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How do Jordanian and Syrian Youth living in Jordan envision their sexual and reproductive health needs? A Concept Mapping study protocol

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3 ***How do Jordanian and Syrian Youth living in Jordan envision their sexual and reproductive***
4 ***health needs? A Concept Mapping study protocol***
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How do Jordanian and Syrian Youth living in Jordan envision their sexual and reproductive health needs? A Concept Mapping study protocol

Abstract

Introduction

Youth in Jordan constitute 20.4% of the population(1), and many face considerable challenges in addressing their sexual and reproductive health (SRH) needs (2-4), such as those related to the prevention of unintended pregnancy and STIs (4-8), early marriage (9, 10), and sexual coercion and violence (11, 12). The findings of previous studies indicate that Jordanian youth require reproductive health-related support, information, and services; however, there remains very limited data as to how youth envision their SRH challenges and needs. This protocol outlines the design of a qualitative study using a participatory research methodology called concept mapping. This methodology enables participants to develop a conceptual framework for how they envision their sexual and reproductive health needs.

Methods and analysis

This study will use concept mapping, which consists of a structured and iterative participatory research process that engages participants over three data collection sessions in order to generate the information needed to create a visual display of their ideas pertaining their SRH needs, issues, and concerns and how these ideas relate to each other. Each data collection session focuses on a different activity, including brainstorming, pile-sorting and interpretation of the results. Data will be analyzed using hierarchical cluster analysis and multidimensional scaling. Transcriptions of group discussions will be coded and analyzed to add depth to the study results. Two hundred eighty-eight males and females of Jordanian or Syrian descent living in Jordan will be recruited from four communities across Jordan.

Ethics and dissemination

This study meets the requirements of the Declaration of Helsinki and has been approved by the Institutional Review Boards at the Harvard T.H. Chan School of Public Health and the University of Jordan. Study findings will be presented in peer-reviewed, international journals and made available to local program managers, policy-makers and stakeholders through local dissemination efforts.

Strengths and Limitations of this study

- The use of concept mapping, an iterative and interactive qualitative data collection and analysis technique, encourages participants to open up about sensitive topics -- especially younger youth.
- This study includes young men; a population that is commonly overlooked in studies on sexual and reproductive health.
- The sample size is robust (n=288) for concept mapping in order to obtain a rich data set.
- While a strength of this study lies in the fact that sexual and reproductive health issues in this population are understudied, the cultural sensitivity of the topics discussed may influence the results in that participants may not be comfortable sharing their ideas.
- Because this study is qualitative in nature, results may not be generalizable outside the study population.

Introduction

The United Nations defines young people as those aged between 10–24 years; this includes adolescents (10–19 years) and youth (15–24 years).⁽¹³⁾ During these years, individuals undergo fundamental physiological and psychosocial changes, often with limited reproductive health information.^(2, 3) In less developed countries, the obstacles that stand in the way of a healthy transition to adulthood are the highest.⁽¹⁴⁾ The world's youth are at a higher risk of sexual and reproductive morbidity and mortality due to a variety of factors including early marriage, early pregnancy, unsafe abortion, sexually transmitted infections, harmful traditional practices, and sexual coercion.⁽¹⁵⁻¹⁷⁾ Conservative sociocultural norms, such as those found in many areas throughout the Middle East, create barriers to youth obtaining specific, timely, and high quality sexual and reproductive health (SRH) information and services.^(18, 19)

Youth in Jordan constitute 20.4% of the population⁽¹⁾, many of whom face considerable challenges in addressing their sexual and reproductive health (SRH) needs ⁽²⁻⁴⁾, including those related to the prevention of unintended pregnancy and STIs ⁽⁴⁻⁸⁾, early marriage ^(9, 10), and sexual coercion and violence ^(11, 12). The findings of previous studies indicate that Jordanian youth need reproductive health-related support, information, and services. The National Youth Survey conducted in 2001 included 2,142 Jordanians aged 15-24.⁽⁴⁾ The survey found that 29% of women and 44% of men aged 15-24 did not know the meaning of the term reproductive health, and healthcare providers and media were the preferred sources of family planning (FP) and SRH information, compared to peers or parents. A recent qualitative study of 60 Jordanian adolescent men and women between the ages of 12-18 indicated that there is significant demand for reproductive health information, counseling, and accessible, youth-friendly services near where they live or study.⁽³⁾

