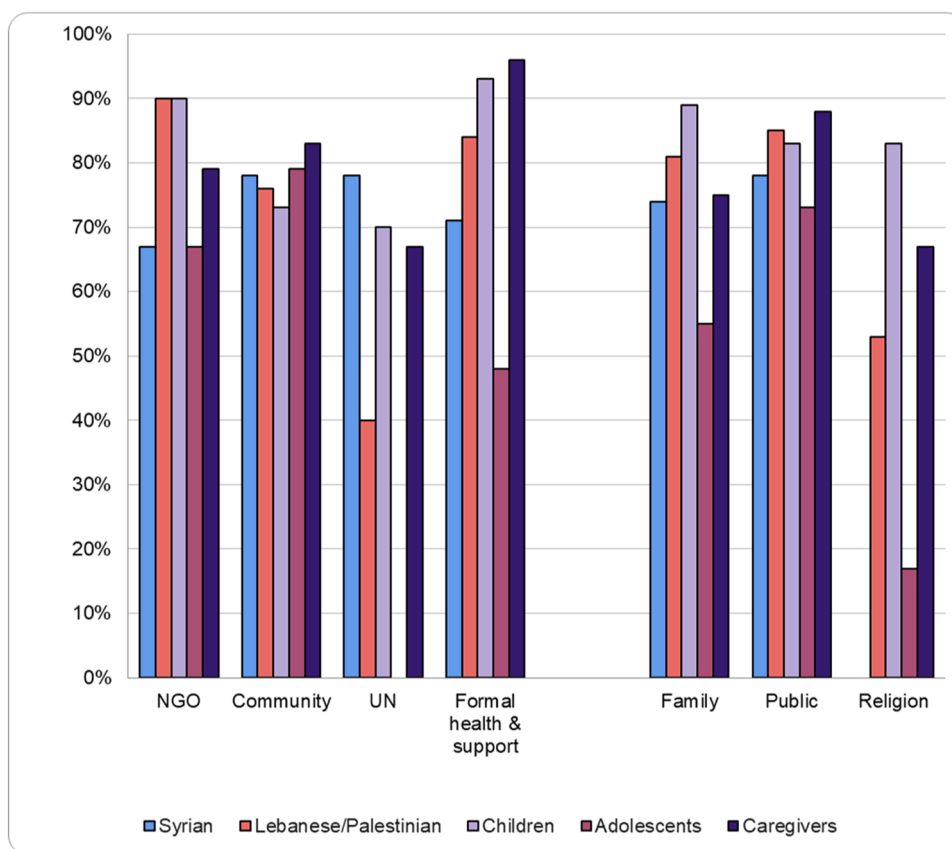Caption: PATMSC mapping exercise findings

Fig. 6. Any level of trust in social connections by group
Caption: PATMSC card sort exercise example of third question: trust

and psychosocial environments that support a child's health, well-being, and development.

Along with family, our findings highlight that community resources are highly connected. In the context of Lebanon, populations affected by displacement encounter challenges with community cohesion (stress between more recently arrived and 'host' community members), which in turn impacts their health and well-being (Syam et al., 2019, Nickerson et al., 2022). Having a well-connected (multi-nodal) network within the host community and access to community resources is critical for these populations. The connectedness of a child's community can facilitate communication, coordination, and even referral among different aspects and points of care, through education, health, religious, and justice systems.

Our study strengthens the findings documented within the literature on this topic. Social connections and trust in those connections are critical for child and adolescent health and development. Studies analyzing the association between social capital and child health and well-being among Syrian refugees in Lebanon highlight that social networks with family and friends are associated with better self-reported health outcomes (Habib Rima et al., 2020). When exploring trust among adolescents' social connections, studies found that it can help facilitate social support and dampen the effects of traumatic experiences (Duren and Yalçın, 2021). Our study adds to this body of literature by introducing an innovative, quick, and low-resource data collection methodology that elevates the voiced experiences of children, youth, and their caregivers. These findings call attention to the pervasive nature of social connections through the critical role of family and the impact of these connections on health and well-being. There are opportunities at the systems and services levels to enhance response efforts, referral pathways, and quality of services. Further research is needed to understand how social connections, trust in them, and their

importance change over time for Syrian refugee children. It was not within the scope of this paper to do a complete network analysis, and the study did not collect unique information on all three populations since Lebanese and Palestinian participants were grouped together as the local population. Future research questions could explore differences between these groups through the comparative role of family, the importance of certain family members, and key familial social connections that influence child and adolescent social network composition.