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5 A few qualitative studies conducted among Jordanians and Syrians have documented that youth
6 perceive available family planning services to be unpleasant, unprofessional, and of poor
7 quality.(3, 20) Additionally, youth cite concerns that providers do not take them seriously, treat
8 them like children, do not know what information youth need, and view youth's questions as
9 inappropriate.(21) An evaluation of services offered at selected public and private clinics in
10 Jordan noted a lack of private rooms at MOH clinics (22), which is a concern that has been echoed
11 by youth.(3) Another study found that providers often give incorrect information to youth
12 regarding reproductive health, such as instructing them not to use contraception because of fears
13 over the relationship between family planning use and infertility.(23) Because of these and other
14 challenges, utilization rates among adolescents of public sector health services are extremely
15 low. The Jordanian Ministry of Health estimates a primary health care utilization rate among
16 adolescents of 1% or less.(24)
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23 Jordanian society is fairly conservative with regard to norms relating to sexuality, and the
24 discussion of sex-related issues openly or within families is often unacceptable and taboo. Sexual
25 relationships are often prohibited outside of marriage.(23) As a result of the culture of silence
26 surrounding sexuality, youth in Jordan exhibit limited knowledge on sexual and reproductive
27 health issues. Additionally, the cultural context around SRHR in Jordan renders the study of SRHR
28 issues challenging, thus limiting the availability of data and its reliability.(11, 25)
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33 In assessing the SRHR needs of youth in Jordan, it is important to note that approximately 30%
34 of Jordan's population is non-Jordanian, with almost one half of them being Syrian refugees. Of
35 the estimated 1.2 million Syrian refugees currently living in Jordan(1), only 16% reside in the five
36 official camps.(26, 27) More than one-third live in the capital, one-third in Irbid, 16% in Mafraq
37 and 14% in Zarqa.(28) The large population growth in many of these areas has significantly
38 increased demand on the limited health resources available, while deepening existing
39 socioeconomic deprivation, such as poverty, geographical isolation, gender-based discrimination
40 and inadequate governance that ultimately manifests in further limiting access to sexual and
41 reproductive health services.(29)
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47 Syrian men and women living in Jordan face unprecedented challenges with regard to their sexual
48 and reproductive health. The humanitarian crisis has caused young girls to become increasingly
49 vulnerable to poor SRH outcomes, such as early pregnancy, child marriage, gender-based
50 violence and sexual assault as a result of changing economic pressures, community dynamics and
51 social norms.(29-32) Previous qualitative research has highlighted that many young women fear
52 negative repercussions, such as stigmatization and discrimination from service providers and
53 their communities, should they seek sexual and reproductive health services, while others report
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3 poor treatment by healthcare workers.(33) Additionally, many Syrian refugee youth do not have
4 basic knowledge related to reproductive health or know where to find a provider (34-37). A study
5 conducted in 2013 among Syrian refugees in camps found evidence of both severe supply and
6 demand side barriers, such as provider bias in offering women contraception and limited
7 knowledge among women of where to obtain SRH services, resulting in reports of provider
8 refusal to provide emergency contraception post-rape and women reporting self-induced
9 abortion because of the lack of contraceptive availability.(38) Women living outside of camps
10 often faced increased challenges with regard to SRH than those in camps, given that they tend to
11 be younger, poorer and less educated. (34-37, 39)
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17 As Jordan's health system tries to respond to the changing needs in these communities, more
18 research is needed that examines how youth envision their SRH concerns, as well as the
19 challenges that they encounter related to meeting their reproductive health needs. In Jordan,
20 the SRH health needs of youth are largely understudied due to concerns over the sensitive nature
21 of discussing such topics with youth, and assumptions that conflate the silence on SRH issues
22 with a lack of need.(40) Many existing studies have limited sample sizes and other
23 methodological limitations.(2-4, 23) Furthermore, a majority of research on SRH among youth
24 was conducted before the Syrian civil war. Our study will therefore make an important
25 contribution to understanding SRH from the perspective of youth in Jordan, while also offering a
26 comparative perspective between Syrians and Jordanians and by participant sex. Hence, with this
27 study, we aim to address the following research questions:
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- 33 1. How do youth define and prioritize their SRH needs in Jordan?
- 34 2. What are the differences in the SRH needs between Jordanians and Syrians, as well as
35 between young men and women?
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38 **Methods and analysis**

39 *Methodological Overview*

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41 This study uses an iterative and participatory qualitative research methodology called concept
42 mapping. Concept mapping is a structured qualitative data collection and analytical process that
43 ultimately results in the development of a visual conceptual framework that depicts how a group
44 views key topics within a given conceptual domain and how the relationships between those
45 topics are structured (41, 42). The process of concept mapping typically occurs over a sequential
46 series of group sessions that build on one another, which include interactive activities, such as
47 brainstorming, pile sorting, and group discussion. The final result is a visual map that depicts the
48 conceptual framework developed by the group. Data collection activities are interspersed with
49 an analytical process.
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3 Previous studies have used concept mapping to engage youth in sensitive and abstract concepts,
4 including those related to sexual and reproductive health (43, 44). One benefit of this approach,
5 especially in its use with sensitive topics, is that its longitudinal nature enables youth to become
6 more comfortable with the topic and the other participants over time. By applying this
7 underutilized approach, this study will add to the literature on this methodology's use and
8 relevance among adolescents.
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12 13 *Participant selection and recruitment*

14 The current study will include Jordanian and Syrian adolescents (aged 15-19) recruited from the
15 Jordanian cities of Amman, Irbid, Mafrqa, and Zarqa. In total, 288 participants will be enrolled in
16 the study, assuming an attrition rate of 10%. Recruitment of participants will be divided equally
17 between study sites and stratified by gender and national origin. In each community, 18
18 Jordanian males, 18 Jordanian females, 18 Syrian males, and 18 Syrian females will be recruited.
19 Participants will be recruited by convenience from a local community development center that
20 provides health and livelihood programs to underserved youth. Community meetings will be held
21 to discuss the study in order to ensure support from the local community leaders, and
22 participants will be invited to enroll in the study following those meetings.
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28 The required number of participants for concept mapping varies according to the type of research
29 (45); however, the proposed number of study participants (288 participants) is robust compared
30 with other studies using concept mapping. (44, 46, 47) We decided on a large number of
31 participants because of the sensitive nature of the topic, the desire to compare data by sex and
32 national origin, and to ensure that we reach saturation and generate a wide range of ideas for
33 discussion.
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38 39 *Data collection procedures and iterative analytical process*