For practitioners and policy-makers, understanding the components of social networks, what drives them, and how they differ by sector, is essential in planning and maintaining programs that meet evolving needs in resource-constrained settings. The findings from our study support current efforts to localize response, as smaller organizations will often have stronger connections to the populations they work with and a better understanding of how to build and foster trust (UNHCR, MPG n.d., UNHCR 2024). While larger, formal organizations are often where individuals and response resources (financial and material) are organized, building on social connections, and minimizing reliance on formal organizations could lead to more sustainable and equitable programming. Drawing on programs from reintegration of child soldiers, supporting and funding child and youth-led initiatives for these groups to gather, connect, and learn from each other can be an approach to creating and strengthening peer-to-peer relationships, which are essential to their social networks (Our Innovative Programs n.d.). The centrality of the concept of trust includes building, maintaining, and acknowledging trust, and these maps and connections provide valuable evidence that individuals do not engage with those entities that are not trusted. This pilot test sets the foundation for researchers and practitioners to use the PATMSC and replicate the methodology, to capture data that is central to understanding and working with communities affected by displacement and conflict, quickly and with limited resources. It is the

responsibility of donors to invest and fund innovative participatory research methods to support more localized and culturally valid programming.

The PATMSC methodology has the potential to combine the strengths of qualitative participatory methodology with quantitative mapping techniques to efficiently capture social connections. Key strengths identified in this study include: a triangulated (literature review and key-informant interview) research base for study scenarios, which ensures that areas of discussion are topical and salient to the population; real-time review of qualitative and quantitative findings – and their interrelatedness; and agile methodology that efficiently captures data from individuals with varying degrees of literacy, formal schooling, language, and cultural backgrounds and allows for under-valued knowledge(i.e. children's own network understanding) to be documented and amplified. Exploring the scenarios from various stakeholder perspectives, semi-simultaneously (if not delayed by COVID-19, PATMSC workshops could have been conducted concurrently), provides a fast, real-world understanding of complex social networks, that can be leveraged by program staff and providers to more efficiently allocate resources and programming. The PATMSC pilot also highlighted some challenges to fielding, analyzing, and disseminating findings. As with all multi-lingual research projects, translation and adaptation are essential, and issues with translation may cause artifacts of research methodologies to be conflated with valid findings. 100% of participants reported 'self' as a person they look to in all scenarios for help. Future studies should explore if this is a translation issue, a cultural adaptation issue, or an indicator of a lack of social network, where individuals see themselves as central and cannot rely on others for support. Analytically, it is important to understand findings within the local context. For example, Lebanese and Palestinian caregivers reported a lack of resources around nutrition, which could be because they did not see food security as an issue, therefore presenting a lack of understanding around who to go to for help could be an indication of a lack of need, not just a lack of resources. Future studies not influenced by acute pandemic protocols could have a more active community advisory board and or engagement with the population during scenario development, which could alleviate some of these challenges.

This study includes a few important limitations. First, this is a pilot study designed to test the PATMSC methodology and to provide important and timely information to practitioners. Subsequent studies comparing the findings from this method to larger quantitative and qualitative studies would further substantiate the method's validity. Second, this study took place during multiple co-occurring population-level disaster events that challenged data collection and analysis. Owing to 2020-2021 related COVID-19 precautions, originally conceived in-person data collection had to adapt to hybrid methods (such as using video calls and virtual whiteboards for mapping as opposed to markers and paper, which led to challenges around typing in real-time in Arabic alphabets, having NGO staff in the room with children and adolescents – as opposed to only study personnel, inability to bring community advisory board together, etc.). A major explosion in Beirut further complicated data collection and added additional stress and pressure to staff and participants (World Health Organization n.d.).

5. Conclusion

Identifying, and testing, culturally valid, mixed-method data collection techniques is essential to working with diverse populations affected by similar stressors but with differing access to resources. PATMSC provides a strong opportunity to efficiently collect and analyze complex social network data from children and adults alike, providing essential information for programmatic response and a means to disrupt traditional power asymmetries inherent in humanitarian response. Among populations affected by displacement in Lebanon, family connections are the most often used and trusted. Government and non-governmental responders need programs to support familial connections and be careful not to destroy or dismantle them.

CRediT authorship contribution statement

Tanvi Jain: Writing – review & editing, Writing – original draft, Visualization, Supervision, Formal analysis. **Lynsey Cooper:** Writing – review & editing, Writing – original draft, Visualization. **Nicole Khauli:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Formal analysis. **Kathleen Pike:** Writing – original draft, Supervision, Conceptualization. **Brigitte Khoury:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Conceptualization. **Sabrina Hermosilla:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Methodology, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Sabrina Hermosilla reports financial support was provided by National Institute for Health Research. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

Table 1
Summary characteristics of literature reviewed

Citation	Setting & Location	Age Range	N	Results Reported
Peer-Review Literature				
Abdo et al. 2016	Schools in Beirut, Mount Lebanon governorates	11-20 years	1,982	Student tobacco and alcohol consumption linked with last quarter average grades
Alaouie et al. 2015	Schools in Lebanon	13-18 years	2,629	Pictorial more effective than text warnings for preventing student smoking / helping smokers quit
Atoui et al. 2015	Health institution setting in Bekaa governorate	12-17 years	12	Adolescents with sickle cell disease had difficulties in school (e.g. concentration, attendance)
Bahelah et al. 2016	Schools in Beirut, Mount Lebanon, Nabatieh, South governorates	13-15 years	160	Older children at public schools have higher nicotine dependence symptoms (as compared to younger and private school students)
Baroud et al. 2019	Community setting in Lebanon	11-17 years	510	Adolescents who experienced any suicidal ideation or attempt more likely to not be enrolled in school (as compared to those who never experienced suicidality)
Bartels et al. 2018	Community settings in Beirut, Bekaa, North governorates	13 years	577	Lack of educational opportunities contributes to early child marriage among Syrian refugee girls
Charafeddine et al. 2014	Schools in Beirut, Bekaa, Mount Lebanon, Nabatieh, South governorates	14-18 years	5,786	Private high school students had greater improvement in health practice knowledge after intervention (as compared to public school students)
Dabaj et al. 2018	School in Lebanon	15-18 years	300	Students became more knowledgeable about human papilloma virus infection and vaccination after sex education
DeJong et al. 2017	Displaced community setting in Bekaa governorate	10-16 years	118	Syrian refugee adolescents feared verbal attacks and beatings from school-aged Lebanese males
El Harake et al. 2018	Informal schools in Bekaa governorate	10-12 years	183	School-based nutrition intervention effective in improving dietary knowledge, attitude, behavior and nutritional status of Syrian refugee children