40 Data collection will take place from September to November 2018. Youth will be asked to
41 participate in 3 separate group sessions, each lasting 1.5 hours. The first group session will be
42 scheduled at the time of recruitment. All 3 sessions will take place within a 3-week period. Each
43 group session will include up to 18 individuals of the same sex and national origin. Group
44 facilitators will be of the same sex as participants and will be from the same communities to
45 ensure the participants feel comfortable sharing information.
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49 Different activities will occur in each of the three data collection sessions. The importance of
50 confidentiality and respect will be emphasized at the beginning of each session. At the beginning
51 of the first session, the facilitator will brainstorm ground rules with the participants. Ground rules
52 will be written on a large flip-chart at the front of the room, and it will be reviewed at the start
53 of all subsequent data collection sessions. Then, participants will be asked to complete a short
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3 demographic survey before starting activities. The demographic survey will be multiple choice
4 and collect information on age, city of residence, nationality, educational status of the participant
5 and his/her parents, marital status, age of marriage, perceived wealth, where the individual
6 receives reproductive health information, and their previous experience with reproductive
7 health service provision.
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11 Participants will then be guided through a brainstorming session, in which participants first work
12 in pairs before rejoining the large group discussion. As a warm-up activity to initiate conversation,
13 the facilitator will ask the group what is meant by the phrase sexual and reproductive health.
14 After individuals have volunteered some ideas, the facilitator will provide the following
15 definition: *“Good sexual and reproductive health is a state of complete physical, mental and social
16 well-being in all matters relating to the reproductive system. It implies that people are able to
17 have a satisfying and safe sex life, the capability to reproduce, and the freedom to decide if, when,
18 and how often to do so.”*(48) The facilitator will write this definition on a flip chart so that
19 participants can refer to it during the discussion, as needed.
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26 Next, the facilitator will ask participants to work in pairs to discuss anything that comes to mind
27 related to the *“different sexual and reproductive health concerns, challenges, needs or fears, that
28 [the participants] or other people in [their] community [their] age may have,”* with a goal of
29 developing a list of all of the concerns related to sexual and reproductive health that affect youth
30 in the study communities. Participants will be asked to write everything discussed on a sheet of
31 paper. After 10 minutes, the facilitator will open a large group discussion. Participants will be
32 given the opportunity to share the factors they brainstormed, and encouraged to add more
33 factors as the group conversation continues. Facilitators will take notes on a large flip chart at
34 the front of the room. Before the close of the session, facilitators will pass out paper and ask
35 participants to privately write down any other issues that they would like to contribute but were
36 too embarrassed or nervous to share with the group to be placed in a box at the front of the
37 room. After the end of the first session, the focus group facilitators will collect the notecards,
38 paper, and the flip charts and return them to the study team’s principal researchers.
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46 The first analytical step in the process occurs between the first and the second sessions. After
47 the first session, study staff will consolidate the brainstormed factors from all groups, keeping
48 the factors separated by sex. Study staff will remove duplicates and consolidate brainstormed
49 items into a master list of all the ideas generated in all groups.
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53 During the second group session, participants will be divided into pairs and given a stack of
54 notecards. On each notecard, an item from a consolidated list of topics will be printed. Each pair
55 will be given a complete set of cards including all items from the master list. Participants will be
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3 instructed to organize the items into piles that are meaningful to them. There are no rules for
4 how to sort the items except 1) no item can be placed in a pile by itself, and 2) all of the items
5 cannot be placed into the same pile. Once the piles are created, participants will be asked to
6 generate a name for each pile that represents the items that it contains. After this task is
7 complete, participants will be asked to fill out a paper survey that contains a list of each of the
8 items that they used in the sorting activity. Participants will be asked to rate each item on a scale
9 of 1 to 5, both in terms of importance to their SRH and how sensitive the item is in their
10 communities.
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16 The data obtained from the pile sorting exercise will be analyzed using hierarchical cluster
17 analysis (42, 45). First, participant responses will be encoded into binary similarity matrices which
18 will be added together to create a combined matrix of all participants' data. Second, a Euclidian
19 distance matrix will be calculated from the combined matrix. Multidimensional scaling (MDS) will
20 be used to determine the degree of similarity between items and to organize them into a spatial
21 configuration (49). Scree plots and Shepard plots will determine the number of spatial
22 dimensions to best represent the data (50). Based on this analysis, individual items will be
23 grouped into clusters that represent high-level concepts on a visual map. The distance between
24 any two points or clusters will represent their degree of similarity or difference, indicated by their
25 closeness (or distance from) each other. The preliminary names given to cluster will be initially
26 selected based on participant data. Separate maps will be generated for boys and girls.
27 Additionally, basic descriptive statistics will be calculated using the ranking data, and
28 disaggregated by sex and nationality.
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36 In the third and final session, participants will be asked to interpret the results and discuss
37 differences between key demographic groups (males/females and Syrians/Jordanians). The
38 results from the previous analytical step be presented on a visual map that shows aggregated
39 relationships between ideas in which the list of concepts is organized into related higher-level
40 clusters. Participants will be asked to discuss their reactions to the map, whether they agree with
41 the cluster groupings and preliminary names, and their insights into the spatial organization of
42 the map. Additionally, the facilitator will present the ranking data in terms of sensitivity and
43 importance. Participants will be asked to identify and discuss differences between groups and
44 why those differences exist.
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50 After the last session, the visual maps will be finalized based on confirmation during the group
51 discussion. For example, participants may recommend changes to the names of clusters based
52 on the content of items they contain. The transcripts from the final group discussion will be
53 thematically coded and used to add depth to the interpretation of the cluster maps. Participant
54 quotations will be used to support the results of the cluster maps.
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5 Only the first and third group sessions will be audio recorded. Only the third session will be
6 transcribed. Notes will be taken by the interviewers during the discussions in order to augment
7 the digitally recorded data.
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10 Group facilitators will undergo extensive training in order to become comfortable with the
11 research approach and to ensure adherence to study procedures. An initial two-day training will
12 be provided to group facilitators that includes both didactic and participatory elements.
13 Throughout the training, group facilitators will participate in the concept mapping activities as
14 though they are participants so that they may better internalize study activities and observe the
15 facilitator's role. At the end of the second day of the initial training, facilitators will pre-test the
16 study materials with one group each of males and females in the target age range from one of
17 the study communities prior to initiating data collection activities. This will provide an
18 opportunity for the facilitators to practice study procedures. Additionally, it will provide an
19 opportunity to revise any instruments, if needed. Finally, before the last data collection session,
20 facilitators will again undergo an additional one-day training that will help familiarize themselves
21 with the study results, so that they may be better equipped to support interpretation of the data.
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28 *Patient and Public Involvement*