Ghandour et al. 2015	School in Lebanon	years	87	Students attending private vs. public schools at greater odds of harmful alcohol use, including: getting into trouble with family/ friends, missing school, or fighting (physical)
Ghattas et al. 2017	School in Lebanon	6-10 years	1,403	Private school children had higher urinary iodine concentration than public school ones
Ghossoub et al. 2017	Community setting in Beirut governorate	11-17 years	510	Adolescents with ADHD had greater academic difficulties and were more likely involved in school bullying, as compared to non-ADHD diagnosed adolescents
Habib et al. 2019	Displaced community settings in Baalbek-Hermel, Bekaa governorates	6-18 years	4,090	Children starting work is primary reason for Syrian refugee non-enrollment in school
Halabi et al. 2017	School in Beirut governorate	years	508	Anxiety and disruptive behavior disorder correlated with peer bullying victimization, symptom manifestation differs by private vs. public school attendance
Jomaa et al. 2018	Community settings in Beirut, Bekaa, Mount Lebanon, Nabatieh, North, South governorates	6-18 years	1,204	Food-insecure households withdrew children from school to cope with food shortage
Khamis 2019a	Schools and non-formal education settings in Beirut, Bekaa, Mount Lebanon governorates	7-18 years	1,000	Syrian refugee children who perceived school environment positively had less neuroticism (as compared to those who perceived school environment negatively)
Khamis 2019b	Schools and non-formal education settings in Beirut, Bekaa, Mount Lebanon governorates	7-18 years	1,000	Syrian refugee children who perceived school environment positively had less emotion dysregulation (as compared to those who perceived school environment negatively)
Maalouf et al. 2016	Community setting in Beirut governorate	11-17 years	510	Children with psychiatric diagnosis correlated with school truancy, bullying peers, and being victimized by peers
Madi et al. 2018	Health institution setting in Lebanon	8-17 years	62	Children with cancer diagnosis report being limited in engaging in gym class activities
Mouhanna et al. 2017	Schools and community settings in Lebanon	11-16 years	2,286	Students who supported reproductive health education more likely to be higher grade level and exposed to more health education topics in school
Mounayar et al. 2019	Schools in Beirut, Mount Lebanon governorates	15-18 years	600	Students attending public vs. private school had significantly greater adherence to Mediterranean diet (AMD); higher grades positively associated with AMD
Nakkash et al. 2018	Schools in Beirut, Bekaa, Mount Lebanon, Nabatieh, North, South governorates	13-15 years	1,279	School-based interventions increased knowledge and shifted attitudes of waterpipe tobacco smoking among adolescents but did not impact behaviors
Salam et al. 2019	Displaced community setting in Bekaa governorate	years	161	Enrollment in school associated with lower number of communication disorders
Veeranki et al. 2015	Community setting in Lebanon	years	1,651	5.5% of youth who received anti-smoking education in schools used waterpipe
Yassin et al. 2018	School in Beirut governorate	15-18 years	107	Education about alcohol use harm in school settings important suggestion to reverse harmful alcohol drinking in youth
Grey Literature				
Bueno 2013[β]	Community settings in North and South governorates	10 years	1	Schools challenging for children with diabetes due to lack of diabetic-friendly meals and insufficient human resources to assist health needs
Cornish 2019	Community setting in Beirut governorate	10-18 years	400	Education for adolescent girls is protective against early marriage, violence, and sexual harassment within refugee communities