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30 Prior to developing the research questions and study approach, we first engaged in a
31 participatory process that included consultations with local policymakers (including locally-
32 elected government officials and representatives from relevant government ministries),
33 stakeholders (including representatives from donor organizations, non-governmental
34 organizations, and health service-delivery organizations active in Jordan), and members of the
35 study population (Jordanian and Syrian youth aged 15-19 years). In addition to individual
36 meetings, we held a consultation workshop in which participants from the groups identified
37 above discussed our research objectives, questions, and our proposed methodological approach.
38 This consultation provided important insight as to how to guide our research so as to be most
39 relevant to the local context and needs, and how to most effectively approach communities to
40 ensure local buy-in given the sensitive nature of the study topic. Additionally, participants
41 identified potential ethical concerns with participants and how to mitigate those issues. As part
42 of this process, we also discussed preferences related to research utilization and dissemination
43 of our findings to ensure that our findings are presented to community stakeholders and
44 participants in ways that would facilitate integration of our results into policy and programs.
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52 Following the recommendations from the consultative process, we established a steering
53 committee that consists of opinion leaders, academics, and policymakers in the fields of
54 reproductive health, education, and youth in Jordan. Additionally, we established a second
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3 steering committee that includes Jordanian and Syrian youth within the study's target age range
4 (aged 15-19 years). The role of the steering committee is to provide ongoing review of study
5 objectives, procedures, and methodologies in order to ensure the research is contextually
6 relevant and to provide guidance on any ethical concerns related to the research. A secondary
7 objective of this steering committee is to cultivate ownership of the study procedures of results,
8 and to develop strategies for effective dissemination of research results.
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13 One of our priorities is to ensure that the results of our study are disseminated to study
14 participants and their communities. One of the ways in which we will ensure that participants
15 interact with the study's results is inherent to the research methodology itself. The iterative,
16 participatory process that is central to concept mapping as a methodology enables study
17 participants to actively engage with and react to their own data throughout the data collection
18 process while also supporting efforts in data analysis. We also plan to also hold targeted events
19 in order to ensure that the research results are disseminated more broadly within the study
20 communities. We plan to host roundtable discussions that include members of the four study
21 communities, and we will also engage members of a popular, local youth-led radio station to
22 develop create ways to disseminate key messages from our study to a broad audience.
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28 **Research Ethics**

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31 This study has been approved by the Institutional Review Boards at the Harvard T.H. Chan School
32 of Public Health and the University of Jordan. As the study involves both minors (under the age
33 of 18) and those above the age of majority in Jordan (18 years and older), separate consent
34 processes will occur for each age group. At the time of recruitment, minors will be given a
35 parental permission sheet. Parents will be required to return to the sheet to study staff at the
36 local community development center in-person, otherwise, their child will not be allowed to
37 participate. Minors will undergo an informed assent process using simplified language on the
38 day of the first data collection session, prior to its start. Participants 18 years of age and above
39 will undergo informed consent at the time of recruitment.
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45 To protect the confidentiality of the participants in the study, we will not collect direct, personal
46 identifiers at any point in the study process. Upon enrollment, individuals will select an
47 anonymous identifier by which to refer to themselves, and will refer to that codename in each of
48 the focus group discussions so that we can track enrollment. There will be no documents that
49 link the codename and any personally identifiable information. Facilitators will be instructed not
50 to collect any personally identifiable information in any of their data collection materials. Audio
51 recordings and other study materials will be destroyed once the data collection activities are
52 complete.
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Refugees included in this study will be recruited from those living outside of refugee camps. Some of the refugees recruited may be officially registered as such, and some may not. Because a refugee's registration status is somewhat sensitive in that it relates to access to government benefits and services, we will not ask about whether or not the refugee is registered as part of the recruitment process; however, we will provide information to refugees about the registration process should they be interested in learning more about registration. Refugees constitute a large percentage of the population in all the study communities. Given their large number, as well as the fact that many governmental and non-governmental organizations in the study communities work with refugees, their participation in this study is not expected to cause any additional risk. Furthermore, having equal number of Jordanian nationals and refugees included across all phases of data collection ensures no discriminant conduct.

Data collection activities will occur in a community development center that is run by a local non-governmental organization active in community development. Each community development center has private space so that confidentiality can be maintained. Considering it is common for youth and parents to regularly participate in events at these community development centers, anonymity will be maintained among study participants, as their presence at the sites will not raise any undue attention within their communities. All participants will be given information regarding where they can obtain health or other social support services, and facilitators will be available after each session so that participants can speak with them privately about any concerns.

Discussion and Dissemination

This study will provide important insight for future research, policy and programs intending to better serve youth in Jordan and across the Middle East. There is very limited data on the concerns that the youth in this region have in relation to their sexual and reproductive health. As this research methodology will provide a conceptual framework for how youth themselves envision and prioritize their concerns, the results will provide important information so that programs may better meet the constellation of their needs. As many of the SRH issues in this domain are interrelated and interact with each other (51), concept mapping is an ideal methodology to engage youth on this topic.

In order to ensure that study results are made available for integration into policy and programs, we will disseminate the results of this study in several ways. Aggregate results and final publications will be disseminated to the community and local institutions where the research is conducted, as previously discussed. Any publications/reports that are prepared using this data

will also be shared with local government bodies and other stakeholders in Jordan. Finally, it is anticipated that this data will be used to develop peer-reviewed manuscripts to publish in academic journals.

Authors Contributions

All authors were involved in conceptualization of the study design and development of study methods, instruments, and protocol. JG wrote the first draft. AO, IH, MD, and AL provided critical input and revisions. All authors approved of the final draft.

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Competing interests statement

The authors report no competing interests

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How do Jordanian and Syrian Youth living in Jordan envision their sexual and reproductive health needs? A Concept Mapping study protocol

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4 ***health needs? A Concept Mapping study protocol***
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How do Jordanian and Syrian Youth living in Jordan envision their sexual and reproductive health needs? A Concept Mapping study protocol

Abstract

Introduction

Youth in Jordan constitute 20.4% of the population, and many face considerable challenges in addressing their sexual and reproductive health (SRH) needs, such as those related to the prevention of unintended pregnancy and STIs, early marriage, and sexual coercion and violence. The findings of previous studies indicate that Jordanian youth require reproductive health-related support, information, and services; however, there remains very limited data as to how youth envision their SRH challenges and needs. This protocol outlines the design of a qualitative study using a participatory research methodology called concept mapping. This methodology enables participants to develop a conceptual framework for how they envision their sexual and reproductive health needs.

Methods and analysis

This study will use concept mapping, which consists of a structured and iterative participatory research process that engages participants over three data collection sessions in order to generate the information needed to create a visual display of their ideas pertaining their SRH needs, issues, and concerns and how these ideas relate to each other. Each data collection session focuses on a different activity, including brainstorming, pile-sorting and interpretation of the results. Data will be analyzed using hierarchical cluster analysis and multidimensional scaling. Transcriptions of group discussions will be coded and analyzed to add depth to the study results. Two hundred eighty-eight males and females of Jordanian or Syrian descent living in Jordan will be recruited from four communities across Jordan.

Ethics and dissemination

This study meets the requirements of the Declaration of Helsinki and has been approved by the Institutional Review Boards at the Harvard T.H. Chan School of Public Health and the University of Jordan. Study findings will be presented in peer-reviewed, international journals and made available to local program managers, policy-makers and stakeholders through local dissemination efforts.

Strengths and Limitations of this study

- The use of concept mapping, an iterative and interactive qualitative data collection and analysis technique, encourages participants to open up about sensitive topics -- especially younger youth.
- This study includes young men; a population that is commonly overlooked in studies on sexual and reproductive health.
- The sample size is robust (n=288) for concept mapping in order to obtain a rich data set.
- While a strength of this study lies in the fact that sexual and reproductive health issues in this population are understudied, the cultural sensitivity of the topics discussed may influence the results in that participants may not be comfortable sharing their ideas.
- Because this study is qualitative in nature, results may not be generalizable outside the study population.

Introduction

The United Nations defines young people as those aged between 10 to 24 years; this includes adolescents (10 to 19 years) and youth (15 to 24 years).¹ During these years, individuals undergo fundamental physiological and psychosocial changes, often with limited reproductive health information.^{2,3} In less developed countries, the obstacles that stand in the way of a healthy transition to adulthood are the highest.⁴ The world's youth are at a higher risk of sexual and reproductive morbidity and mortality due to a variety of factors including early marriage, early pregnancy, unsafe abortion, sexually transmitted infections, harmful traditional practices, and sexual coercion.⁵⁻⁷ Conservative sociocultural norms, such as those found in many areas throughout the Middle East, create barriers to youth obtaining specific, timely, and high quality sexual and reproductive health (SRH) information and services.^{8,9}

Youth in Jordan constitute 20.4% of the population,¹⁰ many of whom face considerable challenges in addressing their sexual and reproductive health (SRH) needs^{2,3,11}, including those related to the prevention of unintended pregnancy and STIs,¹¹⁻¹⁵ early marriage,^{16,17} and sexual coercion and violence.^{18,19} The findings of previous studies indicate that Jordanian youth need reproductive health-related support, information, and services. The National Youth Survey conducted in 2001 included 2,142 Jordanians aged 15-24.¹¹ The survey found that 29% of women and 44% of men aged 15-24 did not know the meaning of the term reproductive health, and healthcare providers and media were the preferred sources of family planning (FP) and SRH information, compared to peers or parents. A recent qualitative study of 60 Jordanian adolescent men and women between the ages of 12 to 18 indicated that there is significant demand for reproductive health information, counseling, and accessible, youth-friendly services near where they live or study.³