Table 1 (*continued*)

Citation	Setting & Location	Age Range	N	Results Reported
Government of Lebanon & UN 2019	Community settings in Lebanon	6-18 years	631,209	Social, economic, and academic barriers, including child labor, hindered Syrian children's school enrolment and attendance
Handicap International 2016[β]	Displaced community settings in North and South governorates	NS	250	Teachers' attitude towards children with autism or Down's syndrome not always positive and acts as a burden for students
Human Rights Watch 2016a[α]	Displaced community, formal, informal, and non-formal education settings in Akkar, Beirut, Bekaa, Mount Lebanon, North governorate	years	156	Syrian girls harassed on way to school, deterring enrollment and increasing dropouts; lack of access to school-based sanitation facilities disrupts attendance; child marriage a barrier to girls' education
Human Rights Watch 2016b[α]	Displaced community, formal, informal, and non-formal education settings in Lebanon	6-18 years	250,000	School-aged Syrian children with disabilities face unique education challenges, are often rejected from schools due to lack of resources
Human Rights Watch 2019	Community settings in Akkar, Baalbek-Hermel, Beirut, Bekaa, Mount Lebanon, North, South governorates	NS	51	Corporal punishment a leading factor in school dropouts, harming children's physical and mental health
Immigration and Refugee Board of Canada 2011[β]	Displaced community, formal, and informal education settings in North, South governorates	NS	NS	Child labor widespread in Palestinian refugee camps; refugee children often drop out of school early to earn money
Jalbout 2015	School in Lebanon	6-18 years	NS	Bullying, harassment, and safety concerns impede young male Palestinian and Syrian refugee school attendance
Karagueuzian 2017[β]	Schools and community settings in Lebanon	6-18 years	4,200	School-based meal programs support enrollment and attendance, particularly for Syrian refugees
Middle East Online 2019[α]	Community and non-formal education settings in Mount Lebanon governorate	NS	30,000	Lack of accepting schools keeps children with autism at home, impairing their developmental skills
Oweini et al. 2014	School in Lebanon	NS	NS	Inclusion of students with disabilities in general education classrooms improved social relationships, communication skills, and focused instruction for students with severe disabilities
Saleh et al. 2019	Community setting in Lebanon	6-18 years	NS	Overweight and obesity prevention policies include: controlling food/drinks in cafeterias, integrating nutrition and physical activity programs, and adding health counseling curricula
Al-Ain news, 2019[α]	Non-formal education setting in Mount Lebanon governorate	NS	NS	Full-time educational program for children with autism and special needs provides safe and supervised environment for developing speech and language skills
Save the Children 2018	Displaced community, formal, and informal education settings in Bekaa, Mount Lebanon governorates	6-18 years	488,000	Bullying and discrimination significant issues for refugees, leading parents to remove children from school; parents concerned about daughters' safety on the way to school
SB OverSeas 2017[β]	Displaced community settings in Beirut, South governorates	years	NS	Child marriage in Syrian refugee girls causes early drop out from schools
Sirin et al. 2015	Schools in Lebanon	6-18 years	NS	Syrian refugee children experience traumatic events, placing them at risk for mental health problems and disrupting education, leading to school dropouts
Soudi 2017	Displaced community setting in Bekaa governorate	10-18 years	NS	Syrian youth lack access to education, preventing improvements in mental health
The International Committee of the Red Cross (ICRC) 2015[β]	Health institution and displaced community settings in North Lebanon governorate	NS	NS	Seriously injured (bombing) Syrian students miss school for rehabilitation services
Their World 2018a	Schools and informal education settings in Lebanon	10-18 years	NS	Children who witness or experience corporal punishment are more likely to drop out of school and have lower academic achievement
Their World 2018b	Schools in Bekaa, Mount Lebanon governorates	NS	4,000	2-year school nutrition program was successful in improving school attendance, dietary habits, and overall educational attainment in disadvantaged Lebanese and Syrian refugee children
UNHCR 2018	Community and Displaced community settings in Beirut, Mount Lebanon governorates	10-18 years	479	Violence on the way to or in school a reason for increased dropout among school-aged children
UNICEF 2019	Displaced community settings in Akkar, Mount Lebanon, Nabatieh, North, South governorates	6-14 years	NS	Child-focused cash transfer program increased formal school enrollment rates of displaced Syrian children
UPR Lebanon 2018[α]	Community setting in Lebanon	NS	NS	Violence towards children in home, school, and community affects child's physical and mental health and ability to learn and form social relationships
Yassin 2019	Displaced community, formal, and informal settings in Lebanon	6-17 years	666,491	Schools restrictions on concurrent student employment main reason for low attendance among Syrian refugee children

NOTE: For peer-reviewed articles, participants refer to the study analytical sample. NS = Not Specified
[α] Original article in Arabic
[β] Original article in French.

Table 2

Scenarios and questions for the PATMSC workshops and card sort exercise

Scenario	Questions
Nutrition - if you were struggling to find healthy, nutritious food Mental Health - if you know someone who is struggling with feeling low, sad, or considering hurting themselves	Phase 1 Workshops: 1. What people or groups might you or someone in your community talk to about such a problem, or go to and ask for help? 2. If this person or group could not help you with this problem, to whom might they refer / pass you? 3. How are these groups or people connected to each other? 4. Are there any more individuals or groups that you don't see listed here?

Table 2 (*continued*)

Scenario	Questions
Abuse - if you know someone who experiences violence (hitting, slapping, beating, abuse; at home, in school, on the way to or from school, or in the community)	Phase 2 Card Sort: 1. Have you spoken to, or asked [ORGANIZATION / INDIVIDUAL] for help in the last six months? (Yes/No) 2. How much do you trust this person or organization? (A lot, a little, or not at all) 3. Has this person or organization asked you for help in the last six months? (Yes/No)

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