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5 A few qualitative studies conducted among Jordanians and Syrians have documented that youth
6 perceive available family planning services to be unpleasant, unprofessional, and of poor
7 quality.^{3,20} Additionally, youth cite concerns that providers do not take them seriously, treat them
8 like children, do not know what information youth need, and view youth's questions as
9 inappropriate.²¹ An evaluation of services offered at selected public and private clinics in Jordan
10 noted a lack of private rooms at MOH clinics,²² which is a concern that has been echoed by youth.³
11 Another study found that providers often give incorrect information to youth regarding
12 reproductive health, such as instructing them not to use contraception because of fears over the
13 relationship between family planning use and infertility.²³ Because of these and other challenges,
14 utilization rates among adolescents of public sector health services are extremely low. The
15 Jordanian Ministry of Health estimates a primary health care utilization rate among adolescents
16 of 1% or less.²⁴
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23 Jordanian society is fairly conservative with regard to norms relating to sexuality, and the
24 discussion of sex-related issues openly or within families is often unacceptable and taboo. Sexual
25 relationships are often prohibited outside of marriage.²³ As a result of the culture of silence
26 surrounding sexuality, youth in Jordan exhibit limited knowledge on sexual and reproductive
27 health issues. Additionally, the cultural context around SRHR in Jordan renders the study of SRHR
28 issues challenging, thus limiting the availability of data and its reliability.^{18,25}
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33 In assessing the SRHR needs of youth in Jordan, it is important to note that approximately 30%
34 of Jordan's population is non-Jordanian, with almost one half of them being Syrian refugees. Of
35 the estimated 1.2 million Syrian refugees currently living in Jordan,¹⁰ only 16% reside in the five
36 official camps.^{26,27} More than one-third live in the capital, one-third in Irbid, 16% in Mafraq and
37 14% in Zarqa.²⁸ The large population growth in many of these areas has significantly increased
38 demand on the limited health resources available, while deepening existing socioeconomic
39 deprivation, such as poverty, geographical isolation, gender-based discrimination and
40 inadequate governance that ultimately manifests in further limiting access to sexual and
41 reproductive health services.²⁹
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47 Syrian men and women living in Jordan face unprecedented challenges with regard to their sexual
48 and reproductive health. The humanitarian crisis has caused young girls to become increasingly
49 vulnerable to poor SRH outcomes, such as early pregnancy, child marriage, gender-based
50 violence and sexual assault as a result of changing economic pressures, community dynamics and
51 social norms.²⁹⁻³² Previous qualitative research has highlighted that many young women fear
52 negative repercussions, such as stigmatization and discrimination from service providers and
53 their communities, should they seek sexual and reproductive health services, while others report
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3 poor treatment by healthcare workers.³³ Additionally, many Syrian refugee youth do not have
4 basic knowledge related to reproductive health or know where to find a provider³⁴⁻³⁷. A study
5 conducted in 2013 among Syrian refugees in camps found evidence of both severe supply and
6 demand side barriers, such as provider bias in offering women contraception and limited
7 knowledge among women of where to obtain SRH services, resulting in reports of provider
8 refusal to provide emergency contraception post-rape and women reporting self-induced
9 abortion because of the lack of contraceptive availability.³⁸ Women living outside of camps often
10 faced increased challenges with regard to SRH than those in camps, given that they tend to be
11 younger, poorer and less educated.^{34-37,39}
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17 As Jordan's health system tries to respond to the changing needs in these communities, more
18 research is needed that examines how youth envision their SRH concerns, as well as the
19 challenges that they encounter related to meeting their reproductive health needs. In Jordan,
20 the SRH health needs of youth are largely understudied due to concerns over the sensitive nature
21 of discussing such topics with youth, and assumptions that conflate the silence on SRH issues
22 with a lack of need.⁴⁰ Many existing studies have limited sample sizes and other methodological
23 limitations.^{2,3,11,23} Furthermore, a majority of research on SRH among youth was conducted
24 before the Syrian civil war. Our study will therefore make an important contribution to
25 understanding SRH from the perspective of youth in Jordan, while also offering a comparative
26 perspective between Syrians and Jordanians and by participant sex. Hence, with this study, we
27 aim to address the following research questions:
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- 33 1. How do youth define and prioritize their SRH needs in Jordan?
- 34 2. What are the differences in the SRH needs between Jordanians and Syrians, as well as
35 between young men and women?
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38 **Methods and analysis**

39 *Methodological Overview*

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41 This study uses an iterative and participatory qualitative research methodology called concept
42 mapping. Concept mapping is a structured qualitative data collection and analytical process that
43 ultimately results in the development of a visual conceptual framework that depicts how a group
44 views key topics within a given conceptual domain and how the relationships between those
45 topics are structured.^{41,42} The process of concept mapping typically occurs over a sequential
46 series of group sessions that build on one another, which include interactive activities, such as
47 brainstorming, pile sorting, and group discussion. The final result is a visual map that depicts the
48 conceptual framework developed by the group. Data collection activities are interspersed with
49 an analytical process.
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3 Previous studies have used concept mapping to engage youth in sensitive and abstract concepts,
4 including those related to sexual and reproductive health.^{43,44} One benefit of this approach,
5 especially in its use with sensitive topics, is that its longitudinal nature enables youth to become
6 more comfortable with the topic and the other participants over time. By applying this
7 underutilized approach, this study will add to the literature on this methodology's use and
8 relevance among adolescents.
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12 13 *Participant selection and recruitment*

14 The current study will include Jordanian and Syrian adolescents (aged 15 to 19 years) recruited
15 from the Jordanian cities of Amman, Irbid, Mafrqa, and Zarqa. In total, 288 participants will be
16 enrolled in the study, assuming an attrition rate of 10%. Recruitment of participants will be
17 divided equally between study sites and stratified by gender and national origin. In each
18 community, 18 Jordanian males, 18 Jordanian females, 18 Syrian males, and 18 Syrian females
19 will be recruited. Participants will be recruited by convenience from a local community
20 development center that provides health and livelihood programs to underserved youth.
21 Community meetings will be held to discuss the study in order to ensure support from the local
22 community leaders, and participants will be invited to enroll in the study following those
23 meetings.
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30 The required number of participants for concept mapping varies according to the type of
31 research;⁴⁵ however, the proposed number of study participants (288 participants) is robust
32 compared with other studies using concept mapping.^{44,46,47} We decided on a large number of
33 participants because of the sensitive nature of the topic, the desire to compare data by sex and
34 national origin, and to ensure that we reach saturation and generate a wide range of ideas for
35 discussion.
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40 *Data collection procedures and iterative analytical process*

41 Data collection will take place from September to November 2018. Youth will be asked to
42 participate in 3 separate group sessions, each lasting 1.5 hours. The first group session will be
43 scheduled at the time of recruitment. All 3 sessions will take place within a 3-week period. Each
44 group session will include up to 18 individuals of the same sex and national origin. Group
45 facilitators will be of the same sex as participants and will be from the same communities to
46 ensure the participants feel comfortable sharing information.
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51 Different activities will occur in each of the three data collection sessions. The importance of
52 confidentiality and respect will be emphasized at the beginning of each session. At the beginning
53 of the first session, the facilitator will brainstorm ground rules with the participants. Ground rules
54 will be written on a large flip-chart at the front of the room, and it will be reviewed at the start
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3 of all subsequent data collection sessions. Then, participants will be asked to complete a short
4 demographic survey before starting activities. The demographic survey will be multiple choice
5 and collect information on age, city of residence, nationality, educational status of the participant
6 and his/her parents, marital status, age of marriage, perceived wealth, where the individual
7 receives reproductive health information, and their previous experience with reproductive
8 health service provision.
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13 Participants will then be guided through a brainstorming session, in which participants first work
14 in pairs before rejoining the large group discussion. As a warm-up activity to initiate conversation,
15 the facilitator will ask the group what is meant by the phrase sexual and reproductive health.
16 After individuals have volunteered some ideas, the facilitator will provide the following
17 definition: *“Good sexual and reproductive health is a state of complete physical, mental and social*
18 *well-being in all matters relating to the reproductive system. It implies that people are able to*
19 *have a satisfying and safe sex life, the capability to reproduce, and the freedom to decide if, when,*
20 *and how often to do so.”⁴⁸ The facilitator will write this definition on a flip chart so that*
21 *participants can refer to it during the discussion, as needed.*
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28 Next, the facilitator will ask participants to work in pairs to discuss anything that comes to mind
29 related to the *“different sexual and reproductive health concerns, challenges, needs or fears, that*
30 *[the participants] or other people in [their] community [their] age may have,”* with a goal of
31 developing a list of all of the concerns related to sexual and reproductive health that affect youth
32 in the study communities. Participants will be asked to write everything discussed on a sheet of
33 paper. After 10 minutes, the facilitator will open a large group discussion. Participants will be
34 given the opportunity to share the factors they brainstormed, and encouraged to add more
35 factors as the group conversation continues. Facilitators will take notes on a large flip chart at
36 the front of the room. Before the close of the session, facilitators will pass out paper and ask
37 participants to privately write down any other issues that they would like to contribute but were
38 too embarrassed or nervous to share with the group to be placed in a box at the front of the
39 room. After the end of the first session, the focus group facilitators will collect the notecards,
40 paper, and the flip charts and return them to the study team’s principal researchers.
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48 The first analytical step in the process occurs between the first and the second sessions. After
49 the first session, study staff will consolidate the brainstormed factors from all groups, keeping
50 the factors separated by sex. Study staff will remove duplicates and consolidate brainstormed
51 items into a master list of all the ideas generated in all groups.
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55 During the second group session, participants will be divided into pairs and given a stack of
56 notecards. On each notecard, an item from a consolidated list of topics will be printed. Each pair
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3 will be given a complete set of cards including all items from the master list. Participants will be
4 instructed to organize the items into piles that are meaningful to them. There are no rules for
5 how to sort the items except 1) no item can be placed in a pile by itself, and 2) all of the items
6 cannot be placed into the same pile. Once the piles are created, participants will be asked to
7 generate a name for each pile that represents the items that it contains. After this task is
8 complete, participants will be asked to fill out a paper survey that contains a list of each of the
9 items that they used in the sorting activity. Participants will be asked to rate each item on a scale
10 of 1 to 5, both in terms of importance to their SRH and how sensitive the item is in their
11 communities.
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17 The data obtained from the pile sorting exercise will be analyzed using hierarchical cluster
18 analysis.^{42,45} First, participant responses will be encoded into binary similarity matrices which will
19 be added together to create a combined matrix of all participants' data. Second, a Euclidian
20 distance matrix will be calculated from the combined matrix. Multidimensional scaling (MDS) will
21 be used to determine the degree of similarity between items and to organize them into a spatial
22 configuration.⁴⁹ Scree plots and Shepard plots will determine the number of spatial dimensions
23 to best represent the data.⁵⁰ Based on this analysis, individual items will be grouped into clusters
24 that represent high-level concepts on a visual map. The distance between any two points or
25 clusters will represent their degree of similarity or difference, indicated by their closeness (or
26 distance from) each other. The preliminary names given to cluster will be initially selected based
27 on participant data. Separate maps will be generated for boys and girls. Additionally, basic
28 descriptive statistics will be calculated using the ranking data, and disaggregated by sex and
29 nationality.
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37 In the third and final session, participants will be asked to interpret the results and discuss
38 differences between key demographic groups (males/females and Syrians/Jordanians). The
39 results from the previous analytical step be presented on a visual map that shows aggregated
40 relationships between ideas in which the list of concepts is organized into related higher-level
41 clusters. Participants will be asked to discuss their reactions to the map, whether they agree with
42 the cluster groupings and preliminary names, and their insights into the spatial organization of
43 the map. Additionally, the facilitator will present the ranking data in terms of sensitivity and
44 importance. Participants will be asked to identify and discuss differences between groups and
45 why those differences exist.
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51 After the last session, the visual maps will be finalized based on confirmation during the group
52 discussion. For example, participants may recommend changes to the names of clusters based
53 on the content of items they contain. The transcripts from the final group discussion will be
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3 thematically coded and used to add depth to the interpretation of the cluster maps. Participant
4 quotations will be used to support the results of the cluster maps.
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7 Only the first and third group sessions will be audio recorded. Only the third session will be
8 transcribed. Notes will be taken by the interviewers during the discussions in order to augment
9 the digitally recorded data.
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13 Group facilitators will undergo extensive training in order to become comfortable with the
14 research approach and to ensure adherence to study procedures. An initial two-day training will
15 be provided to group facilitators that includes both didactic and participatory elements.
16 Throughout the training, group facilitators will participate in the concept mapping activities as
17 though they are participants so that they may better internalize study activities and observe the
18 facilitator's role. At the end of the second day of the initial training, facilitators will pre-test the
19 study materials with one group each of males and females in the target age range from one of
20 the study communities prior to initiating data collection activities. This will provide an
21 opportunity for the facilitators to practice study procedures. Additionally, it will provide an
22 opportunity to revise any instruments, if needed. Finally, before the last data collection session,
23 facilitators will again undergo an additional one-day training that will help familiarize themselves
24 with the study results, so that they may be better equipped to support interpretation of the data.
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31 *Patient and Public Involvement*

32 Prior to developing the research questions and study approach, we first engaged in a
33 participatory process that included consultations with local policymakers (including locally-
34 elected government officials and representatives from relevant government ministries),
35 stakeholders (including representatives from donor organizations, non-governmental
36 organizations, and health service-delivery organizations active in Jordan), and members of the
37 study population (Jordanian and Syrian youth aged 15 to 19 years). In addition to individual
38 meetings, we held a consultation workshop in which participants from the groups identified
39 above discussed our research objectives, questions, and our proposed methodological approach.
40 This consultation provided important insight as to how to guide our research so as to be most
41 relevant to the local context and needs, and how to most effectively approach communities to
42 ensure local buy-in given the sensitive nature of the study topic. Additionally, participants
43 identified potential ethical concerns with participants and how to mitigate those issues. As part
44 of this process, we also discussed preferences related to research utilization and dissemination
45 of our findings to ensure that our findings are presented to community stakeholders and
46 participants in ways that would facilitate integration of our results into policy and programs.
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Following the recommendations from the consultative process, we established a steering committee that consists of opinion leaders, academics, and policymakers in the fields of reproductive health, education, and youth in Jordan. Additionally, we established a second steering committee that includes Jordanian and Syrian youth within the study's target age range (aged 15 to 19 years). The role of the steering committee is to provide ongoing review of study objectives, procedures, and methodologies in order to ensure the research is contextually relevant and to provide guidance on any ethical concerns related to the research. A secondary objective of this steering committee is to cultivate ownership of the study procedures of results, and to develop strategies for effective dissemination of research results.

One of our priorities is to ensure that the results of our study are disseminated to study participants and their communities. One of the ways in which we will ensure that participants interact with the study's results is inherent to the research methodology itself. The iterative, participatory process that is central to concept mapping as a methodology enables study participants to actively engage with and react to their own data throughout the data collection process while also supporting efforts in data analysis. We also plan to also hold targeted events in order to ensure that the research results are disseminated more broadly within the study communities. We plan to host roundtable discussions that include members of the four study communities, and we will also engage members of a popular, local youth-led radio station to develop create ways to disseminate key messages from our study to a broad audience.

Research Ethics

This study has been approved by the Institutional Review Boards at the Harvard T.H. Chan School of Public Health and the University of Jordan. As the study involves both minors (under the age of 18) and those above the age of majority in Jordan (18 years and older), separate consent processes will occur for each age group. At the time of recruitment, minors will be given a parental permission sheet. Parents will be required to return to the sheet to study staff at the local community development center in-person, otherwise, their child will not be allowed to participate. Minors will undergo an informed assent process using simplified language on the day of the first data collection session, prior to its start. Participants 18 years of age and above will undergo informed consent at the time of recruitment.

To protect the confidentiality of the participants in the study, we will not collect direct, personal identifiers at any point in the study process. Upon enrollment, individuals will select an anonymous identifier by which to refer to themselves, and will refer to that codename in each of the focus group discussions so that we can track enrollment. There will be no documents that link the codename and any personally identifiable information. Facilitators will be instructed not

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3 to collect any personally identifiable information in any of their data collection materials. Audio
4 recordings and other study materials will be destroyed once the data collection activities are
5 complete.
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9 Refugees included in this study will be recruited from those living outside of refugee camps. Some
10 of the refugees recruited may be officially registered as such, and some may not. Because a
11 refugee's registration status is somewhat sensitive in that it relates to access to government
12 benefits and services, we will not ask about whether or not the refugee is registered as part of
13 the recruitment process; however, we will provide information to refugees about the registration
14 process should they be interested in learning more about registration. Refugees constitute a large
15 percentage of the population in all the study communities. Given their large number, as well as
16 the fact that many governmental and non-governmental organizations in the study communities
17 work with refugees, their participation in this study is not expected to cause any additional risk.
18 Furthermore, having equal number of Jordanian nationals and refugees included across all
19 phases of data collection ensures no discriminant conduct.
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26 Data collection activities will occur in a community development center that is run by a local non-
27 governmental organization active in community development. Each community development
28 center has private space so that confidentiality can be maintained. Considering it is common for
29 youth and parents to regularly participate in events at these community development centers,
30 anonymity will be maintained among study participants, as their presence at the sites will not
31 raise any undue attention within their communities. All participants will be given information
32 regarding where they can obtain health or other social support services, and facilitators will be
33 available after each session so that participants can speak with them privately about any
34 concerns.
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40 **Discussion and Dissemination**

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42 This study will provide important insight for future research, policy and programs intending to
43 better serve youth in Jordan and across the Middle East. There is very limited data on the
44 concerns that the youth in this region have in relation to their sexual and reproductive health. As
45 this research methodology will provide a conceptual framework for how youth themselves
46 envision and prioritize their concerns, the results will provide important information so that
47 programs may better meet the constellation of their needs. As many of the SRH issues in this
48 domain are interrelated and interact with each other,⁵¹ concept mapping is an ideal methodology
49 to engage youth on this topic.
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3 In order to ensure that study results are made available for integration into policy and programs,
4 we will disseminate the results of this study in several ways. Aggregate results and final
5 publications will be disseminated to the community and local institutions where the research is
6 conducted, as previously discussed. Any publications/reports that are prepared using this data
7 will also be shared with local government bodies and other stakeholders in Jordan. Finally, it is
8 anticipated that this data will be used to develop peer-reviewed manuscripts to publish in
9 academic journals.
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13 **Authors Contributions**

14 All authors were involved in conceptualization of the study design and development of study
15 methods, instruments, and protocol. JG wrote the first draft. AO, ID, IH, MD, and AL provided
16 critical input and revisions. All authors approved of the final draft.
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27 **Competing interests statement**

28 The authors report no competing interests
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